

**UNDER UPDATE**

**Research & Innovation Area**

# **Chemical Research Handbook**



**2023**

## **Federchimica**

The National Federation of Chemical Industry represents more than 1,450 companies, with a total of more than 94,000 employees, grouped into 17 industry associations, divided into 38 Product Groups.

Federchimica is part of Confindustria and, in Europe, of CEFIC (European Chemical Industry Council and ECEG (European Chemical Employers Group).

### **The Research, Development and Innovation Committee (Co.R.S.I.)**

The Co.R.S.I. is the institutional Body of Federchimica that deals with R&D-related issues in chemical companies. The Committee addresses all research and development issues in its work that are of interest to associated companies. Currently, the Research, Development and Innovation Committee also deals with specific issues through 3 Working Groups:

1- Open Innovation and Sustainability and Technology Transfer
2- Nanomaterials and Safety
3- European and National Funds

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## The list of companies

Name	Place	Prov.	Dimension
A&A FRATELLI PARODI S.p.A.	Corso Europa 24 - 20001 Inveruno (MI)	MILAN	LARGE
AGC Biologics S.p.A.	Via Meucci 3 - 20091 Bresso (MI)	MILAN	LARGE
AGROSISTEMI S.r.l.	Via del Capitolo 54 - 29122 Piacenza (PC)	PIACENZA	LARGE
AIR LIQUIDE ITALIA S.p.A.	Via Bisceglie 68/70 - 20147 Milano (MI)	MILAN	LARGE
ALLEGRI S.p.A.	Vicolo Salvo D'Acquisto n. 2 - 24050 Grassobbio (BG)	BERGAMO	MEDIUM
ALLNEX ITALY S.r.l.	Via M. Bianchin 62 - 36060 Romano d'Ezzelino (VI)	VICENZA	LARGE
ALTAIR CHIMICA S.p.A.	Via Moie Vecchie 13 - 56048 Saline di Volterra (PI)	PISA	LARGE
ARCHIMEDE R&D S.r.l.	Via Bentivogli 74/5 - 40138 Bologna (BO)	BOLOGNA	MICRO
AXXAM S.p.A.	Via Meucci 3 - 20091 Bresso (MI)	MILAN	MEDIUM
BASELL POLIOLEFINE ITALIA S.r.l.	Via Pontaccio 10 - 20121 Milano (MI)	MILAN	LARGE
BASF ITALIA S.p.A.	Via Marconato 8 - 20811 Cesano Maderno (MB)	MONZA-BRIANZA	LARGE
BECKERS INDUSTRIAL COATINGS ITALIA S.p.A. (Beckers Group)	Via della Guastalla 15 - 20122 Milano	MILAN	MEDIUM
BIOSPHERE S.r.l.	Viale Giosuè Carducci 85 - 47522 Cesena (FC)	FORLÌ-CESENA	SMALL
BOLTON Home Care	Via G.B. Pirelli 19 - 20124 Milano (MI)	MILAN	LARGE
BOLTON Personal Care	Via G.B. Pirelli 19 - 20124 Milano (MI)	FLORENCE	LARGE
BOREALIS ITALIA S.p.A.	Via Ercolano 8/10 - 20900 Monza (MB)	MONZA-BRIANZA	LARGE
BRACCO IMAGING S.p.A.	Via Folli 50 - 20134 Milano (MI)	MILAN	LARGE
CAP ARREGHINI S.p.A.	Viale Pordenone 80 - 30026 Portogruaro (VE)	VENICE	MEDIUM
CFS Europe S.p.A.	Via Agostino Depretis, 6 - 48123 Ravenna (RA)	RAVENNA	LARGE
CLARIANT PRODOTTI ITALIA S.p.A.	Via Fauser 36/B - 28100 Novara (NO)	NOVARA	MEDIUM
COLOROBRIA ITALIA S.P.A.	Via Pietramarina 53 - 50059 Sovigliana Vinci (FI)	FLORENCE	LARGE
Cosmosol S.r.l.	Piazza San Fedele 4 - 20121 Milano (MI)	MILAN	MEDIUM
CRODA INT. PLC - CRODA ITALIANA S.p.A.	Via Pietro Grocco 915 - 27036 Mortara (PV)	PAVIA	LARGE
DIASEN S.r.l.	Zona Industriale Berbentina 5 - 60041 Sassoferrato (AN)	ANCONA	SMALL
DOVER INDUSTRIES ITALY S.r.l.	Via Bancora e Rimoldi - 22070 Guanzate (CO)	COMO	MEDIUM
DOW ITALIA S.r.l.	Via Francesco Albani 65 - 20148 Milano (MI)	MILAN	MEDIUM
DUMAX S.r.l.	Via Roma 71 - 26010 Ripalta Cremasca (CR)	CREMONA	SMALL
Durante Adesivi S.p.A.	Via G. Garibaldi 23 - 33080 Prata di Pordenone (PN)	PORDENONE	MEDIUM
ÈCOSÌ S.r.l.	Via G. Giorgi 12 - 47122 Forlì (FC)	FORLÌ-CESENA	MEDIUM
ENDURA S.p.A.	Via del Faggiolo 1/11-F - 40132 Bologna (BO)	BOLOGNA	LARGE
F.O.M.E.T. S.p.A.	Via Vialarga 25 - 37050 San Pietro di Morubio (VR)	VERONA	MEDIUM
FLINT GROUP ITALIA S.p.A.	Via Margherita De Vizzi 51 - 20092 Cinisello Balsamo (MI)	MILAN	LARGE
FRATELLI ZUCCHINI S.P.A.	Via C. Colombo 6 - 44124 Ferrara (FE)	FERRARA	MEDIUM

GALA S.r.l. SB	Via A. Cicognani, 11/N - 47121 Forlì (FC)	FORLÌ-CESENA	SMALL
GRAFTONICA S.r.l.	Via Martiri Triestini 7 - 20148 Milano (MI)	MILAN	MICRO
GREEN HAS ITALIA S.p.A. (Greenhas Group)	Corso Alba 85/89 - 12043 Canale (CN)	CUNEO	MEDIUM
HALLSTAR ITALIA S.r.l.	Corso Magenta 82 - 20123 Milano	MONZA-BRIANZA	LARGE
IMA S.r.l.	Via Segré 23 - 27036 Mortara (PV)	PAVIA	SMALL
INDENA S.p.A.	Viale Ortles 12 - 20139 Milano (MI)	MILAN	LARGE
INDUSTRIE CHIMICHE FORESTALI S.p.A.	Via Kennedy 75 - 20010 Marcallo con Casone (MI)	MILAN	LARGE
INNOVHUB - STAZIONI SPERIMENTALI PER L'INDUSTRIA S.r.l.	Via Meravigli 9/b - 20123 Milano (MI)	MILAN	MEDIUM
INTERCOS S.p.A.	P.zza Armando Diaz 1 - 20100 Milano	MONZA-BRIANZA	LARGE
ISAGRO S.p.A.	Via Caldera 21 - 20153 Milano (MI)	MILAN	LARGE
ISTITUTO GANASSINI S.p.A. DI RICERCHE BIOCHIMICHE (Società Benefit)	Via P. Gaggia 16 - 20139 Milano (MI)	MILAN	LARGE
ITALMATCH CHEMICALS S.p.A.	via E. Vismara 114 - 20044 Arese (MI)	MILAN	LARGE
ITELYUM REGENERATION S.p.A.	Via Tavernelle 19 - 26854 Pieve Fissiraga (LO)	LODI	LARGE
ITERCHIMICA S.p.A.	Via G. Marconi 21 - 24040 Suisio (BG)	BERGAMO	MEDIUM
KIALAB S.r.l.	Via Lepetit 34 - 21040 Gerenzano (VA)	VARESE	MICRO
L'OREAL ITALIA S.p.A. (L'Oréal Group)	Piazza Fernanda Pivano 1 - 20143 Milano (MI)	MILAN	LARGE
LAMBERTI S.p.A.	Via Marsala 38/D - 21013 Gallarate (VA)	VARESE	LARGE
LANXESS SOLUTIONS ITALY S.r.l.	Via San Bovio 1/3 - 20054 Segrate (MI)	MILAN	LARGE
LOXEAL S.r.l.	Via Marconato 2 - 20031 Cesano Maderno (MB)	MONZA-BRIANZA	MEDIUM
Maflon S.p.A.	Via Soave 7 - 20135 Milano	MILAN	LARGE
MAPEI S.p.A.	Via Cafiero 22 - 20158 Milano (MI)	MILAN	LARGE
MATRICA S.p.A.	Zona Industriale La Marinella - 07046 Porto Torres (SS)	SASSARI	LARGE
MAYER BRAUN S.r.l.	Via Brigata Marche, 129 - 31030 Carbonera (TV)	TREVISO	SMALL
METLAC GROUP	S.S. 35 Bis dei Giovi 53 - 15062 Bosco Marengo (AL)	ALESSANDRIA	LARGE
NIPPON GASES ITALIA Group	Via B. Crespi 19 - 20159 Milano (MI)	MILAN	LARGE
NOVAMONT S.p.A.	Via Fauser 8 - 28100 Novara (NO)	NOVARA	LARGE
NUOVA SOLMINE S.p.A.	Località Casone - 58020 Scarlino (GR)	GROSSETO	LARGE
OMNISYST S.p.A.	C.so Vittorio Emanuele II 1 - 20122 Milano	MILAN	SMALL
POLITEX S.a.s. di FREUDENBERG POLITEX S.r.l.	Strada Provinciale Novedratese 17/A - 22060 Novedrate (CO)	COMO	LARGE
PPG INDUSTRIES ITALIA S.r.l. (PPG Italia Group)	Via Serra 1 - 15028 Quattordio (AL)	ALESSANDRIA	LARGE
PROCTER & GAMBLE S.r.l.	Viale Giorgio Ribotta 11 - 00144 Roma (RM)	ROME	LARGE
RADICIGROUP	Via Ugo Foscolo 152 - 24024 Gandino (BG)	BERGAMO	LARGE
REYNALDI S.r.l.	Via Torino 21/1 - 10044 Pianezza (TO)	TURIN	SMALL
ROELMI HPC S.r.l.	Via Celeste Milani 24/26 - 21040 Origgio (VA)	VARESE	LARGE
ROQUETTE ITALIA S.p.A.	Via Serravalle 26 - 15063 Cassano Spinola (AL)	ALESSANDRIA	LARGE

SASOL ITALY S.p.A.	Viale Enrico Forlanini 23 - 20134 Milano (MI)	MILAN	LARGE
SCAM S.p.A.	Strada Bellaria 164 - 41126 Modena (MO)	MODENA	LARGE
SELERANT S.r.l. (Trace One Group)	Via Leonardo da Vinci 19 - 20060 Cassina de' Pecchi (MI)	MILAN	MEDIUM
SERICHIM S.r.l.	Piazzale Marinotti 1 - 33050 Torviscosa (UD)	UDINE	SMALL
SIPCAM OXON S.p.A.	Via Sempione 195 - 20016 Pero (MI)	MILAN	LARGE
SIVAM Coatings S.p.A.	Via Monvisio 10 - 20010 Bareggio (MI)	MILAN	MEDIUM
SOCIETA' ITALIANA ACETILENE E DERIVATI S.I.A.D. S.p.A.	Via San Bernardino 92 - 24126 Bergamo (BG)	BERGAMO	LARGE
SOL S.p.A.	Via Gerolamo Borgazzi 27 - 20900 Monza (MB)	MONZA-BRIANZA	LARGE
SOL.BAT S.r.l.	Località Casone - 58020 Scarlino (GR)	GROSSETO	LARGE
SYENSO SPECIALTY POLYMERS ITALY S.p.A.	Viale Lombardia 20 - 20021 Bollate (MI)	MILAN	LARGE
TAKIS S.r.l.	Via Castel Romano 100 - 00128 Roma (RM)	ROME	SMALL
TEMIX OLEO S.r.l.	Via Piero Portaluppi 17 - 20138 Milano (MI)	MILAN	LARGE
Timac Agro Italia S.p.A.	S.P. 13 Località Ca' Nova - 26010 Ripalta Arpina (CR)	CREMONA	LARGE
TORGLER S.r.l.	Via Prati Nuovi 9 - 39020 Marlengo (BZ)	BOLZANO	MEDIUM
VALAGRO S.p.A.	Via Cagliari 1 - 66041 Atessa (CH)	CHIETI	LARGE
VARIATI S.p.A.	Via Monte Rosa 49/51 - 20863 Concorezzo (MB)	MONZA-BRIANZA	MEDIUM
VERSALIS S.p.A.	Piazza Boldrini 1 - 20097 San Donato Milanese (MI)	MILAN	LARGE
VEVY EUROPE S.p.A.	Via Semeria 16A - 16131 Genova (GE)	GENOVA	SMALL
VINAVIL S.p.A.	Viale Jenner 4 - 20159 Milano (MI)	MILAN	LARGE
ZAPI S.p.A.	Via Terza Strada 12 - 35026 Conselve (PD)	PADOVA	LARGE
ZSCHIMMER & SCHWARZ ITALIANA S.p.A.	Via A. Ariotto 1/C - 13083 Tricerro (VC)	VERCELLI	LARGE

## How to read the data in the "Chemical Research Handbook" – Part 1

The data required to companies for this document includes both general information and specific information about the business sectors and the company's research expenditures.

There is also a section dedicated to collaborations with public research bodies and an explanatory table on industrial research activities for sustainable chemistry. The research activities also include those carried out in the group's foreign offices and not only in the Italian headquarters.

Company logo

General company information and contacts

Participation to the "Responsible Care" and "SET" programs and the "SusChem Italy" platform of Federchimica

Map

Company's research activities:

- Innovative research: development of new products or processes
- Incremental research: improvement of existing products and processes
- Research for chemicals from renewable sources (including biomass), water savings, waste treatment, CO<sub>2</sub> emission reduction, biotechnology, digitalization and circular economy

Collaborations with public research institutions and national and foreign universities

## A&A FRATELLI PARODI S.p.A.

### GENERAL INFORMATION

Corso Europa 24 - 20001 Inveruno (MI)  
sito web: <http://www.fratelliparodi.it>

#### Operating offices:

*Campomorone (GE), Camporosso (IM)*

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 12

**Business sectors:** Auxiliaries for detergents and surfactants; Chemicals from biomasses; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Lubricants

### CONTACTS

Riccardo Pedriali  
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+39 010792151

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>CO2 reduction</b>	Carbon Footprint and LCA study on esters and vegetable oils used for industrial applications. VER Projects	 	   
<b>Circular economy</b>	Recovery chain of waste biolubricants to produce new sustainable biolubricants	 	   
<b>Biotechnology</b>	Cultivation of microalgae, enzymatic synthesis of fatty acids	 	   
<b>Bioeconomy</b>	Valorization of agricultural biomass waste for oleochemical applications	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- CE.SI.S.P. di Genova
- T.I.C.A.S.S. di Genova
- University of Bologna
- University of Genova

## AGC Biologics S.p.A.

### GENERAL INFORMATION

Via Meucci 3 - 20091 Bresso (MI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 10.00 %

**Number of researchers:** 30

**Business sectors:** Biotechnologies

### CONTACTS

Giuliana Vallanti

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+39 02212771

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Gene therapy

The company is active in cGMP services for third parties, as CDMO (Contract Development & Manufacturing Organization) with international partners who seek quality and experience to develop and produce advanced and innovative therapies



#### Viral vectors

The projects include the development, validation, production process control strategy and production for clinical and commercial use, according to current GMPs, of viral vectors (lentiviral, retroviral, adeno-associated) and genetically modified cells.



## AGROSISTEMI S.r.l.

### GENERAL INFORMATION

Via del Capitolo 54 - 29122 Piacenza (PC)

sito web: <http://www.agrosistemi.it>

#### Operating offices:

Ca' Morta di Mortizza (PC), Savio-Cervia (RA)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 2

**Business sectors:** Biotechnologies; Chemicals from biomasses; Environmental services; Fertilizers (organo-minerals, organic, soil improvers and growing media); Specialities fertilizers

### CONTACTS

Mattia Sbaffi

[mattia.sbaffi@agrosistemi.it](mailto:mattia.sbaffi@agrosistemi.it)

+39 3461432944

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Impianti pilota</b>	Design and implementation of pilot plants for testing and validating new processes and technologies under real production conditions, providing full support from initial design to operational startup	 	   
<b>Circular economy</b>	Treatment of waste sludge and/or biomass and extraction of nitrogen and phosphorus. Production of fertilizers from liquid and solid biomass	 	   
<b>Circular economy</b>	Carbon farming – application of biomass in mineralized and low-fertility soils to increase humus contents, the consequent capture of CO2 and its conservation through permanent reforestation of the soil thus treated	 	   
<b>Trasferimento tecnologico</b>	Support for the integration of innovative technologies into industrial settings, facilitating the transfer of research-based solutions to practical applications, aimed at optimizing production processes and fostering innovation	 	   
<b>Circular economy</b>	Extraction of nitrogen and phosphorus from digestates and/or zootechnical sewage, their sanitization and energy valorisation of the extracted nitrogen	 	   
<b>Circular economy</b>	Targeted and flexible formulation of fertilizers with titres higher than the legal minimums	 	   
<b>Circular economy</b>	Formulation of new fertilizers, soil improvers and correctives	 	   

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## Diagnostica

Development and application of advanced methodologies for the identification and characterization of industrial, environmental, archaeological, and gemological materials using non-destructive techniques and micro-sampling



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## COLLABORATIONS WITH PUBLIC RESEARCH

- University of Bologna (Department of Agricultural and Food Science)
  - University of Pavia (Department of Earth Science)
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## AIR LIQUIDE ITALIA S.p.A.

### GENERAL INFORMATION

Via Bisceglie 68/70 - 20147 Milano (MI)

sito web: <http://it.airliquide.com>

#### Operating offices:

Milano, Pavia, Torino, Verona, Padova, Udine, Modena, Ravenna, Macerata, Roma, Siracusa, Catania, Cagliari

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.30 %

**Number of researchers:** 3000

**Business sectors:** Chemicals from biomasses; Liquefied gas; Medical gases; Technical and special gases

### CONTACTS

[comunicazione.ali@airliquide.com](mailto:comunicazione.ali@airliquide.com)

Data on researchers and research expenditures refer to the entire Group.

#### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Combustion

Oxidation processes to provide high temperature heat to the production of syngas, as well as customer processes including glass, metals, cement and other chemical & refinery processes; flame characterization, burner design, emissions and transmission of heat to the process



#### Life science

Use of essential small molecules to develop technologies to improve the quality and safety of food and pharma products, and to support the transition to more sustainable solutions for the environment. Focus areas include water treatment, gas to liquid transfer, bioprocesses including biogas production, cryogenics, protective atmospheres, agriculture, and hydrometallurgy for extraction and recycling



#### Fine chemistry

Design, synthesis, stability and reactivity of fine chemicals; purification of electronic specialty materials; process development for semiconductor manufacturing



#### Analytical science

Sampling and analytical techniques, instruments for the analytical control our processes and product's quality; method validation protocols and metrology for the quantification of uncertainty in measurements; standards and regulations related to products quality



#### Computational science

Development of advanced algorithms used to support the different businesses lines: data sciences & artificial intelligence, physical modelling, optimisation, high performance computing and pre-integration with D&IT infrastructures. Focus areas includes design & operation of industrial systems, energy management, healthcare, customer relationship



#### Material science

R&D on materials (steels, polymers, composites, ceramics) and their functionalization (adsorbents, catalysts, membranes, MOFs,...); gas safety (dispersion, flammability, explosion,...); structural integrity of assets (NDT, corrosion, embrittlement, ...); material processing



## Process engineering

R&D of the processes, equipment, design, operation and improvement of production processes and proprietary technologies; integration of proprietary solutions into customers processes; core technologies addressing the Energy transition



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## COLLABORATIONS WITH PUBLIC RESEARCH

The Air Liquide Group has over 350 partnerships with academics, industrial partners and startups.

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## ALLEGRINI S.p.A.

### GENERAL INFORMATION

Vicolo Salvo D'Acquisto n. 2 – 24050 Grassobbio (BG)  
 sito web: <http://www.allegrini.com>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 9

**Business sectors:** Aerosol products; Cleaning and maintenance products - biocides; Cosmetics; Detergents and related products; Flavors and fragrances; Medical surgery: disinfectants; Soap

### CONTACTS

laboratorio@allegrini.com  
 +39 0354242111

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sustainability

Analysis of the range products to improve their sustainability. More and more focused on natural-origin surfactant made by renewable sources. Development of concentrated formulations that allows a reduced water, packaging material and energy consumption.



#### Formulations

Continue formulation research focused on developing professional detergents with good performances at low environmental impact. Among the main categories there are: home and hard surfaces cleaning, dishwasher detergents and rinse-aids, car care and cleaning products. Research in cosmetic products based on eco-friendly natural-origin raw materials.



#### Ecolabel

Ecolabel detergent product line. Ecolabel cosmetics product line



### COLLABORATIONS WITH PUBLIC RESEARCH

- I.S.I.S. "Giulio Natta" High School
- University of Milan
- University of Milano - Bicocca (Biotechnologies Department)

## ALLNEX ITALY S.r.l.

### GENERAL INFORMATION

Via M. Bianchin 62 – 36060 Romano d'Ezzelino (VI)  
sito web: <http://www.allnex.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.00 %

**Number of researchers:** 11

**Business sectors:** Intermediates and specialty chemicals; Resins and thermosetting systems

### CONTACTS

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[robertino.chinellato@allnex.com](mailto:robertino.chinellato@allnex.com)  
+39 0424516611

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

Development of resins for powder coating systems containing recycled materials. Utilization of PET from industrial production waste (post-industrial) and separate collection (post-consumer) by chemical recycling



#### Sustainability

Design and development of powder coating resins with raw materials obtained from bio-masses. Replacement of fossil-based raw materials with renewable alternatives



#### Recycling

Reintegration into the production process of a matter stream (glycol) destined for disposal. Optimization of reaction water treatment and consequent reduction in the amount of waste generated



#### Energy saving

Development of resins for powder coating systems by developing low-temperature (low-bake) crosslinking systems. Reduction of energy consumption in the crosslinking process of coatings, with the possibility of application on heat-sensitive substrates



#### Substitution

Development of resins with high outdoor resistance (hyperdurable) for replacement of fluoropolymer-based systems in architectural applications. Replacement of fluorinated-based liquid paint systems with reduced environmental impact



### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Padova (Faculty of Industrial Biotechnology and Chemical Engineering)

## ALTAIR CHIMICA S.p.A.

### GENERAL INFORMATION

Via Moie Vecchie 13 - 56048 Saline di Volterra (PI)  
 sito web: <http://www.altairchimica.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY  
**Research expenditure** (% of turnover): 20.00 %  
**Number of researchers:** 8  
**Business sectors:** Inorganic base chemicals

### CONTACTS

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 +39 3807808149

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Circular economy</b>	Implementation of innovative processes starting from short supply chain secondary raw materials for the production of inorganic coagulants		
<b>Bioeconomy</b>	Development of new biobased products. Research of new and innovative application		
<b>Circular economy</b>	Elementary analysis of process waste to evaluate possible uses as secondary raw materials		
<b>Purification</b>	Research to encrease the level of purity of inorganic products		
<b>Processes</b>	Research aimed at achieving new innovative process to produce organochlorines		

### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Pisa (Industrial and Civil Engineering Department)

## ARCHIMEDE R&D S.r.l.

### GENERAL INFORMATION

Via Bentivogli 74/5 - 40138 Bologna (BO)  
 sito web: <http://www.archimede-rd.it>

#### Operating offices:

San Cesario sul Panaro (MO)

### DETAILED INFORMATION

**Dimension:** MICRO COMPANY

**Research expenditure** (% of turnover): 11.00 %

**Number of researchers:** 3

**Business sectors:** Auxiliaries for detergents and surfactants; Biotechnologies; Cleaning and maintenance products - biocides; Detergents and related products

### CONTACTS

Lucio Panizza  
[assistenza@archimede-rd.it](mailto:assistenza@archimede-rd.it)  
 +39 0599775460

Silvia Totti  
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Elena Lombardi  
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 +39 0599775460

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Biotechnology</b>	Research and development of thermostable enzymes for industrial use	 	   
<b>Ecodesign</b>	Design of formulations and packaging with low environmental impact by reducing the doses of use and using raw materials from renewable sources, recycled or 100% recyclable packaging	 	   
<b>White biotechnology</b>	Use of enzymes for the formulation of commercial products with low environmental impact (such as cleaning and maintenance products, devices and systems for reducing limescale in water, etc...) and for the development of eco-sustainable processes	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - IBIMET, Bologna
- University of Bologna

## AXXAM S.p.A.

### GENERAL INFORMATION

Via Meucci 3 - 20091 Bresso (MI)  
 sito web: <https://axxam.com>

#### Operating offices:

Torre Annunziata (NA)

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 6.00 %

**Number of researchers:** 110

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Animal healthcare products; Biotechnologies; Cosmetics; Flavors and fragrances

### CONTACTS

Antonella Solia  
[antonella.solia.as@axxam.com](mailto:antonella.solia.as@axxam.com)  
 +39 3401417430

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Hit-to-Lead

Support in the hit-to-lead process for the development of lead compound suitable to be promoted to the following phases of drug development



#### Assay development

Cell-based and cell-free assay development in the early phases of drug discovery



#### Hit identification

High-throughput screening (HTS) campaigns for the identification of novel bioactive molecules that modulate targets of interest



### COLLABORATIONS WITH PUBLIC RESEARCH

Axxam has several research programs in collaboration with a growing network of scientific partners, including several charities and Italian and international research organizations.

Axxam is the proud recipient of a significant number of grants and awards from agencies at the local, national and international levels, including:

- AICos – Development of an in vitro assay platform for the identification of new pharmacological compounds for the treatment of rare neurodegenerative diseases, with a particular focus on ALS (Italian Ministry of Economic Development, MISE)
- LeMo - "Design, synthesis, and optimization of novel small molecule positive modulators of the NCX3 transporter for the treatment of neurodegenerative disorders" (NCX3) (Università degli studi di Napoli on behalf of MUR, Ministry of University and Research)



LyondellBasell



## BASELL POLIOLEFINE ITALIA S.r.l.

### GENERAL INFORMATION

Via Pontaccio 10 - 20121 Milano (MI)  
sito web: <http://www.lyondellbasell.com>

#### Operating offices:

Brindisi, Ferrara

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.00 %

**Number of researchers:** 400

**Business sectors:** Advanced materials; Compounds and auxiliaries for plastics, plasticizers and similar products; Intermediates and specialty chemicals; Resins and thermoplastic systems

### CONTACTS

Helena Huovinen  
[helena.huovinen@lyb.com](mailto:helena.huovinen@lyb.com)  
+31 611463323

The researchers are located in Italy, Germany and the USA.

### DATASHEET ICONS

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PROPRIETARY SEARCH

PROCESSES

THIRD PARTY RESEARCH

SERVICES

TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### CO2 reduction

Development of products for waterproofing roofs in favor of thermal insulation.  
Development of new plastic materials aiming for weight and thickness reduction.  
Development of thermoplastic materials characterized by better workability at low temperature with consequent energy savings



#### Innovation

Development of plastic materials for applications in which traditional materials are used (metal, wood, cement, paper and glass) to the advantage of lightness, transparency, versatility, energy consumption and recycling. Development of new generation low-density materials for the automotive sector to reduce emissions and fuel consumption.  
Development of new generation materials with controlled viscosity and high performance for the hot melts and adhesive sector



#### Innovation

Development of process technologies for polyolefins with lower environmental impact and energy requirements. Development of new catalysts with high yield and isotacticity.  
Development of new catalysts to reduce the environmental impact of toxicological classifications



#### Circular economy

Development of products for the production of easily recyclable products. Development of polymers derived from post-consumer plastics or sustainable raw materials.  
Research in the field of Chemical/Molecular Recycling to produce hydrocarbons from plastic waste that is difficult to mechanically recycle and could replace oil in producing virgin plastics suitable for food contact or use in the medical sector



## COLLABORATIONS WITH PUBLIC RESEARCH

- "Federico II" University of Naples
  - "La Sapienza" University of Rome
  - University of Calabria
  - University of Ferrara
  - University of Padua
  - University of Salerno
  - University of Turin
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## BASF ITALIA S.p.A.

### GENERAL INFORMATION

Via Marconato 8 - 20811 Cesano Maderno (MB)

sito web: <http://www.basf.it>

#### Operating offices:

Zingonia (BG), Fino Mornasco (CO), Roveredo in Piano (PN), Villanova d'Asti (AT), Giussano (MB), Pontecchio Marconi (MO), Roma, Lugo di Romagna (RA), Scandicci (FI), Sant'Agata Bolognese (BO)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.20 %

**Number of researchers:** 20

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Adhesives and sealants; Advanced materials; Animal healthcare products; Auxiliaries for detergents and surfactants; Biotechnologies; Cleaning and maintenance products - biocides; Compounds and auxiliaries for plastics, plasticizers and similar products; Crop protection products; Fertilizers (organo-minerals, organic, soil improvers and growing media); Flavors and fragrances; Food additives and processing aids; Ingredients for food supplements and functional food; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Inorganic base chemicals; Intermediates and specialty chemicals; Liquefied gas; Lubricants; Medical surgery: disinfectants; Organic base chemicals; Paints and varnishes; Products intended for use in animal feed; Resins and thermoplastic systems; Resins and thermosetting systems; Surfactants and raw materials for detergents; Technical and special gases

### CONTACTS

richieste\_italia@basf.com

+39 0362512280

### DATASHEET ICONS

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 TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Water saving

Improvement of process production performance



#### New products

New quality characteristics and product performances in their respective fields of application. Light-enhancing agents used in polymers and improvement of polyurethane characteristics for different applications. In the Agro sector, testing of products (fungicides, insecticides, and herbicides) and functional solutions aimed at developing lines of defense for Mediterranean crops



#### Processes

Increase efficiency through process dematerialization paperless solutions, smart devices, RPA, plant automation, vertical/horizontal integration and data modeling. Piloting/exploration of other 4.0 technologies (Blockchain, A.R., AGV, IoT)



### COLLABORATIONS WITH PUBLIC RESEARCH

BASF Group companies in Italy work with research bodies and universities on specific projects in a variety of sectors in accordance with needs that are identified on the basis of issues related to product research or to improving performance for the end user.



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## BECKERS INDUSTRIAL COATINGS ITALIA S.p.A. (Beckers Group)

### GENERAL INFORMATION

Via della Guastalla 15 - 20122 Milano  
sito web: <http://www.beckers-group.com>

#### Operating offices:

*Calepio di Settala (MI)*

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:**

**Business sectors:** Paints and varnishes

### CONTACTS

Valter Landi

+39 3407213301

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#### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Coil coating

The containment of the environmental impact in the entire life cycle of the product, from the creation, to the use up to its disposal. Research continues towards the containment of consumption, the improvement of the production cycle, the acquisition of new technologies that are increasingly effective and efficient. Creation and optimization of products in line with customer requests, trying to anticipate the needs of the market as well as the environment



## BIO SPHERE S.r.l.

### GENERAL INFORMATION

Viale Giosuè Carducci 85 - 47522 Cesena (FC)  
 sito web: <http://www.biospheresrl.com>

#### Operating offices:

Forlì (FC)

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:** 12

**Business sectors:** Biotechnologies

### CONTACTS

Marco Pistocchi  
[info@biospheresrl.com](mailto:info@biospheresrl.com)  
 +39 0543444597

Arianna Andreotti  
[info@biospheresrl.com](mailto:info@biospheresrl.com)  
 +39 0543444597

### DATASHEET ICONS



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PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Enzymes

Research, development and supply of enzymes for a wide range of applications: API manufacturing, cosmetics and personal care, diagnostics, plant and soil care, food and nutraceuticals, animal health and feed, household and industrial cleaning, fibers and polymers. Enzyme identification and optimization of bioconversion processes (Enzyscreen technology, DoE statistical approach). Enzyme engineering and evolution. Development of fermentation (Bioreactors: 5L, 100L 1000L) and purification processes (disk-stack centrifuge, high-pressure homogenizer, tangential flow and micro-filtration, tangential flow and ultra-filtration). Enzyme immobilization and solid and liquid formulation. Full scale industrial manufacturing of fermentation and biocatalytic bioprocess. Analytics and qualitative and quantitative characterization (high throughput biocatalysis assays, Ultra-High Performance Liquid Chromatography, UV-VIS Spectrophotometry, SDS-PAGE Protein quantification)



#### Fermentation processes

Research and development of fermentation processes for a wide range of applications: API manufacturing, cosmetics and personal care, diagnostics, plant and soil care, food and nutraceuticals, animal health and feed, household and industrial cleaning, fibers and polymers. Microbial strains screening for the selection of high productive strains (e.g. proteins, secondary metabolites) (Enzyscreen technology, DoE statistical approach). Identification of best microbial growth conditions. Development and optimization of best microbial fermentation conditions. Full scale industrial manufacturing of fermentation and biocatalytic bioprocess. Pilot plant 1000L. Analytics and qualitative and quantitative characterization (high throughput biocatalysis assays, Ultra-High Performance Liquid Chromatography, UV-VIS Spectrophotometry, SDS-PAGE Protein quantification, real-time fermentation gas analyser )



#### Circular economy

Research and development of bioprocesses for the valorisation of by-products. Identification and optimization of conversion process based on fermentation and biocatalysis processes. Development of the bioprocess from lab to industrial scale. Pilot plant 1000L testing



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**Purification**

Research and development of optimized downstream processes for the separation of the target product from the culture broth with high recovery yields. Development of downstream processes from lab to industrial scale (disk-stack centrifuge, high-pressure homogenizer, tangential flow and micro-filtration, tangential flow and ultra-filtration). Analytics and qualitative and quantitative characterization (Ultra-High Performance Liquid Chromatography, UV-VIS Spectrophotometry, SDS-PAGE Protein quantification)



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**COLLABORATIONS WITH PUBLIC RESEARCH**

- University of Turin (Department of Life Science and System biology)
  - University of Amsterdam (Van't Hoff Institute for Molecular Sciences HIMS)
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# BOLTON

## BOLTON Home Care

### GENERAL INFORMATION

Via G.B. Pirelli 19 - 20124 Milano (MI)  
sito web: <https://www.boltongroup.net/>

#### Operating offices:

Nova Milanese (MB)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:**

**Business sectors:** Detergents and related products

### CONTACTS

Ludovico Panzieri  
[lpanzieri@boltonmanitoba.it](mailto:lpanzieri@boltonmanitoba.it)  
+39 3386710801

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

In packaging and product design use of the principle of "doing more with less," which means being increasingly efficient in the circular and sustainable economic model by using fewer materials, including reducing the thickness and weight of packaging wherever possible. To reduce the environmental impact of packaging, working toward the goal of using an increasing % of recycled and/or biobased plastics within packaging, in view of ambitious Group-wide target of using 40% recycled plastic by 2025. Commitment in using zero virgin plastic from fossil sources by 2035



#### Waste reduction

Commitment to ensure 100% of industrial waste is recycled or recovered. In addition, by 2025, 100% of packaging will be reusable, refillable or designed to be recycled



#### Decarbonization

Commitment in maintaining 100 % renewable electricity purchased in plant's production facilities. In addition, by 2025 commitment in assessment of the Scope 3 reduction target in line with SBTi



#### Zero deforestation

By 2025 commitment to achieve positive forest management: 100% recycled or sustainably sourced paper in packaging



#### Circular economy

Development of more sustainable formulas for products and increase of the use of naturally sourced or renewable ingredients, with the goal of using 50 percent of ingredients from circular sources or from abundant minerals by 2030. In addition, by 2035 commitment in the achievement of 100% biodegradable ingredients in household care products



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**Water saving**

Commitment to contribute to the achievement of the target of the Bolton Group, toward a 20% reduction compared to 2017 levels by 2025. By 2028, planning to conduct a "water audit" at plant to define specific action plans



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**COLLABORATIONS WITH PUBLIC RESEARCH**

Collaborations with Public and Private research Institutes.

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# BOLTON

## BOLTON Personal Care

### GENERAL INFORMATION

Via G.B. Pirelli 19 - 20124 Milano (MI)  
sito web: <http://www.boltongroup.net>

#### Operating offices:

Calenzano (FI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:**

**Business sectors:** Cosmetics

### CONTACTS

Ludovico Panzieri  
[lpanzieri@boltonmanitoba.it](mailto:lpanzieri@boltonmanitoba.it)  
+39 3386710801

### DATASHEET ICONS



PRODUCTS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Waste reduction

Commitment to ensure 100% of industrial waste is recycled or recovered. In addition, by 2025, 100% of packaging will be reusable, refillable or designed to be recycled



#### Zero deforestation

By 2025 commitment to achieve positive forest management: 100% recycled or sustainably sourced paper in packaging



#### Water saving

Commitment to contribute to the achievement of the target of the Bolton Group, toward a 20% reduction compared to 2017 levels by 2025. By 2027, planning to conduct a "water audit" at plant to define specific action plans



#### Decarbonization

Commitment in maintaining 100% renewable electricity purchased in plant's production facilities. In addition, by 2025 commitment in assessment of the Scope 3 reduction target in line with SBTi



#### Circular economy

In packaging and product design use of the principle of "doing more with less," which means being increasingly efficient in the circular and sustainable economic model by using fewer materials, including reducing the thickness and weight of packaging wherever possible. To reduce the environmental impact of packaging, working toward the goal of using an increasing % of recycled and/or biobased plastics within packaging, in view of ambitious Group-wide target of using 40% recycled plastic by 2025. Commitment in using zero virgin plastic from fossil sources by 2035. Finally, aim to employ 100% recycled or ASI-certified aluminum by 2035



## Circular economy

Development of more sustainable formulas for products and increase of the use of naturally sourced or renewable ingredients, with the goal of using 50 percent of ingredients from circular sources or from abundant minerals by 2030. In addition, by 2035 commitment in the achievement of 100% biodegradable ingredients in personal care products



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## COLLABORATIONS WITH PUBLIC RESEARCH

Bolton Personal Care collaborates with public and private research institutes.

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## BOREALIS ITALIA S.p.A.

### GENERAL INFORMATION

Via Ercolano 8/10 - 20900 Monza (MB)  
 sito web: <http://www.borealisgroup.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.10%

**Number of researchers:** 550

**Business sectors:** Compounds and auxiliaries for plastics, plasticizers and similar products

### CONTACTS

Federico Reginato  
[federico.reginato@borealisgroup.com](mailto:federico.reginato@borealisgroup.com)  
 +39 03920421

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



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THIRD PARTY RESEARCH



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Renewable sources

Bornewables™, portfolio of circular polyolefin products. Manufactured with renewable feedstocks, these premium polyolefins offer the same material performance as virgin polyolefins, yet decoupled from fossil-based feedstock. The innovative Bornewables products may be used in a wide range of applications in various industries, and are even suitable for food-contact packaging and healthcare applications



#### Sustainability

New products and applications with enhanced sustainability are being developed in collaboration with value chain partners. Two new grades of Quentys™ polyolefins have been introduced that form the basis of two types of solar encapsulating film. Quentys™ grades make PV modules more sustainable because they offer better and longer operational reliability at a lower cost



#### Riciclo meccanico

Borcycle™ M, the solution for high quality with a lower carbon footprint. An ever-advancing transformational technology for mechanical recycling that gives polyolefin-based, post-consumer waste another life; a solution for lowering carbon footprints whilst raising material quality fit for demanding applications



#### GHG reduction

Continuous reducing the carbon footprint through increased energy efficiency and developing innovative solutions that save energy along the value chain. These solutions range from lightweight plastics to substances used for renewable energy solutions



#### Eletrificazione

Development of high-performance flame retardant materials for the automotive and appliances sectors



### COLLABORATIONS WITH PUBLIC RESEARCH

Borealis has ongoing research and development collaborations with leading universities, and regularly participates in symposia, working groups and advisory committees, and supports research studies.



## BRACCO IMAGING S.p.A.

### GENERAL INFORMATION

Via Folli 50 - 20134 Milano (MI)  
 sito web: <http://www.bracco.com>

#### Operating offices:

*Colleretto Giacosa*  
 Colleretto Giacosa

*Ceriano Laghetto*  
 Ceriano Laghetto

*Torviscosa*  
 Torviscosa

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 9.00 %

**Number of researchers:** 100

**Business sectors:** Active and intermediate principles for the pharmaceutical industry

### CONTACTS

Luciano Lattuada  
[luciano.lattuada@bracco.com](mailto:luciano.lattuada@bracco.com)  
 +39 0221772654

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sustainability

New contrast agents containing metals more sustainable than gadolinium. New contrast agents for optical imaging



#### Circular economy

Recovery and recycle of strategic raw materials



#### Process intensification

Intensification and optimization of industrial processes



#### Circular economy

Synthesis of raw materials or solvents from renewable sources



## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR-ITM University of Calabria
  - IIT, Genova
  - Politecnico of Milano University
  - University of Piemonte Orientale
  - University of Milano
  - University of Milano Bicocca
  - University of Perugia
  - University of Turin
  - University of Trieste
  - University of Udine
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# ARREGHINI®

ITALIAN PAINTS SINCE 1950

## CAP ARREGHINI S.p.A.

### GENERAL INFORMATION

Viale Pordenone 80 - 30026 Portogruaro (VE)  
sito web: <http://www.caparreghini.it>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover): 1.00 %  
**Number of researchers:** 3  
**Business sectors:** Paints and varnishes

### CONTACTS

Elisabetta Centis  
[elisabettacentis@caparreghini.it](mailto:elisabettacentis@caparreghini.it)  
+39 0421278107

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sustainability

Adoption of the Life Cycle Assessment (LCA) model for evaluating the environmental impact of the product. EPD (Environmental Product Declaration) obtained for 21 products across different sectors. Research and selection of raw materials derived from renewable sources and/or supported by environmental declarations or impact assessment studies. Research on plastic packaging containing recycled material. Development of products specifically designed for building renovation, upgrading, and energy efficiency improvements



## CFS Europe S.p.A.

### GENERAL INFORMATION

Via Agostino Depretis, 6 – 48123 Ravenna (RA)  
 sito web: <http://www.cfseuropespa.com>

#### Operating offices:

Ravenna  
 Ravenna

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.50 %

**Number of researchers:** 3

**Business sectors:** Food additives and processing aids; Intermediates and specialty chemicals; Products intended for use in animal feed

### CONTACTS

Sauro Passeri  
 sauro.passeri@camlinfs.com  
 +39 0544261569

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>New products</b>	Study, production and marketing of new chemical products or high purity chemical products		   
<b>Natural antimicrobics</b>	Study and production of natural antimicrobics for food/feed market		   
<b>Industry 4.0</b>	Industry 4.0 project for smart management of the industrial processes		   
<b>Natural antioxidant</b>	Study and production of natural oxidant for food/feed market		   
<b>Circular economy</b>	Study and construction of a plant for the recovery of industrial waste and the production of energy		   

### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Bologna - Department of Food Science and Technology (DISTAL)
- Università di Firenze - Department of Agricultural, Food, Environmental and Forestry Sciences (DAGRI)
- CNR – ISSMC Istituto di Scienza, Tecnologia e Sostenibilità per lo Sviluppo dei Materiali Ceramici

## CLARIANT PRODOTTI ITALIA S.p.A.

### GENERAL INFORMATION

Via Fauser 36/B - 28100 Novara (NO)  
 sito web: <http://www.clariant.com>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover): 1.50 %  
**Number of researchers:** 8  
**Business sectors:** Intermediates and specialty chemicals

### CONTACTS

Nicola Ballarini  
[nicola.ballarini@clariant.com](mailto:nicola.ballarini@clariant.com)  
 +39 0321676600

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Terephthalic acid</b>	Development and production of catalysts for terephthalic acid purification		
<b>Methanol oxidation</b>	Development and production of catalysts for methanol selective oxidation		
<b>PVC</b>	Development and production of catalysts for oxichloruration of ethylene		

### COLLABORATIONS WITH PUBLIC RESEARCH

- "Ca Foscari" University of Venice
- University of Genova

## COLOROBIA ITALIA S.P.A.

### GENERAL INFORMATION

Via Pietramarina 53 - 50059 Sovigliana Vinci (FI)  
sito web: <http://www.colorobbiaitalia.com>

#### Operating offices:

Modena

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.50 %

**Number of researchers:** 14

**Business sectors:** Ceramic glaze, inorganic pigments, metal oxides

### CONTACTS

Andrea Barzanti  
[barzantia@colorobbia.it](mailto:barzantia@colorobbia.it)  
+39 0571709724

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Digitalization

Research on the feasibility of digitizing production plants to interconnect them to the corporate network suitable for a improve production-logistics information flow, maintenance machinery monitoring, monitoring environmental emissions



#### Processes

Optimization of production processes to improve yields, reduce industrial costs and environmental impact. Studies of new industrial plants to improve efficiency



#### Substitution

Development of new formulations to meet new market needs. Optimization of the formulations of the products to improve their characteristics. Research on raw materials for product optimization. Search for raw materials from recycled sources to reduce the environmental impact of their products. Search for the replacement of raw materials classified as dangerous to lower the environmental impact and reduce the risks of operator exposure



## Cosmosol S.r.l.

### GENERAL INFORMATION

Piazza San Fedele 4 - 20121 Milano (MI)  
sito web: <https://www.cosmosol.com>

#### Operating offices:

Mulazzano  
Mulazzano

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 0.90 %

**Number of researchers:** 5

**Business sectors:** Aerosol products; Cosmetics; Detergents and related products; Medical surgery; disinfectants

### CONTACTS

Federica Naso  
[federica.naso@cosmosol.com](mailto:federica.naso@cosmosol.com)  
+39 02988891233

Administrative and operational headquarter: Via Quartiano 25 - 26837 Mulazzano (LO)

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Ecodesign

The researchers of the Research and Development Laboratory are constantly working to create effective formulas that are consistent with the company's sustainability ideals and, of course, with customer demand. Innovation is pursued on all product categories, following the goals of our sustainability program, the CARE (Conscious Aerosol Research for Environment). The primary goal of the program is to reach 80% of products with eco-friendly propellants by 2026. The program promotes several concepts such as: the "less is more" philosophy, which generally involves developing products with as few ingredients as possible, non-controversial from a safety point of view and environmentally friendly; products with ingredients particularly attentive to social and environmental impact, such as RSPO certified, Responsible Mica Certified; research of raw materials from renewable and vegetable sources for the formulation of Cosmos or Nature products "compliant/certified" and / or with Nautal Index (ISO16128) >90; Replacement of traditional propellants of petrochemical origin with environmentally friendly propellants such as compressed air or nitrogen; Use of raw materials from renewable sources; New or renewed products formulated with sustainably sourced raw materials



#### Carbon neutrality

Achieving carbon neutrality by 2025. Cosmosol is committed to setting science-based emission reduction targets in all areas, in line with the 1.5°C emission scenarios and the criteria and recommendations of the Science Based Targets initiative



#### LCA

Studies in collaboration with the spin-off of the University of Padua for the determination of the life cycle of products



#### Circular economy

Surveys on the % recyclability of finished products. Promotion of "concentrated" products thanks to the use of eco-friendly propellants such as compressed gases. Participation in the pilot project on circularity indicators in the chemical sector thanks to Federchimica, Istituto Ergo S. Anna and Certiquality



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## ADDITIONAL INFORMATIONS

- University of Padua (Spinlife)
- University of Pavia (Department of Drug Science)
- University of Salford Manchester

## CRODA INT. PLC - CRODA ITALIANA S.p.A.

### GENERAL INFORMATION

Via Pietro Grocco 915 - 27036 Mortara (PV)  
 sito web: <http://www.croda.com>

#### Operating offices:

Altavilla Vicentina (VI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.00%

**Number of researchers:** 600

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Auxiliaries for detergents and surfactants; Biotechnologies; Flavors and fragrances; Ingredients for food supplements and functional food; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Surfactants and raw materials for detergents

### CONTACTS

Laura Fusani  
[laura.fusani@croda.com](mailto:laura.fusani@croda.com)  
 +39 0384205011

R&D data are referred to the entire Group.

**DATASHEET ICONS**

PRODUCTS	PROCESSES	SERVICES	TECHNOLOGIES
PROPRIETARY SEARCH	THIRD PARTY RESEARCH		

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Polymers</b>	Discovery and synthesis of new biodegradable polymers for crop and consumer applications		
<b>Surfactants</b>	Discovery and synthesis of new molecules to replace petrochemical based surfactants, with a range of HLBs		
<b>Delivery system</b>	Development of novel delivery systems for pharmaceuticals, treating the WHO list of top 10 diseases		
<b>Actives</b>	Development of plant based active ingredients for the beauty market		
<b>Fragrances</b>	Development of sustainable fragrances that are from sustainable biomass sources		

## COLLABORATIONS WITH PUBLIC RESEARCH

Croda have over 60 active projects ongoing with external partners, ranging from multinationals to SMEs to universities across the globe. Many these are based in the UK funded by UK Research and Innovation (BBSRC & EPSRC). Other global based collaborations are ongoing with universities in the Netherlands, Japan, India, Singapore, Brazil and USA.

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# DIASEN

## DIASEN S.r.l.

### GENERAL INFORMATION

Zona Industriale Berbentina 5 - 60041 Sassoferrato (AN)  
sito web: <http://www.diasen.com>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 2.50 %

**Number of researchers:** 3

**Business sectors:** Compounds and auxiliaries for plastics, plasticizers and similar products; Financial, services, engineering and research companies; Paints and varnishes

### CONTACTS

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### DATASHEET ICONS

 PRODUCTS



PROPRIETARY SEARCH

 PROCESSES



THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Wastewater treatment

Through a production improvement plan that has taken shape in a customised cork milling plant specifically tailored to needs (especially related to cork milling), it has been achieved an increase of about 30% in usable raw material from the re-introduction of the waste fraction into production and the recovery of all particle sizes smaller than 1 mm that previously flowed into the waste. Through a process of training of specialised waste disposal operators, it has been implemented a practice of careful sorting between the various types of recyclable paper and plastic in the current production department. This waste is then deposited in the containers specially provided by the municipal waste collection company. In the process of maintaining our machinery, it has been introduced a separation process between liquid and sludge waste. This allows to direct the liquid waste to a dedicated plant for its treatment, which purifies it, generating clean water, ready to be reused. The waste is then managed with the help of a third party company (Omnisyst)



#### Products improvement

Improving the formulations of mortars, paints and waterproofers for construction and architecture, by paying particular attention to the hazardousness of the components and the use of natural or recycled raw materials. Development of a line of research aimed at incorporating by-products (in the form of industrial waste) from other local or national industries into production processes, thus giving these raw materials a second life. Diasen is able to provide a self-declaration stating that all the packaging materials used are recyclable and that, once their life cycle is over, also the products of the Diathonite® line can be reused as inerts. Commitment to using recycled and renewable raw materials for most of the products in the catalogue. What's more, the packaging materials used are all recyclable: the bags for bagging powder products are made of paper, while the buckets for liquids are made of recycled plastic; each pallet of products rests on a wooden pallet (an organic and ecological material, 100% renewable and biodegradable); furthermore, the polyethylene sheets, ideal for covering pallets or pallets, protecting them and avoiding tampering, are sent for recovery or recycling



## New products

Development of new material formulations paying particular attention to the hazardousness of the components and the use of natural or recycled raw materials. Evaluation of new products by means of life cycle analysis (LCA), a structured and internationally standardised method for quantifying potential impacts on the environment and human health, starting with the respective resource consumption and emissions. Moreover, it has been eliminated the use of almost solvents within liquid products, replacing them with water-based formulations. All but one of the liquid products is now formulated without the use of solvents. In terms of legal compliance, on the other hand, every product (mortars, paints and waterproofing for building and architecture) bearing one or more hazard symbols in the Material Safety Data Sheet has been uploaded to the Dangerous Preparations Archive and the list of hazardous preparations has been forwarded to the Istituto Superiore della Sanità (ISS). In terms of product safety, to date, no product has ever been formulated with SVHC. To reduce atmospheric emissions and improve the living comfort that products bring to the structures in which they are applied, products are certified by Third Party Bodies that demonstrate low VOC emissions, which are therefore able to contribute to indoor air quality (indoor comfort). A large proportion of products have been certified with Indoor Air Quality (AIQ) Certification. This has been assessed for several countries and regulations. These include the marks: French VOC Regulation (A+) and French CMR components; Italian CAM Edilizia; AgBB/ABG; Belgian Regulation; EMICODE (EC 1 PLUS - very low emission of volatile organic compounds - PLUS); Indoor Air Comfort® and Indoor Air Comfort GOLD®; Blue Angel (DE-UZ 113); BREEAM International and BREEAM® NOR; LEED®; and CDPH (Classroom scenario and Office scenario)



## Water saving

Through a study and design of ways of organising existing production processes, it has been studied and designed a way of optimising manufacturing processes in order to reduce the number of washing cycles and, consequently, the use of water. As a result, it was possible to achieve a more precise scheduling of production processes that allowed for a reduction in tank washing cycles. In addition, opportunities were identified to reuse the water already used



## Processes

Through the purchase of new machinery, it has been progressively automated the production process of articles. For the manufacture of liquid products, it has been introduced an innovative automation machine. This equipment allows more precise dosing of raw materials and is integrated with another device for bottling the finished product in buckets. In addition, it has been done an investment in a mechanical arm that speeds up the pelletising of liquid products, organising them into neat stacks within minutes. This investment has significantly reduced the manual workload for operators, easing their task



## Miglioramento processi

It has been made a significant modification to the production plant to enable the manufacture of both cork-based and non-cork-based plasters. This plant is interconnected with silos dedicated to the supply of raw materials, which are weighed directly by the plant itself to prevent any errors or potential waste of material. Once weighed, the raw materials are mixed to obtain the final product, which is packaged in paper bags. In addition, the plant automatically places the bags on pallets and tapes them, making them ready for shipment



## CO2 reduction

With a view to reducing polluting emissions, the heating and air-conditioning systems of the interiors of the buildings (in particular the offices of the plant in Sassoferrato and the Genial Materials laboratory in Fabriano) have been replaced with heat pump systems that allow considerable energy savings. A photovoltaic system has also been installed on the roof of the factory to produce clean energy that can be used in production processes



## Renewable sources

The product line of plasters consists entirely of cork-based materials and other natural raw materials. Cork is a rapidly renewable natural product. Cork is also used in some finishes with very particular aesthetic effects, used in interior design and to cover furniture and bathroom furnishings



## COLLABORATIONS WITH PUBLIC RESEARCH

- CIRIAF – Interuniversity Centre of Research on Pollution and the Environment
  - Florence City
  - ITC – CNR
  - Politecnico delle Marche University
  - University of Camerino
  - University of Perugia
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## DOVER INDUSTRIES ITALY S.r.l.

### GENERAL INFORMATION

Via Bancora e Rimoldi - 22070 Guanzate (CO)  
sito web: <http://www.j-k-group.com>

#### Operating offices:

*Novedrate (CO)*

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 2.30 %

**Number of researchers:** 10

**Business sectors:** Printing inks

### CONTACTS

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<http://www.msitaly.com>

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



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THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Inks

The goal is delivering safely and sustainably water based chemical solutions, by providing all the key advantages of digital technology. Patent pending digital pigment ink no pre- and post-treatment; reactive, disperse and dye-sub digital inks ranges





## DOW ITALIA S.r.l.

### GENERAL INFORMATION

Via Francesco Albani 65 - 20148 Milano (MI)  
 sito web: <http://www.dow.com>

#### Operating offices:

Mozzanica (BG), Correggio (RE)

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 1.80 %

**Number of researchers:** 65

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Adhesives and sealants; Advanced materials; Auxiliaries for detergents and surfactants; Ceramic glaze, inorganic pigments, metal oxides; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Detergents and related products; Food additives and processing aids; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Lubricants; Medical surgery: disinfectants; Organic base chemicals; Organic pigments and dyestuffs; Paints and varnishes; Resins and thermoplastic systems; Resins and thermosetting systems; Soap; Surfactants and raw materials for detergents

### CONTACTS

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### DATASHEET ICONS



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Digitalization

Digitalization, big data analysis, and predictive intelligence applied to chemical research. Improved plant productivity through digitalization and predictive intelligence



#### Automotive

Technologies and products for the automotive and electrification industry. Solutions for adhesion and proper functioning of electric mobility battery components. Weight reduction technologies for vehicles



#### CO2 reduction

New building blocks and technologies for energy savings. Improved energy efficiency of production facilities with reduced carbon footprint. Products and technologies for thermal insulation. Reflective coatings for roofs for greater energy efficiency. Waterproof and UV-resistant construction materials. Fast-setting two-component polyurethane foams for construction. New catalysts for reaction efficiency



#### Sustainability

New technologies for fire resistance in materials without potentially toxic substances. Adhesives for industrial applications (photovoltaics)



#### Circular economy

Adhesives and binders for mechanical recycling and extending the life cycle of plastic, organic, and inorganic materials. New innovative processes for producing chemicals from renewable and circular sources. Chemical recycling of recovered polyurethane foams from used mattresses for the production of new polyols for various applications. Chemical recycling of used engine oils and regeneration into new raw materials for the automotive industry. Chemical recycling of materials from end-of-life automobiles





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## COLLABORATIONS WITH PUBLIC RESEARCH

Curricular (degree and non-degree) internship collaborations with the universities of Bologna, Padua, Modena, Ferrara and Milan Polytechnic. Scientific collaborations with the universities of Naples and Bologna and the Politecnico di Milano.

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## DUMAX S.r.l.

### GENERAL INFORMATION

Via Roma 71 - 26010 Ripalta Cremasca (CR)  
sito web: <https://www.dumaxsrl.com/>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:**

**Business sectors:** Adhesives and sealants; Paints and varnishes

### CONTACTS

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### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Vernici

Tailor-made product formulation to best meet customer needs (UV coatings, LED coatings, glues)



## Durante Adesivi S.p.A.

### GENERAL INFORMATION

Via G. Garibaldi 23 - 33080 Prata di Pordenone (PN)  
sito web: <https://www.duranteadesivi.com/en/company/>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover): 1.50 %  
**Number of researchers:** 7  
**Business sectors:** Adhesives and sealants

### CONTACTS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Recycling</b>	Recycling of polyurethane adhesives via acidolysis	 	   
<b>Digitalization</b>	Implementation of computer monitoring of process parameters	 	   
<b>Sustainability</b>	Development of adhesives containing raw materials from renewable or recycled sources	 	   
<b>Diisocyanates</b>	Development of reactive polyurethane hot melt adhesives with low residual monomer content	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- "Ca' Foscari" University of Venice (Department of Chemistry and Sustainable Technologies)
- University of Padua (Department of Industrial Engineering)

## ÈCOSÌ S.r.l.

### GENERAL INFORMATION

Via G. Giorgi 12 - 47122 Forlì (FC)  
sito web: <http://www.ecosi.it>

#### Operating offices:

Mattarello di Trento  
Mattarello di Trento

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 3

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Auxiliaries for detergents and surfactants; Cleaning and maintenance products - biocides; Detergents and related products; Medical surgery: disinfectants; Organic base chemicals; Soap

### CONTACTS

Daniele Cantagalli  
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+39 0543783152

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

PSV certification, 100% recycled bottles, Ecolabel certification, biodegradable and ecological products, system reuse and refill of the cans: washing them for reuse, product LCA studies, CFP



#### Products improvement

34 EPD (Environmental Product Declaration) certified products. Environmental certification that guarantees the sustainability of a product by analyzing its entire LCA, from the raw material to the disposal of packaging



#### New products

PMC – products. ÈCOSÌ is a production workshop for medical-surgical devices registered with the Ministry of Health



#### Bilanciamento CO2

Ultra Superconcentrated Line: the CO2 emission caused by its production is fully offset through the purchase of Sustainability Credits



#### Big data

Dynamico2 is a software for evaluating the environmental sustainability of your professional cleaning service. It detects carbon dioxide emissions, water, and energy consumption in real time



#### Biotechnology

Biological enzymatic activators



<b>Water saving</b>	Design and supply of cutting-edge systems for water recovery for all professional cleaning sectors, with particular attention to industrial laundry		   
<b>Peracetic acid</b>	ÈCOSì is registered in the list of art.95 of the Biocidal Products Regulation (BPR) for the production of peracetic acid as an active substance for the types of products PT2, PT3, PT4, PT5		   
<b>Nanoplastics</b>	Research with the University of Florence to discover new solutions for the reduction/elimination of nanoplastics release from the industrial washing of synthetic fabrics		   
<b>New products</b>	Surfactants derived from plants and industrial processing waste.		   
<b>Certifications</b>	EPD, CFP, ECOLABEL, ICEA, PSV, PMC, FSC		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- University of Florence
- University of Genoa



## ENDURA S.p.A.

### GENERAL INFORMATION

Via del Faggiolo 1/11-F - 40132 Bologna (BO)  
 sito web: <http://www.endura.it>

#### Operating offices:

Ravenna (RA)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 7.00 %

**Number of researchers:** 9

**Business sectors:** Cleaning and maintenance products - biocides; Crop protection products; Inorganic base chemicals; Intermediates and specialty chemicals; Medical surgery: disinfectants

### CONTACTS

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### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Biotechnology</b>	Enzymatic Chiral resolution						
<b>Wastewater treatment</b>	Circular processes, recover and reuse						
<b>Energy saving</b>	Processes improvement, energy recovery						
<b>CO2 reduction</b>	Processes efficiency improvement, renewable sources						
<b>New products</b>	New Active and synergic ingredients for household, professional and agricultural insecticides						

## Products improvement

New processes and formulations for pest control (household, professional and agricultural)



## Organic synthesis

Flow Chemistry; Chiral and selective chemistry; heterogeneous catalysis; Innovative microencapsulations; photochemistry



## COLLABORATIONS WITH PUBLIC RESEARCH

- "Cattolica del Sacro Cuore" University
- CNR - Bologna
- Fraunhofer Institute for Microengineering and Microsystems IMM, Mainz, Germany
- INSTM - Bologna and Insubria
- University of Bologna
- University of Milan
- University of Modena
- University of Parma
- University of Piacenza
- University of Reggio Emilia

## F.O.M.E.T. S.p.A.

### GENERAL INFORMATION

Via Vialarga 25 - 37050 San Pietro di Morubio (VR)  
sito web: <http://www.fomet.it>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 5

**Business sectors:** Fertilizers (organo-minerals, organic, soil improvers and growing media); Specialities fertilizers

### CONTACTS

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[fomet@fomet.it](mailto:fomet@fomet.it)

### DATASHEET ICONS



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THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Carbon footprint

Study of the impact of the carbon footprints of some core business products along their life cycle



#### Sinergy

Study of the metabolic effects of different combinations of matrices and extracts with high phytochemical potential



#### Organic substance

Study and valorisation of the company's core business organic substance and its effects on the soil and on the plants



#### Specificity

Development of products with specific action, targeted for effects at primary and/or secondary metabolism level



#### Sustainability

Project aimed at improving process and product sustainability, from the idea to the field



#### Yield

Study, improvement and development of processes with high production yield and reduced energy consumption, in particular from renewable sources



#### Biostimulants

Development of new biostimulants, mainly from plant sources, through processes that are capable of preserving bioactive molecules



#### Circular economy

Research aimed at the study and ennoblement of matrices deriving from different agri-food chains to obtain products with a fertilising and/or biostimulant action with high efficacy and efficiency



#### Microorganisms

Study of specific strains of microorganisms and their effect in agriculture



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## COLLABORATIONS WITH PUBLIC RESEARCH

- University of Bologna
  - University of Brescia
  - University of Padua
  - University of Perugia
  - University of Verona
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## FLINT GROUP ITALIA S.p.A.

### GENERAL INFORMATION

Via Margherita De Vizzi 51 - 20092 Cinisello Balsamo (MI)  
sito web: <http://www.flintgrp.com>

#### Operating offices:

Baranzate (MI), Caronno Pertusella (VA)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.50%

**Number of researchers:** 10

**Business sectors:** Printing inks

### CONTACTS

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+39 029652439

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Printing

Products and services designed to support a circular economy in packaging (<https://www.flintgrp.com/en/sustainability/>). A key part of the support is the development and supply of inks and coatings that reduce the life cycle impact of inks and coatings used on packaging. Conversion of inks and coatings to sustainable raw materials. Inks that are designed for the circular economy - recyclability or composability. Customer collaboration projects that reduce their scope 1& 2 emissions. Solutions to improve our manufacturing and transport efficiencies. Focus on the use of sustainable raw materials where applicable. The Innovation to improve the circularity for flexible packaging are mainly focused on: barrier coatings for mono-material structures; deinking & PU-based ink recycling solutions; water-based inks for film & foil; biodegradable inks; Universal bases, high opacity whites, HQ printing inks



### COLLABORATIONS WITH PUBLIC RESEARCH

- Albert-Ludwigs-Universität Freiburg
- University of Milan



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## FRATELLI ZUCCHINI S.P.A.

### GENERAL INFORMATION

Via C. Colombo 6 - 44124 Ferrara (FE)  
sito web: <https://www.zucchini.it>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover):  
**Number of researchers:** 5  
**Business sectors:** Adhesives and sealants

### CONTACTS

Stefano Trepin  
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+39 0532782611

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### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Products</b>	Development of water-based sealants and adhesives	 	   
<b>Sustainability</b>	Substitution of hazardous raw materials.	 	   
<b>Sustainable processes</b>	Process optimisation to reduce waste and rework. Development of production processes with the aim of reducing energy consumption.	 	   

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### COLLABORATIONS WITH PUBLIC RESEARCH

- Tecnopole of the Università di Ferrara, Terra&Acqua Tech Laboratory
- University of Ferrara (Department of Chemical and Pharmaceutical Sciences)

## GALA S.r.l. SB

### GENERAL INFORMATION

Via A. Cicognani, 11/N - 47121 Forlì (FC)  
sito web: <http://www.galacosmetici.com>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 4.00 %

**Number of researchers:** 8

**Business sectors:** Cosmetics; Detergents and related products; Soap

### CONTACTS

Ilaria Mignani  
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+39 0543781838

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sustainability

Research and development of biodegradable and environmentally friendly cosmetics. Integration of sustainability principles into the corporate growth strategy. The natural evolution of this choice is the open and transparent reporting of the economic, environmental and social sustainability performance, with the aim of having the first Corporate Sustainability Report within this year



#### Formulations

Use of natural, organic, fair trade raw materials, made by renewables or natural harvest. Attention to the origin: raw material doesn't come from rare species or endangered. Use of local raw material, whereas those from more distant countries are strictly embraced with fair trade project of small and local producer. Among natural raw materials, use of the more simple one, with a low synthetic intermediates and without toxic, dangerous reagents or made by chemical reactions with strong impact on the environment or made by genetic modifications. Research and development of concentrated or anhydrous products made by a small quantity of water, energy and pack.



#### Renewable materials

Recycled, biodegradable, or compostable and refillable pack. The pack must be free of toxic solvents and heavy metals and it has permitted to completely use the product inside



### COLLABORATIONS WITH PUBLIC RESEARCH

- "Bocconi" University - Observatory Green Economy
- University of Bologna
- University of Ferrara



## GRAFTONICA S.r.l.

### GENERAL INFORMATION

Via Martiri Triestini 7 - 20148 Milano (MI)

sito web: <http://www.graftonica.it>

#### Operating offices:

Milano (MI)

### DETAILED INFORMATION

**Dimension:** MICRO COMPANY

**Research expenditure** (% of turnover): 40.00 %

**Number of researchers:** 3

**Business sectors:** Advanced materials; Ceramic glaze, inorganic pigments, metal oxides; Compounds and auxiliaries for plastics, plasticizers and similar products; Cosmetics; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Inorganic base chemicals; Intermediates and specialty chemicals; Organic base chemicals; Paints and varnishes; Resins and thermoplastic systems; Resins and thermosetting systems

### CONTACTS

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Headquarter: Via Roberto Cozzi 55 - 20125 Milano (MI)

### DATASHEET ICONS



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THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

Biodegradable plastics containing waste



#### Formulations

Creation of ad-hoc formulations in the field of polymers



#### Bioplastics

Study and research on biobased and biodegradable materials



#### 3D printing

Design and formulation of new resins: thermoplastics (FDM) and thermosetting resins (SLA)



#### Nanomaterials

Design and manufacturing of nanomaterials in polymers and resins for applications: lighting, automotive, cosmetics, cultural heritage



### COLLABORATIONS WITH PUBLIC RESEARCH

- "G. Ronzoni" Scientific Institute of Chemistry and Biochemistry
- Politecnico di Milano University (Polifab)
- University of Bari
- University of Milano-Bicocca
- University of Pavia (Civil Engineering and Architecture Department)





## GREEN HAS ITALIA S.p.A. (Greenhas Group)

### GENERAL INFORMATION

Corso Alba 85/89 - 12043 Canale (CN)  
 sito web: <https://www.greenhasgroup.com/>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover): 4.00%  
**Number of researchers:** 10  
**Business sectors:** Specialities fertilizers

### CONTACTS

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 +39 017395433

### DATASHEET ICONS



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THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Resource efficiency

Research on Biostimulants to improve the availability of nutrients in the soil and their use by the plants (Nutrient Use Efficiency-NUE). Research on biostimulants to improve the optimization of the available water (Water Use Efficiency-WUE)



#### Climate change

Research on biostimulants to reduce yield loss caused by abiotic stress (drought, salt, light and thermal stress)



#### Circular economy

New extraction methods for food processing by-product valorization, designed to biostimulant production



#### Biodiversity

Selection and fermentation of Plant Growth Promoting Rhizobacteria (PGPR) to increase and preserve the soil biodiversity and fertility



### COLLABORATIONS WITH PUBLIC RESEARCH

- Entironment Park, Turin
- Politecnico di Turin (Department of Applied Science and Technology DISAT)
- University of Turin (Department of Life Sciences and Systems Biology - Plant Physiology Unit and Microbiology Unit); Department of Agricultural, Forestry and Food Sciences)
- University of Ghent (Faculty of Bioscience Engineering-Department of Plant Production)

## HALLSTAR ITALIA S.r.l.

### GENERAL INFORMATION

Corso Magenta 82 - 20123 Milano  
 sito web: <https://www.hallstar.com>

#### Operating offices:

Arcore (MB)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.80 %

**Number of researchers:** 11

**Business sectors:** Auxiliaries for detergents and surfactants; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Surfactants and raw materials for detergents

### CONTACTS

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 +39 0396180447

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Energy saving

Development of new processes with low energy-intensive and environmental impact aimed at the production of esters, half-formulated and formulated solutions



#### Upcycling

Upcycle of vegetable origin waste from food and textile industry to obtain raw materials and intermediates. Enhancement of food industry and sustainable agriculture by-products as new sources of raw materials for cosmetics



#### Circular economy

Raw materials for the cosmetics industry from renewable and sustainable sources.



#### Green chemistry

Development of new wasteless process and research and developments of new alternative catalyst systems.



### COLLABORATIONS WITH PUBLIC RESEARCH

- University of L'Aquila
- University of Pavia
- University of Siena
- Université di Montpellier

## IMA S.r.l.

### GENERAL INFORMATION

Via Segré 23 – 27036 Mortara (PV)  
 sito web: <http://www.imadelta.com>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 5.00 %

**Number of researchers:** 4

**Business sectors:** Intermediates and specialty chemicals

### CONTACTS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Solvent free

Formulation research and development with the aim of eliminate the use of solvents



#### Substitution

Formulation research and development with the aim of replacing substances dangerous for human health and the environment with others less dangerous



#### Bio content

Formulation research and development with the aim of replacing raw materials obtained from non-renewable sources with raw materials obtained from renewable sources



### COLLABORATIONS WITH PUBLIC RESEARCH

## INDENA S.p.A.

### GENERAL INFORMATION

Viale Ortles 12 - 20139 Milano (MI)  
sito web: <http://www.indena.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 10.00 %

**Number of researchers:** 77

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Ingredients for food supplements and functional food; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Medicinal products for veterinary use

### CONTACTS

Francesca De Rensis  
[francesca.derensis@indena.com](mailto:francesca.derensis@indena.com)  
+ 39 02574961

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Health

Innovative Product Research: New nutraceutical active ingredients of botanical origin.  
Incremental product research: New areas of application for nutraceutical active ingredients of botanical origin. Process research: New methods for the production of active pharmaceutical and nutraceutical ingredients.



### COLLABORATIONS WITH PUBLIC RESEARCH

- CREA , Trento
- Oxford University, UK
- University of Florida
- University of l'Aquila
- University of Bologna
- University of Camerino
- University of Milan
- University of Milan Bicocca
- University of Naples - Federico II
- University of Padua
- University of Perugia
- University of Turin



## INDUSTRIE CHIMICHE FORESTALI S.p.A.

### GENERAL INFORMATION

Via Kennedy 75 - 20010 Marcallo con Casone (MI)  
sito web: <http://www.forestali.it>

#### Operating offices:

Robecchetto con Induno (MI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 2.00 %

**Number of researchers:** 6

**Business sectors:** Adhesives and sealants; Fibers for industrial use

### CONTACTS

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+39 02972141

Vincenzo Farina  
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+39 02972141

### DATASHEET ICONS



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PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Biodegradability

Development of biodegradable adhesives



#### Innovation

VOC free water-based adhesive development for the industrial and civil insulation sector



#### Biodegradability

Development of biodegradable, solventless adhesive for Flexible Packaging applications



#### Biodegradability

Research and application studies to extend the range of recycled polymers for use in the production of fabrics



<b>Recycling</b>	Completion of the GRS (Global Recycle Standard) certification process		   
<b>Wastewater</b>	Study for purification and reuse of wastewater and exhausted solvents		   
<b>Innovation</b>	Formulated study and application process of thermoplastic polyurethane adhesive for footwear and leather goods applied through a robotic line		   
<b>Innovation</b>	Development of a new line of water-based adhesive products for the VOC free automotive sector		   
<b>Recycling</b>	Development of: composite material containing recycled wood fiber; monomaterial coated composite material; composite material with recycled textile-based derived from recycled cloathing and not bottles (Tex2Tex)		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - ISMAC, Milano
- INNOVHUB - Stazioni Sperimentali per l'Industria



## INNOVHUB - STAZIONI SPERIMENTALI PER L'INDUSTRIA S.r.l.

### GENERAL INFORMATION

Via Meravigli 9/b - 20123 Milano (MI)  
sito web: <http://www.innovhub-ssi.it>

#### Operating offices:

Milano (MI), San Donato Milanese (MI)

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 10.00 %

**Number of researchers:** 23

**Business sectors:** Advanced materials; Aerosol products; Auxiliaries for detergents and surfactants; Cosmetics; Detergents and related products; Liquefied gas; Lubricants; Organic pigments and dyestuffs; Paints and varnishes; Products intended for use in animal feed; Soap; Surfactants and raw materials for detergents

### CONTACTS

Chiara Zigliani  
[chiara.zigliani@mi.camcom.it](mailto:chiara.zigliani@mi.camcom.it)  
+39 0285155245

### DATASHEET ICONS



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PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Textiles</b>	Determination and minimization of environmental impact by application of Life Cycle Assessment, Carbon Footprint studies or Ecodesign. Study of new solutions for reducing the use of water in the textile sector. Exploitation of silk processing wastes. Supporting activity for the development of multifunctional textiles						
<b>Packaging</b>	Life Cycle Assessment and Carbon Footprint studies; Ecodesign. Study of new sustainable packaging solutions, particularly for food contact applications.						
<b>Processes</b>	Study of new processes with low environmental impact, in particular for the textile, detergents and paint sectors. Improvement of the safety of chemical processes. Evaluation of the release of microplastics in processes and products.						
<b>Circular economy</b>	Exploitation of wastes from industrial processes, particularly in the paper, agro-industrial and silk sectors.						
<b>Food safety</b>	Analytical studies of food contaminants originating from technological processes or farming treatments. Development of models for the determination and control of oxidation stability (Shelf life). Testing of migration of substances from materials in contact with food (MOCA)						
<b>Energy</b>	Evaluation and study of new alternative fuels. Evaluation of the emission factors of air pollutants of fossil fuels and biofuels from both stationary and mobile sources. Development of original procedures of sampling and test of non-conventional pollutants. Research and experimental activity for investigating the influence of such factors as: properties of traditional and innovative fuels including biofuels; use of anti-pollution devices and fuel additives; motor vehicle traffic on air quality and climate change.						

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## COLLABORATIONS WITH PUBLIC RESEARCH

Innovhub SSI collaborates internationally with universities, research centers, public and private laboratories, companies, associations and public administrations.

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## INTERCOS S.p.A.

### GENERAL INFORMATION

P.zza Armando Diaz 1 - 20100 Milano  
 sito web: <http://www.intercos.com>

#### Operating offices:

Agrate Brianza (MB), Dovera (CR), Monza (MB), Napoli (NA), Olgiate Comasco (CO)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 5.00%

**Number of researchers:** 163

**Business sectors:** Cosmetics; Detergents and related products; Medical surgery; disinfectants

### CONTACTS

sustainability@intercos.it  
 +39 03965521

#### DATASHEET ICONS



PRODUCTS



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TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Digitalization

The product digitalization process, launched in 2021, gave rise to the Digital Beauty Atelier in 2022, consisting of the following interrelated initiatives: -Digital color studio: a major innovation in the cosmetic field as completely digitizing colors, both for matte and pearlescent products. Thanks to this technology, all of the colors developed over the years will be captured and reproduced with realistic colorimetric rendering so that customers can be presented with all the color proofs they need, without actually having to produce the cosmetic. This technology, allowing to undertake projects in digital form, contributes to a reduction in the use of raw materials and, as not having to send the products physically, also in the shipment-related emissions and materials. -Digital color room: library of countertypes and bulk products developed over the past three years. It is widely used to present products to customers while avoiding the counter-typing process. This library reduces the use of raw materials, packaging, and the need to ship physical products. -Digital Beauty Store: a repository of products presented during beauty events, consisting of a user-friendly portal that allows customers to select and display products.



#### Substitution

The Group invests in continuous innovation of the formulations already in place to improve sustainability: for example, commitment to replacing all the ingredients originating from palm oil with those "RSPO compliant"; searching for preservative boosters to decrease the amount of traditional biocides; research focusing on the use of reagents of plant origin, whether they are derived from ad-hoc products or by-products of the food industry, in order to overcome the use of traditional reagents



#### Product format

With regards to leave-on products (skincare) and rinse-off products (hair care, personal care & fragrances), one of the areas of innovation on which the Group is working concerns the product format. In particular, the research regards the stick format since it allows to reduce water consumption and due to its small size, optimizes transportation, whilst limiting related greenhouse gas emissions. In addition, this format affords optimal application, thus extending the life of the product



## Energy efficiency

The contribution to the reduction of greenhouse gas emissions focuses on improving the energy efficiency of production plants, with particular attention to the optimization of the bulk mixing process and the energy consumption related to air conditioning. In our Italian manufacturing plants cogeneration and trigeneration systems have been installed. They allow to produce electricity, heat and refrigeration (in the second case) from a single energy carrier, natural gas



## Processes

Commitment in the continuous research for the use of production processes with reduced environmental impact. One of the lines of research concerns the optimization of the process of production or processing of certain raw materials to make it more sustainable. An example is represented by the family of coated powders, for which research has made it possible to define a production process that does not involve the use of solvents, and therefore ovens for drying, and without further treatment. This reduces process times, lowers operating temperatures, and eliminates the emission of solvent vapor into the environment.



## Circular economy

Contribution to the CirCo (Circular Coffee) program, involving different academic and industrial research groups and aims at creating a model that embraces the circular economy approach. The program is focused on the valorization of the coffee silverskin, a thin tegument that directly covers the coffee seed and usually considered a waste of the roasting process. In the cosmetic field, it is a potential candidate to replace synthetic chemicals as active ingredients due to their high antioxidant potential and to the presence of a small amount of fat content with a particular chemical-physical composition. In addition, Intercos invests in in-house raw materials production. This line of research focuses on the use of reagents of plant origin, whether they are derived from ad-hoc products or by-products of the food industry, in order to overcome the use of traditional reagents. By-products are selected on sustainability criteria, with a preference for agrifood sector by-products, generated in Italy, to build a lifecycle of new cosmetic ingredients that leverages a short supply chain and adds additional value to products of excellence from our country's food industry



## In vitro cultures

Another research line is that of active ingredients. The Group's high level of innovation on this front has been achieved thanks to the great expertise developed over the years by the Vitalab laboratory in relation to green biotechnology, in vitro cultivation of microalgae, and active ingredients from recovery processes. In 2022, the Group's laboratory Vitalab successfully concluded a new project, Vita Gly-Jasmine, derived from the in-vitro cultivation of Jasminum sambac cells, from the most valuable jasmine varietal. Plant cell culture helps meet ever-growing demand for natural bioactive components without harming the environment, whilst preserving botanical diversity and reducing water and energy consumption, and ensuring safe laboratory cultivation based on scrupulous quality principles. Cell cultivation and process scaling-up ensure continuous supply of ingredients, regardless of geographical area, seasonal variations, or plant reproductive cycle. In addition, both cultivation and extraction processes occur at Vitalab's laboratory, greatly reducing supply chain length and, therefore, alleviating ecological damage from transportation, whilst reducing price fluctuations of ingredients



## Clean products

Particular relevance to CLEAN formulations: - "Good for You" - formulations with maximum possible use of vegetal-derived ingredients, avoiding controversial ingredients with an eco-conceived approach. Short ingredient list "less is more"; - "Good for Life" - formulations with ingredients with a limited social and environmental impact, such as RSPO certified, Responsible Mica Certified, % Water Reduction, Cruelty-free; - "Good for Planet" - formulations with ingredients, sourced locally, which preserve biodiversity, promoting the use of recycled or bio-based and bio-degradable ingredients (for example, the waste from the food chain or bio-plastics); reducing water consumption; using packaging as recycled / recyclable and biodegradable as possible



## COLLABORATIONS WITH PUBLIC RESEARCH

Intecos has established many collaborations with public and private research institutes, both Italian and international. For example:

- CNR-ISTM
- INSTM
- Maastricht University (Neuroscience faculty and medical center)
- University of Milan (Pharmaceutical Science Department)
- University of Milano-Bicocca (Materials Science Department; Biotechnology and Biosciences Department)

Since 2021, Intecos has opened a shared laboratory, called "JointLab", with the University of Milan-Bicocca and located in the U28 building located in Monza. The laboratory is divided into 4 areas for different research lines and has highly qualified and dedicated graduated staff.

Intecos takes part to national and international calls to obtain research funds. As example, Cariplo calls, Netherland regional calls and European ETN (European Training Network)/Horizon 2020 calls with:

- Aachen University RWTH (Division of Materials Science and Engineering)
  - CNR-ISTM
  - University of Milan (Pharmaceutical Science Department)
  - Wageningen University
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## ISAGRO S.p.A.

### GENERAL INFORMATION

Via Caldera 21 - 20153 Milano (MI)  
 sito web: <http://www.isagro.com>

#### Operating offices:

Adria (RO), Aprilia (LT), Bussi sul Tirino (PE), Novara (NO)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.25 %

**Number of researchers:** 27

**Business sectors:** Fertilizers (organo-minerals, organic, soil improvers and growing media); Inorganic base chemicals; Organic base chemicals

### CONTACTS

Federica Riva  
[friva@gowanco.com](mailto:friva@gowanco.com)  
 +39 0321693634

Isagro S.p.A. is owned by the American Gowan Group LLC (a global company with over 1,300 employees with more than 27 entities and sales in over 70 countries worldwide)

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Agricoltura

New formulations of more sustainable crop protection products. New microbiological products for plant health



#### Agricoltura

New products that can improve the resistance of plants in stressed environmental. New crop protection products or biostimulants from renewable sources or agricultural waste products



### COLLABORATIONS WITH PUBLIC RESEARCH

- "Cattolica Sacro Cuore" University
- CNR - ISTM, Milan
- "Federico II" University of Naples
- FEM
- University of Bologna
- University of Insubria
- University of Milan
- University of Molise
- University of Perugia
- University of Piacenza
- University of Piemonte Orientale
- University of Turin



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## ISTITUTO GANASSINI S.p.A. DI RICERCHE BIOCHIMICHE (Società Benefit)

### GENERAL INFORMATION

Via P. Gaggia 16 - 20139 Milano (MI)  
sito web: <http://www.ganassinicorporate.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY  
**Research expenditure** (% of turnover):  
**Number of researchers:** 10  
**Business sectors:** Cosmetics

### CONTACTS

Domenico Ganassini Di Camerati  
[istituto@ganassini.it](mailto:istituto@ganassini.it)  
+39 025357041

[g.tomasi@ganassini.it](mailto:g.tomasi@ganassini.it)

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### DATASHEET ICONS



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THIRD PARTY RESEARCH



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Cosmetic

Research and development of products with a high standard of sustainability and innovation (biodegradability, formulations, packaging). Modification and research of low environmental impact processes to obtain biodegradable and environmentally friendly products



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### COLLABORATIONS WITH PUBLIC RESEARCH

Collaboration with public and private research, in Europe and worldwide. Collaboration with slow food principals to restore the right value to food, respecting those who produce, in harmony with environment and ecosystems.

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## ITALMATCH CHEMICALS S.p.A.

### GENERAL INFORMATION

via E. Vismara 114 - 20044 Arese (MI)  
 sito web: <http://www.italmatch.com>

#### Operating offices:

Genova (GE), Qualiano (NA), Spoleto (PG)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.50 %

**Number of researchers:** 32

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Advanced materials; Auxiliaries for detergents and surfactants; Cleaning and maintenance products - biocides; Compounds and auxiliaries for plastics, plasticizers and similar products; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Inorganic base chemicals; Intermediates and specialty chemicals; Lubricants; Surfactants and raw materials for detergents

### CONTACTS

Norberto Gatti  
 n.gatti@italmatch.com  
 +39 0293525266

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Lubricants 2</b>	Use of raw materials and monomers for the production of additives used in lubrication, water treatment/detergency	 	   
<b>Water saving</b>	Industrial process development with "water use reduction or "waterless"	 	   
<b>Batteries</b>	Research of innovative raw materials for the production of advanced components for lithium ion cells	 	   
<b>REACH</b>	Incremental research of chemical products via the elimination of SVHC according to REACH	 	   
<b>Phosphorus</b>	Research for production of Elemental Phosphorus from wastes, also of urban origin, according to the criteria of a circular economy	 	   
<b>Batteries</b>	Development and application of new special additives for the recovery and separation of Nickel, Cobalt and other elements of concern within the rare earth group from recycle streams	 	   
<b>Fine chemistry</b>	Use of industrial byproducts as internal raw materials for the production of specialty chemicals	 	   
<b>Phosphorus</b>	Development of a new thermochemical process for elemental phosphorus (P4) production from sewage waste, and start up of a pilot plant	 	   

<b>ESG</b>	Process technology studies to contribute to decrease emissions in the atmosphere of chemical substances		   
<b>Water</b>	Research on new biodegradable additives for water treatment/detergency		   
<b>ESG</b>	Reduction of the environmental impact of current chemical processes according to the criteria of the Circular Economy		   
<b>Lubricants</b>	Research of new lubricant base stocks from renewal sources		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR-ISMAC
- SSC
- University of Perugia
- University of Graz
- University of Stuttgart

## ITELYUM REGENERATION S.p.A.

### GENERAL INFORMATION

Via Tavernelle 19 - 26854 Pieve Fissiraga (LO)  
 sito web: <http://www.itelyum-regeneration.com>

#### Operating offices:

Frosinone

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.49 %

**Number of researchers:** 12

**Business sectors:** Auxiliaries for detergents and surfactants; Ceramic glaze, inorganic pigments, metal oxides; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Detergents and related products; Environmental services; Financial, services, engineering and research companies; Inorganic base chemicals; Intermediates and specialty chemicals; Lubricants; Organic base chemicals; Organic pigments and dyestuffs; Printing inks; Soap; Surfactants and raw materials for detergents

### CONTACTS

Francesco Gallo  
[francesco.gallo@itelyum.com](mailto:francesco.gallo@itelyum.com)  
 +39 03712503242

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Pollution reduction</b>	Study for improving process energy efficiency through the recovery of low-pressure condensate	 	   
<b>Pollution reduction</b>	Development of artificial intelligence algorithms for big data analytics taken from the dcs and kpi optimization with the digital twin development for the plant in Pieve Fissiraga (LO) for budgeting, forecasting, operational training, and operational development of the processes	 	   
<b>Pollution reduction</b>	Development of predictive algorithms related to a new furnace integrated into the TDA distillation column of the Revivoil process	 	   
<b>Pollution reduction</b>	Research and development of the innovative plasbreaker process for the production of high-performance lubricant bases and hydrogen from plasmix, including a technology for the recovery of hydrogen from hydrogen sulphide	 	   
<b>Pollution reduction</b>	Development of a new process for the hydrofinishing section of Ceccano (FR) plant, with the addition of a third reactor, substitution of the hydrogen recirculation compressor, addition of a stripping section of the hydrofinished base oil, gas treating with amines, upgrading of the furnace feed preheating system with the addition of a new hot oil heat exchanger	 	   

<b>Pollution reduction</b>	Study, design, and experimentation activities for the introduction of digital technological innovations aimed at developing a new process for budgeting, forecasting, and operational development, through the use of artificial intelligence and a process simulator	 	   
<b>Pollution reduction</b>	Study of new business processes for the preservation of water resources through the reuse of process water, purified wastewater, and containment barrier water (DRY FACTORY)	 	   
<b>Pollution reduction</b>	Research and development activity of an innovative polyfunctional hydrometallurgic process for the production of rare earths oxides and oxalates from weee, such as photovoltaic panels, electronic boards, permanent magnets, batteries	 	   
<b>Pollution reduction</b>	Development of an innovative process in the field of new green deal biodiesel to obtain biolubricants, biofuels, and biosolvents from the bio-fraction of mineral used oil and used cooking oil (UCO/RUCO)	 	   
<b>Pollution reduction</b>	Research and development activities aimed at the development of the first industrial-scale plant for the chemical recycling of WEEE and the recovery of rare earth element	 	   

## COLLABORATIONS WITH PUBLIC RESEARCH

- "Federico II" University of Naples
- Politecnico di Milano University
- University of Marche

## ITERCHIMICA S.p.A.

### GENERAL INFORMATION

Via G. Marconi 21 - 24040 Suisio (BG)  
 sito web: <https://iterchimica.it/>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 5.00%

**Number of researchers:** 4

**Business sectors:** Auxiliaries for detergents and surfactants; Bitumen sheets for waterproofing; Compounds and auxiliaries for plastics, plasticizers and similar products; Fibers for industrial use; Intermediates and specialty chemicals; Paints and varnishes; Resins and thermoplastic systems; Surfactants and raw materials for detergents

### CONTACTS

Mariella Giannattasio  
 iterchimica@iterchimica.it  
 +39 035901121

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

Development of a patented process for the recovery of technically selected plastics for application in asphalt mixes



#### Antighiaccio

Development of a patented anti-icing product for asphalt mixes



#### Circular economy

Development of a super-modifying plastomeric compound containing technically selected plastics and graphene, derived from urban separate waste collection



### COLLABORATIONS WITH PUBLIC RESEARCH

- "Federico II" University of Naples
- "La Sapienza" University of Rome
- E-Campus University
- Polytechnic University of Marche
- Polytechnic University of Turin
- University of Bergamo
- University of Bologna
- University of Cagliari
- University of Calabria
- University of Firenze
- University of Messina
- University of Milan - Bicocca
- University of Palermo
- University of Parma
- University of Padua
- University of Pisa

## KIALAB S.r.l.

### GENERAL INFORMATION

Via Lepetit 34 - 21040 Gerenzano (VA)  
sito web: <http://www.kialab.it>

### DETAILED INFORMATION

**Dimension:** MICRO COMPANY

**Research expenditure** (% of turnover): 15.00 %

**Number of researchers:** 6

**Business sectors:** Auxiliaries for detergents and surfactants; Biotechnologies; Chemicals from biomasses; Cosmetics; Detergents and related products; Financial, services, engineering and research companies; Surfactants and raw materials for detergents

### CONTACTS

Luigi Pozza  
[info@kialab.it](mailto:info@kialab.it)  
+39 0296474339 - +39 0296474997

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

Research and development and marketing of functional active ingredients for cosmetics industry



#### Digitalization

Digital research: digital transformation of the company in order to improve support and divulgation in the cosmetic field



#### Ecodesign

Design of cosmetic formulations and selection of packaging with low environmental impact by, using raw materials from renewables sources, recycled or 100% recyclable packaging



### COLLABORATIONS WITH PUBLIC RESEARCH

- CNR of Milan
- University of Milan
- University of Palermo
- University of Piemonte Orientale

## L'OREAL ITALIA S.p.A. (L'Oréal Group)

### GENERAL INFORMATION

Piazza Fernanda Pivano 1 - 20143 Milano (MI)  
 sito web: <https://www.loreal.com/it-it/italy/>

#### Operating offices:

Settimo Torinese (TO), Villanterio (PV)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.00%

**Number of researchers:** 4000

**Business sectors:** Cosmetics; Flavors and fragrances; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry

### CONTACTS

Filippo De Caterina  
[filippo.decaterina@loreal.com](mailto:filippo.decaterina@loreal.com)

R&D data are referred to the entire Group.

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Beauty tech

L'Oréal designs beauty tech solutions to make people's lives easier. It offers virtual try-on, analysis and personalization services that make beauty more accessible and tailored for everyone



#### Green science

By 2030, 95% of ingredients will be bio-based, derived from abundant minerals or circular processes



#### CO2 reduction

By 2025, all Group sites will become "carbon neutral" by improving energy efficiency and using 100% renewable energy. In addition, by 2030 the goal is to reduce by 50% compared to 2016 the emissions of greenhouse gases related to the transportation of products, calculated on average and per finished product



#### Innovation

Research to develop new biodegradable, eco-designed, sustainable products throughout the life cycle. By 2030, 100% of products will be eco-designed (thanks to SPOT, which enables comprehensive analysis of the impacts of product formulas and packaging)



#### Processes

New processes with low environmental impact



#### Animal welfare

L'Oréal Groupe tests its products using reconstructed human skin and predictive evaluation tools that do not involve animals, such as molecular modeling, artificial intelligence, and imaging techniques. In our laboratories around the world, scientists continue to pioneer new methods and technologies that do not involve animal testing



## Circular economy

By 2025, 100% of our plastic packaging will be refillable, reusable, recyclable or compostable. These measures will reduce significantly the use of fossil fuels and promote the development of circular economy



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## Water saving

By 2030, 100% of our industrial water will be recycled and reused in a loop



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## COLLABORATIONS WITH PUBLIC RESEARCH

Different collaborations with public and private research institutes across Europe and worldwide.

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# Lamberti



## LAMBERTI S.p.A.

### GENERAL INFORMATION

Via Marsala 38/D - 21013 Gallarate (VA)  
sito web: <http://www.lamberti.com>

#### Operating offices:

Albizzate (VA), Nerviano (MI), Zanica (BG), Viguzzolo (AL), Trissino (VI), Fiorano Modenese (MO)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.60%

**Number of researchers:** 102

**Business sectors:** Auxiliaries for detergents and surfactants; Food additives and processing aids;

Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Starches and derivatives; Surfactants and raw materials for detergents

### CONTACTS

Laura De Michele  
[laura.demichele@lamberti.com](mailto:laura.demichele@lamberti.com)  
+39 0331715436

#### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Rinnovabilità</b>	Research for the replacement of products deriving from raw materials of fossil origin with raw materials and intermediates from renewable sources	 	   
<b>Polyurethanes</b>	Research, development and industrialization of polyurethanes in aqueous dispersion as functional additives with film-forming properties, modifiers of touch, appearance and surface functional properties of substrates, rheological modifiers, dispersants for the leather, synthetic materials, wood, metal and film industries plastics, paper, construction, architectural coating, textiles, digital inks	 	   
<b>Hdroxyapatite</b>	Research, development and industrialization of hydroxyapatite-based materials for the cosmetics and personal care industry	 	   
<b>Surfactants</b>	Research, development and industrialization of compounds with surfactant functionality and interfacial action through alkoxylation, amidation esterification, glycosidation for the manufacturing industry and the production of industrial formulations and for the consumer market including agrochemical, polymerization industries, Oil & Gas, cosmetics, detergents	 	   
<b>Fat derivatives</b>	Research, development and industrialization of fat derivatives with interfacial action through alkoxylation, amidation esterification, of rheological modifiers, dispersants and suspenders for the manufacturing industry and the production of industrial formulations and for the consumer market including agrochemical, polymerization industries, Oil & Gas, cosmetics, detergents, leather, textiles	 	   

## Natural polymers

Research, development and industrialization of products based on physical and chemical derivatives of cellulose, starches and hydrocolloids (guar, tamarind) as functional additives with rheological modifier, suspending, gelling, water retaining, conditioning and film-forming properties for industries paper, ceramics, construction, civil engineering, mining and tunnelling, architectural coating, cosmetics, detergents, oil drilling, agrochemicals, textiles and digital ink



## Formulations

Research, development and industrialization of complex formulations for industrial use



## Acrylic polymers

Research, development and industrialization of acrylic polymers in solution and emulsion as functional additives with rheological modifier, suspending, filming and dispersing properties for the paper, ceramic, construction, architectural coating, cosmetics, detergents, oil drilling, agrochemical, textile, digital inks, leather, synthetic materials, wood, metal, plastic films



## Environmental impact

Minimization of the environmental impact of the processes practiced through the reduction of water and energy consumption



## Circular economy

Design of new products starting from second generation raw materials



## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR – ISMAC, Milan
- CNR - ISTECH, Faenza
- "Federico II" University of Naples
- Politecnico di Milano University
- University of Genoa
- University of Milan
- University of Milano - Bicocca
- University of Modena and Reggio Emilia
- University of Padua
- University of Parma

## ADDITIONAL INFORMATIONS

## LANXESS SOLUTIONS ITALY S.r.l.

### GENERAL INFORMATION

Via San Bovio 1/3 - 20054 Segrate (MI)  
sito web: <http://www.lanxess.com>

#### Operating offices:

Latina (LT)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.52 %

**Number of researchers:** 4

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Animal healthcare products; Auxiliaries for detergents and surfactants; Ceramic glaze, inorganic pigments, metal oxides; Cleaning and maintenance products - biocides; Compounds and auxiliaries for plastics, plasticizers and similar products; Detergents and related products; Flavors and fragrances; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Lubricants; Organic pigments and dyestuffs; Products intended for use in animal feed; Resins and thermosetting systems; Surfactants and raw materials for detergents

### CONTACTS

Vincenzo Trabace  
[vincenzo.trabace@lanxess.com](mailto:vincenzo.trabace@lanxess.com)  
+39 0230722625 - +39 3357375164

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Ecological transition

Focus on customers' needs to drive progress and reliably provide innovative product, application, material and service solutions. In the development of new materials, use of artificial intelligence to reduce development time for customers. Production, administration and logistics processes are designed efficiently, sustainably and with a focus on performance. Sustainability and responsibility are key factors behind the success of manufacturing and business operations. Products also contribute to this, offering sustainable solutions in key areas such as electric mobility food, health, environmental and animal care and protection



### LOXEAL S.r.l.

#### GENERAL INFORMATION

Via Marconato 2 - 20031 Cesano Maderno (MB)  
 sito web: <https://www.loxeal.com>

#### Operating offices:

Misinto (MB)

#### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 2.50 %

**Number of researchers:** 8

**Business sectors:** Adhesives and sealants; Resins and thermosetting systems

#### CONTACTS

Giorgio Zaffaroni  
[giorgio.zaffaroni@loxeal.com](mailto:giorgio.zaffaroni@loxeal.com)  
 +39 03625293420

#### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

#### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Fuel cells</b>	Creation of adhesives and Sealants to assemble Hydrogen Fuel Cells	 	   
<b>Green adhesives</b>	Improvement of H&S profile of reactive adhesives. Development of Adhesives and sealants with relevant content of renewable carbon	 	   
<b>Sigillanti idrogeno</b>	Creation of Adhesives and Sealants to be used in piping and heating devices using hydrogen fuel	 	   
<b>Salute e sicurezza</b>	Formulation of adhesives with comparable performances of actual ranges but better health and safety profile	 	   
<b>UV adhesives</b>	Synthesis of acrylic and epoxy Olygomers for UV activated cure	 	   

## Maflon S.p.A.

### GENERAL INFORMATION

Via Soave 7 - 20135 Milano  
sito web: <https://www.maflon.com/>

#### Operating offices:

Castelli Calepio (BG)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.50 %

**Number of researchers:** 7

**Business sectors:** Auxiliaries for detergents and surfactants; Compounds and auxiliaries for plastics, plasticizers and similar products; Intermediates and specialty chemicals; Lubricants; Paints and varnishes; Printing inks; Surfactants and raw materials for detergents

### CONTACTS

maflon@maflon.com  
+39 0354494400

### DATASHEET ICONS

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 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Stone</b>	Research and development of hydro/oil repellent polymers for stone treatment	 	   
<b>Yacht</b>	Design, production and structural and functional characterization of innovative polymeric products for use in antifouling coatings with increased smoothness	 	   
<b>Leather</b>	The synthesis of a polyurethane in solution/dispersion/emulsion including use as a water/oil-repellent, stain-resistant and dirt-repellent agent for leather. The project concerns a non-fluorinated polyurethane and a polycarbodimide in a solution/dispersion/emulsion and a process for its synthesis and use as a cross-linking agent	 	   
<b>Coating</b>	Design, production and characterization of innovative wetting and rheological agents for use as additives in coating formulations (cars, paints, wood varnishes)	 	   
<b>Lubricants</b>	Design, production and characterization of innovative lubricants for use as lubricating agents for winter sports	 	   
<b>Textiles</b>	Research and development activities on new acrylic polymers and new synthesis processes, with the aim of making treated fabrics water and oil repellent and resistant to dirt stains	 	   

## COLLABORATIONS WITH PUBLIC RESEARCH

- Fraunhofer Institute
  - Politecnico di Milano
  - University of Florence
  - University of Padua
  - University of Pisa
-

## MAPEI S.p.A.

### GENERAL INFORMATION

Via Cafiero 22 - 20158 Milano (MI)  
 sito web: <http://www.mapei.com>

#### Operating offices:

Robbiano di Mediglia (MI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.00 %

**Number of researchers:** 180

**Business sectors:** Adhesives and sealants; Advanced materials; Paints and varnishes

### CONTACTS

Marco Squinzi  
[marco\\_squinzi@mapei.it](mailto:marco_squinzi@mapei.it)  
 +39 0237673702

### DATASHEET ICONS

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 THIRD PARTY RESEARCH

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 TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### CO2 reduction

Mapei's solutions include an integrated approach known as the CUBE System, which attempts to assist the concrete sector in maintaining high standards while lowering climate effect through various phases: superplasticizers admixtures for improving the workability of alternative cements (for example: CEM III, CEM IV and CEM V); strength enhancers for new cements with reduced clinker content; new cement additives which allow to reduce the energy consumption involved with the grinding process. These new "low clinker" cements have higher mechanical resistance and workability, making them more suitable for modern mix-design; real-time monitoring and control of concrete quality through specific hardware and software located at critical points of the production chain



#### Company circularity

For the second time, project of Federchimica-AVISA, Certiquality and ERGO Sant'Anna for the creation of a tool that provides an overall indicator of company circularity



#### CO2 offset

Mapei is committed to lowering greenhouse gas emissions from their products by working on new formulations that offer high quality and durability with reduced environmental impact. For the part that cannot be avoided, Mapei is committed to researching sustainability projects to offset the residual CO2 emissions. The Group has purchased certified carbon credit to offset the total CO2 emission of the products for the new Zero line. The total CO2 emissions measured throughout the entire life cycle by the LCA methodology have been verified and certified through the EPD (Environmental Product Declaration)



#### Recycled material

Replacement in the packaging of at least 50% of virgin plastic with secondary raw material certified with PSV (Second Life Plastic)





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## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - DSCTM
  - "Federico II" University of Naples
  - Sant'Anna Institute, Pisa
  - Politecnico di Milano University
  - Politecnico di Torino University
  - University of Bologna
  - University of Brescia
  - University of Genova
  - University of l'Aquila
  - University of Milan
  - University of Padua
-



## MATRICA S.p.A.

### GENERAL INFORMATION

Zona Industriale La Marinella - 07046 Porto Torres (SS)

sito web: <http://www.matrica.it>

#### Operating offices:

Novara (NO), San Donato Milanese (MI)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.20%

**Number of researchers:** 13

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Compounds and auxiliaries for plastics, plasticizers and similar products; Crop protection products; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Lubricants; Products intended for use in animal feed

### CONTACTS

[info@matrica.it](mailto:info@matrica.it)

+39 079509956

Company subject to the management and coordination of Eni S.p.A.

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Catalysts</b>	Development of new biorefinery processes with low environmental impact aimed at recovering reaction catalysts and minimizing waste stream	 	   
<b>Pelargonic acid</b>	Development of a new biorefinery process with low environmental impact aimed at finishing pelargonic acid, to achieve very high purity and low content of unsaturated molecules	 	   
<b>Phytosanitary</b>	Development of new molecules and formulation, from renewable sources, aimed at protecting agricultural crops	 	   
<b>Rubber and plastic additives</b>	Development of new biochemicals with a low carbon footprint, obtained from the esterification reaction of plant streams, for applications in the rubber and plastic industry	 	   
<b>Glycerol</b>	Development of new biorefinery processes with low environmental impact aimed at finishing the glycerine stream leaving the process	 	   
<b>Bioplastics</b>	Development of new molecules, with low carbon impact, for active application in the synthesis of bioplastics	 	   
<b>C9 acids</b>	Development of new biorefinery processes with low environmental impact aimed at the production of mono- and dicarboxylic acids and esters obtained from the transformation of vegetable oils	 	   

**Cosmetic**

Development of new additives and/or excipients, obtained by esterification of our main acids with selected alcohols

**Lubricants**

Development of new biochemicals, with low carbon footprint, obtained by esterification of our production acids, with alcohols and polyalcohols, usable in the field of lubrication

**Animal feed**

Study of new additives that can be used in the feed sector, obtained by esterification of the C5-C9 fat acid stream and pelargonic acid with trialcohols



# MAYER BRAUN

per un mondo migliore

## MAYER BRAUN S.r.l.

### GENERAL INFORMATION

Via Brigata Marche, 129 - 31030 Carbonera (TV)  
sito web: <https://www.mayerbraun.com>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 10.00 %

**Number of researchers:** 2

**Business sectors:** Aerosol products; Cleaning and maintenance products - biocides; Crop protection products; Environmental services; Medical surgery: disinfectants

### CONTACTS

Sara Conte  
[sara.conte@mayerbraun.com](mailto:sara.conte@mayerbraun.com)  
+39 0422445455

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Analisi mercato

Market research to learn about production technologies/innovations related to machinery to make production more flexible and faster in order to maintain high product appeal



#### Ricerca prodotti

Research of effective products capable of resolving hygiene and public health issues, respecting the environment





## METLAC GROUP

### GENERAL INFORMATION

S.S. 35 Bis dei Giovi 53 - 15062 Bosco Marengo (AL)  
 sito web: <https://www.metlac.com/>

#### Operating offices:

Alessandria (AL), Salerno (SA)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.50 %

**Number of researchers:** 23

**Business sectors:** Paints and varnishes; Printing inks

### CONTACTS

Alessandro Pistone  
[alessandro\\_pistone@metlac.com](mailto:alessandro_pistone@metlac.com)  
 +39 0131291200

<b>DATASHEET ICONS</b>	PRODUCTS	PROCESSES	SERVICES	TECHNOLOGIES
	PROPRIETARY SEARCH	THIRD PARTY RESEARCH		

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Formulations</b>	Development of formulations containing raw materials from renewable sources		
<b>Formulations</b>	Optimization of manufacturing and storage facilities through automation and high efficiency solutions		
<b>SSbD</b>	Development of waterbased coatings with a reduced content of volatile substances and crosslinked by UV radiation		
<b>SSbD</b>	Development and implementation of systems for the reduction and the removing of personnel exposure to hazardous substances, of control systems to reduce energy consumption, minimize and eliminate the production waste		
<b>SSbD</b>	Optimization of internal and customers' processes by reducing volatile organic substances and process temperatures		
<b>SSbD</b>	Development of technologies applied to coatings in order to reduce their hazard classification and improve sustainability through the introduction of new formulations and continuous product updating		

## COLLABORATIONS WITH PUBLIC RESEARCH

- University of Piemonte Orientale
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## NIPPON GASES ITALIA Group

### GENERAL INFORMATION

Via B. Crespi 19 - 20159 Milano (MI)  
 sito web: <https://nippongases.com/it-it/>

#### Operating offices:

Verrès (AO), Novara, Chivasso (TO), Settimo T.se (TO), Alessandria, Novi Ligure (AL), Bagnatica (BG), S.Ambrogio Valpolicella (VR), Brugine (PD), Parma, Ferrara, Ravenna, Empoli (FI), Sesto Fiorentino (FI), Castelnuovo Berardenga (SI), Rapolano (SI), Perugia, Terni, Pescara, Chieti, San Salvo (CH), Anagni (FR), Pontinia (LT), Caserta, Melito (NA), Napoli, Modugno (BA), Brindisi, Lamezia Terme (CZ), Reggio Calabria, Messina, Catania

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.00 %

#### Number of researchers:

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Aerosol products; Auxiliaries for detergents and surfactants; Biotechnologies; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Crop protection products; Detergents and related products; Environmental services; Flavors and fragrances; Food additives and processing aids;

Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Liquefied gas; Lubricants; Medical gases; Medical surgery: disinfectants; Technical and special gases

### CONTACTS

Emanuele Bonomolo  
 emanuele.bonomolo@nippongases.com  
 +39 3485137110

#### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Hydrogen burners</b>	Use of H <sub>2</sub> in combustion processes as an alternative to CH <sub>4</sub>		   
<b>Water treatment</b>	Removal of nitrogen, reduction of organic load and micropollutants, eliminating the problem of aerosols and odors		   
<b>Heat treatment</b>	Reduction of consumption on production plants with thermal processes		   
<b>Vertical farming</b>	Use of CO <sub>2</sub> for the rapid and controlled growth of various plant species		   
<b>Metal fabrication</b>	Gas mixtures development in order to improve welding and thermal cutting processes		   
<b>Food &amp; Beverage</b>	Gas mixtures development in order to improve the product shelf life		   

## COLLABORATIONS WITH PUBLIC RESEARCH

Nippon Gases supports research in Nanoscience together with the NEST Laboratory of the Scuola Normale Superiore of Pisa, promoting and recognizing the activity of young Italian researchers under 35. It also supports the University of Salerno's Department of Pharmacy with a scholarship for microbiological research in the field of M.A.P. (Modified Atmosphere Packaging).

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# NOVAMONT

A Versalis Company

## NOVAMONT S.p.A.

### GENERAL INFORMATION

Via Fauser 8 - 28100 Novara (NO)  
sito web: <http://www.novamont.com>

#### Operating offices:

*Terni*  
Terni

*Piana di Monte Verna*  
Piana di Monte Verna

*Bottrighe*  
Bottrighe

*Patrica*  
Patrica

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 5.80 %

**Number of researchers:** 116

**Business sectors:** Advanced materials; Biotechnologies; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Crop protection products; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Lubricants

### CONTACTS

Giulia Gregori  
[giulia.gregori@novamont.com](mailto:giulia.gregori@novamont.com)  
+39 0321699611

#### DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Circular economy

Research and development for the valorization of waste and by-products into new bioproducts



#### Sustainable agriculture

Study of new dryland crops, development of new agronomic techniques, application of low impact chemical processes for obtaining biomaterials and biochemicals (bioplastics, biolubricants, chemical intermediates, etc.). Development is guided by a logic of integrated biorefinery with an approach based on cascading use of biomass and resource efficiency.



**Bioeconomy**

Development of innovative biodegradable plastic materials, made entirely or partly from renewable origin, to be intended for applications in which biodegradability and compostability—as well as chemical recyclability, mechanical and in the paper stream - represent a real systemic benefit. Development of new biochemicals and low-impact bioproducts, made entirely or partly from renewable sources

**Polymeric materials**

Development of bioplastics for innovative applications and/or based on the use of waste and secondary raw materials (i.e., organic waste, recycled bioplastics, etc.) and dry crops (i.e., safflower, thistle)

**Biotechnology**

New enzymes and microorganisms for obtaining biochemicals

**Integrated biorefinery**

Development of new integrated biorefinery processes based on cascading use of biomass, resource efficiency, high energy efficiency, with the aim of decarbonizing the economy

**COLLABORATIONS WITH PUBLIC RESEARCH**

Novamont collaborates with a large number of Italian and foreign Universities and public and private Research bodies, operating in the following fields: Chemical Sciences, Biotechnologies, Agronomics, Material Sciences, Chemical and Process Engineering, Environmental Impact, Economic and Social Sciences.

## NUOVA SOLMINE S.p.A.

### GENERAL INFORMATION

Località Casone - 58020 Scarlino (GR)

sito web: <http://www.solmine.it>

#### Operating offices:

*Serravalle Scrivia (AL)*

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.00 %

**Number of researchers:**

**Business sectors:** Inorganic base chemicals

### CONTACTS

Gabriele Pazzagli

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Juri Pagni

+39 056670111

[j.pagni@solmine.it](mailto:j.pagni@solmine.it)

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Ottimizzazione acque

Constant monitoring of its discharges and preferring, where possible, the use of water recovery and reuse systems



#### Energy efficiency

Development of new energy-saving processes



### COLLABORATIONS WITH PUBLIC RESEARCH

- Q.U.I.N.N. of Pisa
- University of California, San Land, in a study of the university's investigation, and the University of California, San Cheat on the European University and the United States Magona Technology Pole Consortium)
- University of Florence (Departments of: Chemistry; Biology of agricultural plants)
- University of Siena (Department of Biotechnology, Chemistry and Pharmacy)
- University of Verona

## OMNISYST S.p.A.

### GENERAL INFORMATION

C.so Vittorio Emanuele II 1 - 20122 Milano

sito web: <http://www.omnisyst.it>

#### Operating offices:

*Dossobuono*

Dossobuono

*Ancona*

Ancona

*S. Angelo Lodigiano*

S. Angelo Lodigiano

*Scandicci*

Scandicci

*Parma*

Parma

*Rivoli*

Rivoli

*Roma*

Roma

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 8

**Business sectors:** Environmental services

### CONTACTS

Fabio Giacomo Santomauro

[fabio.santomauro@omnisyst.it](mailto:fabio.santomauro@omnisyst.it)

+39 0371984066

### DATASHEET ICONS



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Industrial symbiosis

Development of custom procedures for the management of by-products in various industries, with the aim of allowing the reuse by-products and enable industrial symbiosis



#### Digitalization

Evolution of the Omnisyst proprietary web-based platform, to leverage the introduction of R.E.N.T.Ri. (National Electronic Register of Waste Traceability) in order to increase the degree of automation and support to customers who use it in the management of their industrial waste



#### Carbon neutrality

Development of an algorithm to monitor climate-changing gas emissions in all phases of waste management (from transport - already activated 2 years ago and validated by CertiQuality - up to waste treatment) and simulating scenarios that allow, on the one hand to make choices with a lower environmental impact and, on the other hand, to compensate for residual emissions, enabling carbon neutral waste management



## Circular economy

Identification and testing of technologies aimed at recovering materials from production waste (e.g. metals from waste water, cellulose from food waste) for improving environmental performance and optimizing costs



## Biodiversity

Implementation of solutions aimed at monitoring and improving biodiversity, particularly around production sites and waste treatment plants, through the use of sensors and pollinating insects, for optimizing the environmental conditions of the territories



## COLLABORATIONS WITH PUBLIC RESEARCH

- Politecnico di Torino University
- University of Padua

## POLITEX S.a.s. di FREUDENBERG POLITEX S.r.l.

### GENERAL INFORMATION

Strada Provinciale Novedratese 17/A - 22060 Novedrate (CO)  
 sito web: <https://buildingmaterials.freudenberg-pm.com/en>

#### Operating offices:

*Pisticci (MT)*

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 5.00%

**Number of researchers:** 3650

**Business sectors:** Advanced materials; Bitumen sheets for waterproofing; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Fibers for industrial use; Resins and thermoplastic systems; Resins and thermosetting systems

### CONTACTS

Federico Pallini

+39 031793111

### DATASHEET ICONS



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Renewable sources

Study and experimentation of raw materials from renewable sources for the production of nonwovens



#### Processes

Development of processes with better energetic efficiency.



#### Innovative research

Development of non-woven with higher performance for the reference market and better exploitation of the raw material



#### CO2 reduction

Substitution of raw materials of fossil origin with renewable sources. Exploitation of cogeneration technologies



#### Innovative research

Development of processes for the valorization or the re-use of production waste



#### Incremental research

Use of recycled raw materials and from renewable sources



#### Water saving

Improvement of production technologies for the reduction of water consumption



## COLLABORATIONS WITH PUBLIC RESEARCH

- University of Pisa
  - University of Calabria
-



We protect and beautify the world™



## PPG INDUSTRIES ITALIA S.r.l. (PPG Italia Group)

### GENERAL INFORMATION

Via Serra 1 - 15028 Quattordio (AL)  
 sito web: <http://corporate.ppg.com>

#### Operating offices:

Milano (MI), Caivano (NA), Verbania (VB)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:**

**Business sectors:** Adhesives and sealants; Paints and varnishes

### CONTACTS

Ilenia Vassallo

+39 0131770668

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sviluppo del cliente

Development of innovative products designed to meet customer needs and optimize productivity and ease of use, reducing the use of hazardous substances and environmental impact



#### Sustainability

Where possible, use of raw materials from renewable sources based on what is proposed by the suppliers





## PROCTER & GAMBLE S.r.l.

### GENERAL INFORMATION

Viale Giorgio Ribotta 11 - 00144 Roma (RM)  
sito web: <http://www.pg.com>

#### Operating offices:

Pomezia - Santa Palomba  
Pomezia - Santa Palomba

Gattatico  
Gattatico

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 2.00%

**Number of researchers:** 8000

**Business sectors:** Aerosol products; Auxiliaries for detergents and surfactants; Cleaning and maintenance products - biocides; Cosmetics; Detergents and related products; Flavors and fragrances; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Medical surgery: disinfectants; Soap; Surfactants and raw materials for detergents

### CONTACTS

Sergio Barbarino  
[barbarino.s@pg.com](mailto:barbarino.s@pg.com)  
+32 24563644

P&G has R&D centers in Europe in Belgium, Germany and UK developing detergents, personal hygiene and cosmetic products and small personal hygiene appliances.

**DATASHEET ICONS**

 PRODUCTS	 PROCESSES	 SERVICES	 TECHNOLOGIES
 PROPRIETARY SEARCH	 THIRD PARTY RESEARCH		

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Circular economy</b>	Reduce waste and plastic waste	 	   
<b>Sustainable processes</b>	Development and optimization of more sustainable productive processes, scalability	 	   
<b>Decarbonization</b>	Low Carbon footprint materials, defossilization	 	   
<b>Products</b>	Product formulation & optimization, more sustainable composition, elimination of substances of interest	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- CGSI (Center for Colloid and Surface Science), University of Florence
- "Federico II", University of Naples

# RADICIGROUP

## GENERAL INFORMATION

Via Ugo Foscolo 152 - 24024 Gandino (BG)  
 sito web: <http://www.radicigroup.com>

### Operating offices:

Casnigo (BG), Chignolo d'Isola (BG), Villa d'Ogna (BG), Novara

## DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.20 %

**Number of researchers:** 32

**Business sectors:** Advanced materials; Compounds and auxiliaries for plastics, plasticizers and similar products; Fibers for industrial use; Intermediates and specialty chemicals; Resins and thermoplastic systems; Staple fibres for clothing and furnishing; Yarns for clothing and furnishing

## CONTACTS

Stefano Alini  
 stefano.alini@radicigroup.com  
 +39 0321693111

## DATASHEET ICONS

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## DESCRIPTION OF INDUSTRIAL RESEARCH

### Circular economy

Supply Chain Projects to manage post-consumer end-of-life of products, recycling and reuse of materials in the plastics and textile industries. Development of new recycling strategies and methodologies exploiting most advanced technologies to recover post-industrial and post-consumer materials based on polyamides and polyesters



### Wastewater treatment

Improvement of water recovery and treatment processes. Water stress analysis at RadiciGroup and adoption of consumption rationalization policies. Development of solutions to improve and optimize water recovery and treatment processes



### Ecodesign

Research of innovative solutions, in cooperation with customers, following a ecodesign approach, to extend the useful life of materials through end-of-life recycling and to reduce their environmental impact and improve sustainability. Development of polyamide & polyester based materials for the design of easily recyclable products



### Advanced materials

High performance polymers for textiles and technopolymers. Development of new materials for several industrial applications (e.g. advanced filtration materials, advanced textile materials, innovative continuous filament based thermoplastics composites)



### Bio-based

Research on bio-based chemical intermediates and polymers and on innovative production technologies targeting the development of virtuous and sustainable supply chains, from raw materials to product end-of life. Development and/or research of alternative processes to obtain intermediates from renewable sources for use as building blocks to produce bio-based polyamides. Development of new polymers based on monomers from renewable sources



## Climate change

Study on solutions for plant and process emission abatement. The Projects of Environmental Product Declaration and Product Environmental Footprint in RadiciGroup allow a continuous and precise impact monitoring and hence the definition of improvement programs by site/product and for new processes/ products. Evaluation of Carbon Capture technologies to be applied to RadiciGroup processes



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## COLLABORATIONS WITH PUBLIC RESEARCH

- Politecnico di Milano University
  - Politecnico di Torino University
  - University of Bergamo
  - University of Milan
  - University of Milano Bicocca
  - University of Piemonte Orientale
  - University of Turin
-

## REYNALDI S.r.l.

### GENERAL INFORMATION

Via Torino 21/1 - 10044 Pianezza (TO)

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY  
**Research expenditure** (% of turnover): 8.00 %  
**Number of researchers:** 6  
**Business sectors:** Cosmetics

### CONTACTS

Marco Piccolo  
 info@reynaldi.it  
 +39 0119588271

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Innovative research</b>	Using polyphenols from food production waste for the development of highly sustainable cosmetics	 	   
<b>Water saving</b>	System finalized to recover, filter and reuse production water	 	   
<b>Innovative research</b>	Patenting of upcycling biomass processing systems (apple, hazelnut, tomato...)	 	   
<b>Renewable sources</b>	Formulating cosmetics with compost extracts	 	   
<b>Innovative research</b>	Process digitisation and Industry 4.0	 	   
<b>Sustainability</b>	Creating formulations for customers	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Turin (Drug Science and Technology Department; Life Sciences and System Biology Department)

## ROELMI HPC S.r.l.

### GENERAL INFORMATION

Via Celeste Milani 24/26 - 21040 Origgio (VA)

#### Operating offices:

Lainate (MI), Solaro (MI), Gerenzano (VA), Novara (NO)

Lainate

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.00 %

**Number of researchers:** 10

**Business sectors:** Cosmetics; Ingredients for food supplements and functional food; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry

### CONTACTS

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<https://natureispeople.com/>

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Fermentation

Biofermentation of bacterial strains for the production of postbiotics and other biological-derived ingredients



#### Green chemistry

Development of products from vegetable raw materials and food by-products, purification of plant matrices, synergies of active ingredients. Development of new processes with low environmental impact



#### Circular economy

Research and development of cosmetic and nutraceutical ingredients and medical devices from renewable and unrelated by-products of the food industry



### COLLABORATIONS WITH PUBLIC RESEARCH

- CNR
- Politecnico di Torino University
- SSOG - Innovhub
- University of Bologna
- University of Novara
- University of Calabria
- University of Milan
- University of Milano - Bicocca
- University of Trieste
- University of Udine
- UPO-CAAD (Center For Translational Research On Autoimmune And Allergic Disease)

## ROQUETTE ITALIA S.p.A.

### GENERAL INFORMATION

Via Serravalle 26 - 15063 Cassano Spinola (AL)  
sito web: <http://www.roquette.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY  
**Research expenditure** (% of turnover): 0.05 %  
**Number of researchers:** 2  
**Business sectors:** Starches and derivatives

### CONTACTS

Daniele Dalla Pria  
[daniele.dallapria@roquette.com](mailto:daniele.dallapria@roquette.com)  
+39 0143774541

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Biotechnology

Microorganism usage (enzymes) in biochemical production



#### Wastewater

Studies aimed to reduce the production of wastewater and their treatment



#### Water

Studies and interventions aimed to reduce the water usage in production processes



### COLLABORATIONS WITH PUBLIC RESEARCH

- University Cattolica del Sacro Cuore, Piacenza
- University of Turin (Department of Chemistry)

### ADDITIONAL INFORMATIONS

# SASOL ITALY S.p.A.

## GENERAL INFORMATION

Viale Enrico Forlanini 23 - 20134 Milano (MI)

sito web: <https://www.sasol.com/our-businesses/chemicals/Italy>

### Operating offices:

Augusta (SR), Passerini (LO), Sarroch (CA)

## DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.22 %

**Number of researchers:** 16

**Business sectors:** Organic base chemicals; Surfactants and raw materials for detergents

## CONTACTS

Alessandro Di Iorio

[alessandro.diiorio@it.sasol.com](mailto:alessandro.diiorio@it.sasol.com)

+39 0377463260

## DATASHEET ICONS

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## DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Efficiency</b>	Development of alternative production routes for detergent intermediates and other intermediates used in different application areas		
<b>Artificial intelligence</b>	Analysis of process data for the application of algorithms based on artificial intelligence for the optimization of the production performances		
<b>New products</b>	Lab scale production and further industrialization of new substances currently not included into our product portfolio		
<b>Wastewater</b>	Study to evaluate byproducts content in the water treatment system for a future investment to improve system performance		
<b>Ecological transition</b>	Evaluation of renewable raw materials based both on vegetable oils or deriving from reprocessing of production scrap (e.g. scrap from food industry, biomass or plastic waste)		
<b>Efficiency</b>	In light of continuous improvement of existing production processes, identification of new raw materials and catalysts that lead to maximize yields and improve overall economics of the production cycles		
<b>Performance</b>	Improvement of existing products both in terms of performance and eco-tox profile		



## SCAM S.p.A.

### GENERAL INFORMATION

Strada Bellaria 164 - 41126 Modena (MO)  
sito web: <http://www.scam.it>

#### Operating offices:

Modena (MO)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.00 %

**Number of researchers:** 6

**Business sectors:** Crop protection products; Fertilizers (organo-minerals, organic, soil improvers and growing media); Medical surgery: disinfectants; Mineral fertilizers; Specialities fertilizers

### CONTACTS

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[stefano.tagliavini@scam.it](mailto:stefano.tagliavini@scam.it)  
+39 059586511

[info@scam.it](mailto:info@scam.it)

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Biostimulants</b>	Study of matrix for biostimulant fertilizers						
<b>Fertilizers efficiency</b>	Characterization of "high agronomic efficiency" fertilizers, with gradual release of nutrients, in particular phosphorus and nitrogen, limitation of leaching of nitrogen						
<b>Circular economy</b>	Study of matrix from "circular economy vegetal sources" for organo-mineral fertilizers						
<b>Organo-mineral fertilizers</b>	Characterization of the granulation process of fertilizers with Humic matrix						

### COLLABORATIONS WITH PUBLIC RESEARCH

- Anadiag Italia S.r.l. - Tortona
- Horta S.r.l. - Ravenna
- Sagea Cento di Saggio S.r.l. - Cuneo
- University of Bologna (Industrial Chemistry – Agrofood Science and Technology)
- University of Modena and Reggio Emilia (Department of Life Science)
- University of Turin (Department of Agricultural Forest and Food Sciences)
- University of Tuscia (DAFNE - Department of Agriculture and Forest Science)
- University of Udine (Environmental Science Department)



## SELERANT S.r.l. (Trace One Group)

### GENERAL INFORMATION

Via Leonardo da Vinci 19 - 20060 Cassina de' Pecchi (MI)  
sito web: <http://www.selerant.com>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 40.00 %

**Number of researchers:**

**Business sectors:** Financial, services, engineering and research companies

### CONTACTS

Michele Zaupa  
[sales@selerant.com](mailto:sales@selerant.com)  
+39 335 5771324

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Sustainability

Enhancement of the Ecodex, an eco-design software tool for evaluating and understanding the environmental impacts of products and packaging. It helps companies improve the sustainability of new products or the existing portfolio, in a cost-effective and simple way



#### Digitalization

Enhancement of the Hazex Cloud, the top-notch automation tool for EHS Compliance and SDS authoring in Chemical companies to support the development of compliant and sustainable chemical products. Hazex Cloud continues regulatory and functional updates helps businesses of all sizes navigate the complex and evolving local, regional and global GHS-based regulatory requirements, conforming to environmental, health and safety laws and standards. Hazex Cloud helps generating compliant SDS and hazard labels, as well as keeping them updated by storing all the information related to the product



### COLLABORATIONS WITH PUBLIC RESEARCH

- INRS (Institut national de la recherche scientifique)
- ISS (Istituto Superiore di Sanità)
- RMIT (Royal Melbourne Institute of Technology)

## SERICHIM S.r.l.

### GENERAL INFORMATION

Piazzale Marinotti 1 - 33050 Torviscosa (UD)  
 sito web: <http://www.serichim.it>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 25.00 %

**Number of researchers:** 16

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Biotechnologies; Chemicals from biomasses; Financial, services, engineering and research companies; Intermediates and specialty chemicals

### CONTACTS

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 +39 0431381403

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Hydrogen</b>	Transport and use of H2 from renewable sources for sustainable mobility	 	   
<b>Biotechnology</b>	Development of an innovative process for the production of a biosimilar	 	   
<b>Renewable sources</b>	Development of primary plasticiser from non-food vegetable oils	 	   
<b>Biotechnology</b>	Development of an immobilised enzyme catalyst on polymer from a renewable source	 	   
<b>Carbon capture</b>	Capture and purification of CO2 from fumes in production furnaces, and transformation into consumer products	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - ISM
- ETH - Institute for Chemical and Bioengineering, Switzerland
- Fraunhofer Gesellschaft, Germany
- University of Trieste
- University of Udine

## SIPCAM OXON S.p.A.

### GENERAL INFORMATION

Via Sempione 195 - 20016 Pero (MI)  
sito web: <http://www.sipcam-oxon.com>

#### Operating offices:

Lodi (LO), Salerano sul Lambro (LO), Mezzana Bigli (PV)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 2.50 %

**Number of researchers:** 35

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Chemicals from biomasses; Crop protection products; Fertilizers (organo-minerals, organic, soil improvers and growing media); Intermediates and specialty chemicals; Specialities fertilizers

### CONTACTS

Nicola Gelmetti  
[ngelmetti@sipcam.com](mailto:ngelmetti@sipcam.com)  
+39 02353781

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Biostimulants

Extraction of new biostimulant products in line with the European Commission's strategy based on the Circular Economy. New organic products: microorganisms, natural extracts, etc.



#### Agrochemicals

Maximization of the effectiveness of the active ingredients and aimed at reducing the environmental impact by reducing doses of use (eg CS formulations). New delivery systems of active ingredients, agrochemicals, organic and nutritional products



#### Active ingredients

Study of chemical and biochemical processes for the manufacture of active ingredients for agro and intermediate use



### COLLABORATIONS WITH PUBLIC RESEARCH

- Politecnico di Milano University (Department of Chemistry, Materials and Chemical Engineering "Giulio Natta")
- University Cattolica del Sacro Cuore, Piacenza (Department of Food Science and Technology for a Sustainable Food Supply Chain)
- University of Camerino (School of Pharmaceutical Sciences and Health Products)
- University of Milan "Bicocca" (Department of Biotechnology and Biosciences)
- University of Pavia (Department of Chemistry and Pharmaceutical Technology)



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## SIVAM Coatings S.p.A.

### GENERAL INFORMATION

Via Monvisio 10 - 20010 Bareggio (MI)  
sito web: <https://www.sivam.it/>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY  
**Research expenditure** (% of turnover): 5.00 %  
**Number of researchers:** 10  
**Business sectors:** Paints and varnishes

### CONTACTS

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+39 0290304211

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### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

Vernici legno e  
industria

Activities carried out in order to bring new products to the target market



# SOCIETA' ITALIANA ACETILENE E DERIVATI S.I.A.D. S.p.A.

## GENERAL INFORMATION

Via San Bernardino 92 - 24126 Bergamo (BG)  
 sito web: <http://www.siad.it>

### Operating offices:

*Bergamo (BG)*

Costa Volpino (BG), Osio Sopra (BG), Brescia (BS), Cinisello Balsamo (MI), Salerno (SA), Ozzano (BO), Ravenna (RA), Trieste (TS), Carlino (UD), Roma (RM), Pomezia (RM), Genova (GE), S. Mauro Torinese (TO), Macomer (NU), Porto Torres (SS), Avenza (MS), Rosignano (LI), Scarlino (GR), Mestre (VE), Padova (PD), Ponzano Veneto (TV)

## DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.00%

**Number of researchers:** 35

**Business sectors:** Active and intermediate principles for the pharmaceutical industry; Environmental services; Liquefied gas; Medical gases; Technical and special gases

## CONTACTS

Giorgio Bissolotti  
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 +39 035328444

## DATASHEET ICONS



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## DESCRIPTION OF INDUSTRIAL RESEARCH

### Microbiology

Characterisation of the presence of micro-pollutants and microbiological load in gases for medical and food applications



### Vegetable growth

Research into the development of new gas mixtures to promote plant growth while reducing the use of pesticides



### Produzione alimentare

Development of processes and technologies aimed at improving food industry processes using gases, gas mixtures and liquid gases. (cryogenic grinding, portioning, crusting, degassing, roasting, crushed cooling, cooking)



### Stoccaggio energia

Energy storage using compressed or cryogenic gases. Gas storage in nanostructures. Technologies for high-pressure hydrogen compression. Technologies for hydrogen transport



### Siti contaminati

Study and development of innovative technologies for the remediation of contaminated sites using gases and gas mixtures capable of promoting chemical and biological degradation processes. Research into new treatment processes for the purification of groundwater at contaminated sites using oxygen, ozone or reducing gases, employing proprietary and patented gas microinjection technologies



### Natural gas

Mixtures for calibrating natural gas and biogas analysers. On-site sampling and analysis



<b>Conservazione alimentare</b>	Development of innovative technologies and gas mixtures to improve food preservation in terms of product shelf life and quality. Research into food preservation using gases and gas mixtures		   
<b>Biogases</b>	In the field of anaerobic digesters, study and development of technologies dedicated to increasing biogas production, including through sludge ozonation tests. The gaseous fractions emitted are treated to make them suitable for energy production, recovering methane and carbon dioxide and removing unwanted pollutants		   
<b>Cryobanks</b>	Research into technologies for the preservation of biological material using liquid nitrogen (cryobanks) and their automation systems		   
<b>Technical gas</b>	Research and development of technologies for the liquefaction of natural gas, including purification; recovery of cooling energy from liquefied natural gas		   
<b>Impianti depurazione</b>	Study of chemical, physical and biological processes and degradation kinetics of pollutants in wastewater from chemical, pharmaceutical and petrochemical industries with the aim of optimising processes and improving effluent quality. Laboratory and field tests: respirometry, biological removal, chemical oxidation with ozone, advanced chemical oxidation (AOP: O <sub>3</sub> , H <sub>2</sub> O <sub>2</sub> , UV, catalysts, etc.), sludge ozonisation, BMP, clear flocculation with chemicals. Studies and applications for the removal of emerging pollutants and PFAS from water		   
<b>Metrologia gas</b>	Research to produce accredited calibration mixtures in the field of metrology (LAT Centre) and reference mixtures (RMP producer of CRM, Certified Reference Material) for the following fields: medical; environmental; industrial; food; industrial hygiene; natural gas, biogas, energy, olfactometry		   
<b>Miscela di taratura</b>	Development of new gas mixtures for applications in the environmental, medical, breath analysis, industrial, food, industrial hygiene, chemical, metallurgical, oenological and energy sectors		   
<b>Welding</b>	New mixtures for improving welding and for use in additive manufacturing		   
<b>Gas purification</b>	Development of gas purification technologies and processes for applications in the electronics, pharmaceutical and food industries		   
<b>Carbon capture</b>	Recovery of carbon dioxide from gaseous emissions and its reuse in industrial processes. Research and analysis of gaseous fractions containing carbon dioxide and development of plant components for its purification and reuse. Recovery of carbon dioxide for fuel production		   
<b>Tecnologie combustione</b>	Development of innovative combustion technologies and processes with oxygen injection to improve combustion and reduce pollutants produced. Research into the use of gases and gas mixtures in combustion processes with the aim of reducing atmospheric emissions		   
<b>Medicinal gas</b>	Study and research aimed at determining the effects that gases and gas mixtures can have on humans for therapeutic and diagnostic purposes. Production of experimental medicinal mixtures and new gas mixtures for applications in the medical, healthcare and health fields		   
<b>Analisi gas</b>	Development of gas sampling methods for specialised and non-standard applications, often for research purposes. Analysis of gas samples taken using dedicated analytical methods		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR
  - IRCCS National Cancer Institute Foundation of Milan
  - Mario Negri Institute
  - Politecnico di Milano University
  - University of Bergamo
  - University of Milano
  - University of Pisa
  - University La Sapienza Rome
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# SOL



## SOL S.p.A.

### GENERAL INFORMATION

Via Gerolamo Borgazzi 27 - 20900 Monza (MB)

sito web: <http://www.sol.it>

#### Operating offices:

*Catania*

Catania (CT)

*Mantova*

Mantova (MN)

*Ravenna*

Ravenna (RA)

*Novara*

Novara (NO)

*Caserta*

Caserta (CE)

*Torino*

Torino (TO)

*Cuneo*

Cuneo (CN)

*Palermo*

Palermo (PA)

*Padova*

Padova (PD)

*Vibo Valentia*

Vibo Valentia (VV)

*Roma*

Roma (RM)

*Pisa*

Pisa (PI)

*Genova*

Genova (GE)

*Salerno*

Salerno (SA)

*Brescia*

Brescia (BR)

*Pavia*

Pavia (PV)

*Cagliari*

Cagliari (CA)

*Cremona*

Cremona (CR)

Pesaro  
Pesaro (PU)

Bari  
Bari (BA)

Perugia  
Perugia (PG)

Ancona  
Ancona (AN)

Bologna  
Bologna (BO)

Verona  
Verona (VR)

Udine  
Udine (UD)

Grosseto  
Grosseto (GR)

Chieti  
Chieti (CH)

## DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 2.00 %

**Number of researchers:**

**Business sectors:** Biotechnologies; Environmental services; Liquefied gas; Medical gases; Specialities fertilizers; Technical and special gases

## CONTACTS

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## DATASHEET ICONS

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## DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Oxycombustion</b>	Innovative combustion process for metal production and siderurgy applications	 	   
<b>Renewable gas</b>	Industrial applications of combustible cryogenic gases (bioLNG and greenLH2) from renewable sources	 	   
<b>Green Hydrogen</b>	High efficiency H2 production and utilization plants. H2 refuelling plants for sustainable mobility	 	   
<b>Technical gas</b>	New gas mixtures for diagnostic, industrial, environmental, food uses	 	   
<b>CCUS</b>	Technologies and processes for CO2 capture and utilization	 	   

<b>Biotechnology</b>	Technologies for sampling, handling and storage of biologic material by liquid nitrogen-based technologies, low-energy processes		   
<b>Food industry</b>	Low emission – high efficiency processes and plants for food industry		   
<b>Water recycling</b>	Gas supported – advanced technologies for water treatment and recovery		   
<b>Solid waste</b>	High efficiency process for recovery and re-use of solid waste		   
<b>H2 mixtures</b>	H2 mixtures production and separation by not-conventional low-energy process		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - IM, Naples
- CNR - ITAE, Messina
- ENEA
- Monza Research Institute
- Politecnico di Milano University
- University of Florence
- University of Genova
- University of Piemonte
- University of Pisa
- University of Salerno

## SOL.BAT S.r.l.

### GENERAL INFORMATION

Località Casone - 58020 Scarlino (GR)  
 sito web: <http://www.solbat.it>

#### Operating offices:

Grosseto (GR)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 5.00 %

**Number of researchers:**

**Business sectors:** Cosmetics; Detergents and related products; Inorganic base chemicals; Medical surgery: disinfectants; Soap

### CONTACTS

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 +39 056670111

Jury Pagni  
 j.pagni@solmine.it

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Energy saving

Improved production and packaging, decreased customer expectations, improved product quality, optimized finished product storage



#### Product refinement

Improvement of products designed to minimize the occurrence of allergic phenomena especially in large consumers



#### New products

New generation detergent formulation to improve detergent power by decreasing the amount of surfactants derived from renewable sources



### COLLABORATIONS WITH PUBLIC RESEARCH

- Polyclinic Santorsola Malpighi (Unit of: Dermatology; Occupational Medicine)
- University of Ferrara (Consorzio Futuro in Ricerca)
- University of Siena (Department of Dermatology)

## SYENSQO SPECIALTY POLYMERS ITALY S.p.A.

### GENERAL INFORMATION

Viale Lombardia 20 - 20021 Bollate (MI)  
 sito web: <http://www.syensqo.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.50 %

**Number of researchers:** 300

**Business sectors:** Advanced materials; Compounds and auxiliaries for plastics, plasticizers and similar products; Financial, services, engineering and research companies; Intermediates and specialty chemicals; Resins and thermoplastic systems

### CONTACTS

Claudia Caffi  
[claudia.caffi@syensqo.com](mailto:claudia.caffi@syensqo.com)  
 +39 0229092211

### DATASHEET ICONS



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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Sustainable technologies</b>	New innovative processes for sustainable polymerizations	 	   
<b>Green Hydrogen</b>	Membranes for green H2 production and fuel cells	 	   
<b>Circular economy</b>	Circular economy cycles, demonstrated recyclability of special materials. New processes for recycling and reuse of end-of-life polymers	 	   
<b>Digitalization</b>	Remote industrial operations, design of experiment, process/research optimization predictive calculations	 	   
<b>Electric car</b>	Material development for electric motors	 	   
<b>Motori elettrici</b>	Material development for electric motors	 	   
<b>Batteries</b>	Lithium batteries new generation and solid state	 	   
<b>Polymers</b>	Use of existing materials (polymers for water filtration and polymers from renewable sources) for the development of new applications in close cooperation with Customers	 	   



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## COLLABORATIONS WITH PUBLIC RESEARCH

- Politecnico di Milano University
  - Politecnico di Torino University
  - University of Bologna
  - University of Florence (Center for Colloid and Surface Science)
  - University of Pavia
  - University of Piemonte Orientale
  - University of Torino
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Harnessing the immune system to fight cancer

## TAKIS S.r.l.

### GENERAL INFORMATION

Via Castel Romano 100 - 00128 Roma (RM)  
sito web: <http://www.takisbiotech.it>

#### Operating offices:

Ariano Irpino (AV)

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 100.00 %

**Number of researchers:** 26

**Business sectors:** Biotechnologies

### CONTACTS

Luigi Aurisicchio  
[aurisicchio@takisbiotech.it](mailto:aurisicchio@takisbiotech.it)  
+39 0650576077

### DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Vaccines</b>	Development of Vaccines based on nucleic acids and innovative administration technologies	 	   
<b>Monoclonal antibodies</b>	Development of antibodies for diagnostic and therapeutic applications	 	   
<b>Studi in vitro in vivo</b>	Development of predictive models and Testing of new preventive and therapeutic solutions	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- Campus Biomedico, Roma
- IRST "Alberto Amadori" di Meldola
- Biogem Institute
- Telethon Institute
- Cancer Institute "Fondazione G. Pascale"
- Cancer Institute Regina Elena (IRE/IFO)
- Università degli studi "Federico II" di Napoli
- Università degli studi "La Sapienza" di Roma
- Università degli studi "Magna Grecia" di Catanzaro
- Pediatric hospital Bambino Gesù

## TEMIX OLEO S.r.l.

### GENERAL INFORMATION

Via Piero Portaluppi 17 – 20138 Milano (MI)  
 sito web: <http://www.temixoleo.com>

#### Operating offices:

Bologna  
 Bologna

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 0.20 %

**Number of researchers:** 4

**Business sectors:** Auxiliaries for detergents and surfactants; Ceramic glaze, inorganic pigments, metal oxides; Chemicals from biomasses; Compounds and auxiliaries for plastics, plasticizers and similar products; Cosmetics; Detergents and related products; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Lubricants; Surfactants and raw materials for detergents

### CONTACTS

Mirko Locritani  
[m.locritani@temixoleo.com](mailto:m.locritani@temixoleo.com)  
 +39 3491483172

#### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Vehicles</b>	Development of biodegradable esters for use as high performance lubricants to reduce friction at low temperatures in electric and mixed cycle (hybrid and plug-in) engines		
<b>Cosmetic</b>	Development of formulations to be used as substitutes for silicone oil		
<b>Transformers</b>	Productions of dielectric fluids from renewable sources or circular economy (biomass) for oil bath transformers		
<b>Gears</b>	Functionalisation of polyols for gear at submarine water level for large ships		
<b>Polymers</b>	Synthesis of polymers with different viscosity ranges for use as: chain lubricant, industrial gear oil, hydraulic fluids		

## Timac Agro Italia S.p.A.

### GENERAL INFORMATION

S.P. 13 Località Ca' Nova - 26010 Ripalta Arpina (CR)  
 sito web: <https://it.timacagro.com/>

#### Operating offices:

*Barletta*  
 Via Trani 21 - 76121 Barletta (BT)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 2.06 %

**Number of researchers:** 5

**Business sectors:** Fertilizers (organo-minerals, organic, soil improvers and growing media); Specialities fertilizers

### CONTACTS

Daniel El Chami  
 daniel.elchami@roullier.com  
 +39 3738468748

### DATASHEET ICONS



PRODUCTS



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TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Resilient industry

Research aimed at innovations to improve production processes and the accompany's production plants towards a sustainable transition



#### Responsible business

Research along this line includes activities for measuring and evaluating corporate policies' social, economic and environmental impacts and how they can lead sustainable transformation and help to face the epochal challenges in which we operate



#### Circular economy

Identification of new technologies and methods for recovering nutrients from different types of waste following the circular economy model



#### Sustainable agriculture

Applied research to identify the most sustainable agricultural practices to achieve the objectives of the Farm to Fork strategy: optimising natural resources, protecting soil and plant health, and increasing yields



## COLLABORATIONS WITH PUBLIC RESEARCH

TIMAC AGRO Italia's stakeholders are essential for achieving corporate objectives. In this case, universities and research institutions are fundamental stakeholders to achieve the goals set by the Sustainable and Innovative Research department. For this reason, the company today collaborates with over ten national universities and international research bodies throughout the Italian territory.

- CNR
  - ENEA
  - Euro-Mediterranean Centre for Climate Change (CMCC Foundation)
  - Mediterranean Agronomic Institute of Bari (CIHEAM-IAMB)
  - Politecnico di Milano University
  - UniSmart Foundation
  - University Campus Bio-Medico
  - University Cattolica del Sacro Cuore
  - University of Bari
  - University of Bologna
  - University of Camerino
  - University of Gastronomic Sciences - Campus
  - University of Genova
  - University of Padua
  - University of Torino
  - University of Udine
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# Torggler

## TORGGLER S.r.l.

### GENERAL INFORMATION

Via Prati Nuovi 9 - 39020 Marlenigo (BZ)  
sito web: <https://www.torggler.com/it/it/>

#### Operating offices:

Rieti (RI)

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover): 4.00%

**Number of researchers:** 8

**Business sectors:** Adhesives and sealants; Aerosol products; Bitumen sheets for waterproofing; Detergents and related products; Paints and varnishes

### CONTACTS

Alessandro Perli  
[alessandro.perli@torggler.com](mailto:alessandro.perli@torggler.com)  
+39 0473282410

Patrick Ladurner  
[patrick.ladurner@torggler.com](mailto:patrick.ladurner@torggler.com)

### DATASHEET ICONS



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THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Innovative materials

Engagement in the formulation and creation of experimental blends, bringing together a variety of components and materials. These versatile mixtures are then subjected to a series of rigorous tests and assessments, aiming to comprehensively and accurately evaluate their performance. Use of standardized tests and design customized tests that stretch beyond traditional parameters, providing a thorough assessment of products' capabilities. Development of products with the highest level of performance and quality. Acknowledgment of the needs of customers that are constantly evolving, requiring increasingly advanced solutions. Commitment to exceeding expectations through the adoption of innovative approaches and the development of cutting-edge formulations. The dedication to research and innovation enables to create products that not only address current challenges but also anticipate future needs



## VALAGRO S.p.A.

### GENERAL INFORMATION

Via Cagliari 1 - 66041 Atessa (CH)  
sito web: <http://www.valagro.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 3.28%

**Number of researchers:** 43

**Business sectors:** Fertilizers (organo-minerals, organic, soil improvers and growing media); Mineral fertilizers; Specialities fertilizers

### CONTACTS

Daniela D'Archivio  
[d.darchivio@valagro.com](mailto:d.darchivio@valagro.com)  
+39 0872881559

### DATASHEET ICONS



PRODUCTS



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PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Circular economy</b>	Chemical, biological, and agronomical screening of substances/materials derived from other industrial processes						
<b>Fermentation</b>	Study of development and optimization of bioprocess for living and extracted beneficial microorganism						
<b>Nutrient efficiency</b>	Investigation on the efficiency of uptake and transport of macronutrients in selected crops						
<b>Soil Health</b>	Screening for substances that can be applied to the soil, benefiting its biological, chemical, or physical structure to sustain plant productivity and promote plant health						
<b>Seed care</b>	Chemical and biological characterization and efficacy testing of candidate active ingredients that improve crop seed emergence and early stages development						
<b>Biofertilizers</b>	Study of microorganisms, their growth, typing, characterization, and application to improve the availability of nutrients in the soil, phyllosphere, endosphere, or rhizosphere						
<b>Biostimulant discovery</b>	Activities aimed at improving capacity and capability expansion of the existing biostimulant discovery engine						
<b>Water use</b>	Investigation on the efficiency of uptake and transport of water in selected crops subjected to different water regimes						
<b>Crop enhancement</b>	Application of biotechnologies to enrich specific active ingredients that enhance a crop target of interest						

<b>Blue economy</b>	Blueremediomics, Horizon Europe project aiming to investigate and screen marine microbiomics using a blue economy approach with the aim of delivering of products based on marine microbiome and circular economy		   
<b>Plant health</b>	Screening for substances that can enhance the natural processes of plants and/or increase tolerance against environmental stress		   
<b>Multi-Omics</b>	Apply different but integrated "omic" sciences, such as transcriptomics, phenomics, and metabolomics, for the discovery and Mode of Action characterization of biologicals		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- ALSIA/Metapontum Agrobios di Metaponto (JointLab: Valagro@PHENOLab)
- CNR (IPSP, Turin)
- École Normale, Paris (Institut de Biologie de l'École Normale Supérieure - IBENS).
- Scuola Superiore Sant'Anna di Pisa (JointLab: Valagro@PLANTlab)
- University of Teramo
- University of Verona

## VARIATI S.p.A.

### GENERAL INFORMATION

Via Monte Rosa 49/51 - 20863 Concorezzo (MB)  
 sito web: <https://www.variati.it>

### DETAILED INFORMATION

**Dimension:** MEDIUM COMPANY

**Research expenditure** (% of turnover):

**Number of researchers:** 2

**Business sectors:** Auxiliaries for detergents and surfactants; Food additives and processing aids; Ingredients for food supplements and functional food; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Organic pigments and dyestuffs; Surfactants and raw materials for detergents

### CONTACTS

Emanuele De Marni  
 emanuele.demarni@variati.it  
 +39 0396115806

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Nutraceuticals

Development of vehicles to improve the properties and/or characteristics of nutraceutical active ingredients. Research of food ingredients, derived from sustainable sources



#### CO2 reduction

Certification ISO14001, the company has always been committed to improving the environmental impact of its activities, as well as preventing risks to populations and the environment not only in compliance with current environmental legislation, but taking into account the development of scientific research and the best experiences in the field. The company intends to conduct its investments and development in an environmentally sustainable way, respecting local communities, committing itself to optimizing its consumption of raw materials, energy, and to reducing its polluting emissions and the impact of its activities on the climate



#### Circular economy

Use of raw materials and intermediates of vegetable origin from waste from the food industry and/or upcycled products



#### Water saving

Certification ISO14001, the company has always been committed to improving the environmental impact of its activities, as well as preventing risks to populations and the environment not only in compliance with current environmental legislation, but taking into account the development of scientific research and the best experiences in the field. The company intends to conduct its investments and development in an environmentally sustainable way, respecting local communities, committing itself to optimizing its consumption of water and to reducing the impact of its activities on the climate



#### Cosmetic

Development of delivery to improve the properties and/or characteristics of cosmetic active ingredients. Research of cosmetic ingredients, derived from sustainable sources



#### Food

Development of vehicles to improve the properties and/or characteristics of active ingredients in the food sector. Research of food ingredients, derived from sustainable sources



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## COLLABORATIONS WITH PUBLIC RESEARCH

Variati S.p.A. participates and collaborates with Research Institutions and Universities in specific projects in different sectors, according to needs that are identified on the basis of the issues being researched for product or performance improvement in end use

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## VERSALIS S.p.A.

### GENERAL INFORMATION

Piazza Boldrini 1 - 20097 San Donato Milanese (MI)  
sito web: <https://www.versalis.eni.com>

#### Operating offices:

*Ancarano (TE)*

Ascoli Piceno (AP), Bottrighe/Adria (RO), Castorano (AP), Crescentino (VC), Fermo – S. Elpidio a Mare (FM), Ferrara (FE), Mantova (MN), Morrovalle (MC), Novara (NO), Patrica (FR), Piana di Monte Verna (CE), Porto Marghera (VE), Porto Torres (SS), Priolo (SR), Ragusa (RG), Ravenna (RA), Rivalta Scrivia (AL), Roccabianca (PR), Terni (TR)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.20%

**Number of researchers:** 380

**Business sectors:** Advanced materials; Biotechnologies; Bitumen sheets for waterproofing; Chemicals from biomasses; Cleaning and maintenance products – biocides; Compounds and auxiliaries for plastics, plasticizers and similar products; Crop protection products; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Lubricants; Medical surgery; disinfectants; Organic base chemicals; Resins and thermoplastic systems

### CONTACTS

Elena Ghirardo  
[elena.ghirardo@versalis.eni.com](mailto:elena.ghirardo@versalis.eni.com)  
+39 3478114054

### DATASHEET ICONS



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PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Riprogettazione sostenibile

Product development for environmental sustainability/product stewardship



#### Green tires

Elastomers compounded with chemicals from renewable sources for green tyres production with reduced carbon footprint



#### Polymeric materials

Development of innovative polymeric blends based on thermoplastic polymers and bioplastics



#### Biofuels

Development of saccharification/fermentation technologies for the production of biofuels via 2G sugars from non-edible biomass



#### Specializzazione

Development of products/compounds for specialized applications in demanding sectors such as electrical, pharmaceutical, footwear, photovoltaic, automotive, and electric mobility



#### Bioeconomy

Development of innovative biodegradable plastics, made entirely or partly from renewable raw materials and intended for applications in which biodegradability and compostability—as well as chemical, mechanical, and paper stream recyclability—represent a real systemic advantage. Development of new low-impact biochemicals and bioproducts made entirely or partly from renewable sources



<b>Biotechnology</b>	Enzymatic production of bioplastics from non-edible biomass		   
<b>Plastic recycling</b>	Thermoplastic polymers from recycling via pyrolysis of waste plastic materials not mechanically recyclable		   
<b>Sustainable agriculture</b>	Development of industrial sludge recovery technology to be reused as soil improvers in agriculture. New dry farming techniques, development of new agronomic techniques, application of low-impact chemical processes for obtaining biomaterials and biochemicals (bioplastics, biolubricants, chemical intermediates, etc.). Development is guided by an integrated biorefinery approach based on the cascading use of biomass and resource efficiency		   
<b>Circular economy</b>	Feedstock diversification through the use of secondary and/or renewable raw materials for polymers and/or bioproducts		   
<b>Renewable sources</b>	Development of chemicals from renewables such as herbicides and antimicrobials (bactericides, virucides, antifungals)		   
<b>Integrated biorefinery</b>	Development of new integrated biorefinery processes based on the cascading use of biomass, resource efficiency, and high energy efficiency, with the aim of decarbonizing the economy		   

## COLLABORATIONS WITH PUBLIC RESEARCH

- "Federico II" University of Naples
- Politecnico di Milano University
- Politecnico di Torino University
- School for Advanced Studies of Pavia
- University of Aquila
- University of Bologna
- University of Messina
- University of Milano
- University of Modena e Reggio Emilia
- University of Parma
- University of Perugia
- University of Salerno
- University of Torino
- University of Udine

## VEVY EUROPE S.p.A.

### GENERAL INFORMATION

Via Semeria 16A - 16131 Genova (GE)  
sito web: <http://www.vevy.com>

### DETAILED INFORMATION

**Dimension:** SMALL COMPANY

**Research expenditure** (% of turnover): 3.60 %

**Number of researchers:**

**Business sectors:** Biotechnologies; Flavors and fragrances; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Products intended for use in animal feed; Surfactants and raw materials for detergents

### CONTACTS

Vincenzo Paolo Maria Rialdi  
secretariat@vevy.com  
+39 01052251

### DATASHEET ICONS



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THIRD PARTY RESEARCH



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Ingredients

Review of existing substances, products and processes for potential reduction of environmental impact



#### Ingredients

New substances and new products that can be manufactured with low environmental impact



### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Genova

## VINAVIL S.p.A.

### GENERAL INFORMATION

Viale Jenner 4 - 20159 Milano (MI)  
 sito web: <https://www.vinavil.com/>

#### Operating offices:

Villadossola (VB), Ravenna (RA)

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 5.00 %

**Number of researchers:** 31

**Business sectors:** Adhesives and sealants; Paints and varnishes; Resins and thermoplastic systems

### CONTACTS

Tito Zanetta  
 t.zanetta@vinavil.it  
 +39 3346309920

### DATASHEET ICONS

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### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Polymers</b>	Development and use of bio-based monomers	 	   
<b>Polymers</b>	Formaldehyde free thermoplastic adhesives for wood	 	   
<b>Polymers</b>	Water resistant labeling adhesives	 	   
<b>Polymers</b>	Coating binders	 	   
<b>Polymerization</b>	Industrial process optimization	 	   

### COLLABORATIONS WITH PUBLIC RESEARCH

- CNR - IBE
- University of Bologna
- University of Florence
- Polymat Fundazioa, Spain

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## ZAPI S.p.A.

### GENERAL INFORMATION

Via Terza Strada 12 – 35026 Conselve (PD)  
sito web: <http://www.zapispa.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 4.50 %

**Number of researchers:** 5

**Business sectors:** Cleaning and maintenance products - biocides; Medical surgery: disinfectants

### CONTACTS

Massimo Tagliaro  
[massimo.tagliaro@zapi.it](mailto:massimo.tagliaro@zapi.it)  
+39 0499597700

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### DATASHEET ICONS



PRODUCTS



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SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

### DESCRIPTION OF INDUSTRIAL RESEARCH

#### Protection

Research, study and experimentation of new sustainable solutions to protect people and the environment in which they live, from threat of pests, reducing the use of substances that are dangerous for humans, non-target organisms and environment



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### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Milan
- University of Padua



## ZSCHIMMER & SCHWARZ ITALIANA S.p.A.

### GENERAL INFORMATION

Via A. Ariotto 1/C - 13083 Tricerro (VC)  
sito web: <http://www.zschimmer-schwarz.com>

### DETAILED INFORMATION

**Dimension:** LARGE COMPANY

**Research expenditure** (% of turnover): 1.30 %

**Number of researchers:** 10

**Business sectors:** Auxiliaries for detergents and surfactants; Ingredients for the cosmetics industry and additives for the cosmetic and pharmaceutical industry; Intermediates and specialty chemicals; Soap; Starches and derivatives; Surfactants and raw materials for detergents

### CONTACTS

Fabrizio Guala  
[f.guala@zschimmer-schwarz.com](mailto:f.guala@zschimmer-schwarz.com)  
+39 0161808111

### DATASHEET ICONS



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TECHNOLOGIES

### DESCRIPTION OF INDUSTRIAL RESEARCH

<b>Biosurfactants</b>	Development of biosurfactants from native crop waste						
<b>Sustainable processes</b>	Reanalysis of all processes in order to improve their sustainability						
<b>Raw materials</b>	Research of new renewable raw materials						
<b>Surfactants</b>	Sustainable, vegetable surfactants with low environmental impact and dermocompatible. Multifunctional molecules						
<b>Synthesis</b>	Research of new sustainable synthesis methods (green chemical/engineering principles)						
<b>Water recycling</b>	Modifications to the water recycling and reuse system						

### COLLABORATIONS WITH PUBLIC RESEARCH

- University of Turin

## The Italian 82 University Departments currently censused

University	Department	Place	Prov.
Alma Mater Studiorum Università di Bologna	Department of Industrial Chemistry "Toso Montanari"	Viale del Risorgimento 4 - 40136 Bologna (BO)	BOLOGNA
Alma Mater Studiorum Università di Bologna	Department of Chemistry "Giacomo Ciamician"	Via Selmi 2 - 40126 Bologna (BO)	BOLOGNA
Alma Mater Studiorum Università di Bologna	Department of Agricultural and Food Sciences (DISTAL)	Viale Giuseppe Fanin 44 - 40127 Bologna (BO)	BOLOGNA
Alma Mater Studiorum Università di Bologna	Department of Civil, Chemical, Environmental, and Materials Engineering (DICAM)	Viale Risorgimento 2 - 40136 Bologna (BO)	BOLOGNA
Ca' Foscari University Venice	Department of Molecular Sciences and Nanosystems	Via Torino 155 - 30172 Venezia (VE)	VENICE
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Institute for Chemical Physical Processes (IPCF)	Viale Ferdinando Stagno d'Alcontres 37 - 98158 Messina (ME)	MESSINA
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Istituto di Scienze e Tecnologie Chimiche "Giulio Natta" (SCITEC)	via Alfonso Corti 12 - 20133 Milano (MI)	MILAN
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Istituto di Chimica Biomolecolare (ICB)	Via Campi Flegrei 34 - 80078 Pozzuoli (NA)	NAPLES
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Institute for the Chemistry of Organometallic Compounds (ICCOM)	Via Madonna del Piano 10 - 50019 Sesto Fiorentino (FI)	FLORENCE
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Institute of Science, Technology and Sustainability for Ceramics (ISSMC)	Via Granarolo 64 - 48018 Faenza (RA)	RAVENNA
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Istituto per lo Studio dei Materiali Nanostrutturati (ISMN)	Strada Provinciale 35 d, n. 9 - 00010 Montelibretti (RM)	ROME
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Institute for Organic Synthesis and Photoreactivity (ISOF)	Via Gobetti 101 - 40129 Bologna (BO)	BOLOGNA
CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali	Institute of Crystallography (IC)	Via Amendola 122/O - 70126 Bari (BA)	BARI
National Interuniversity Consortium of Materials Science and Technology - INSTM	-	Via Giuseppe Giusti 9 - 50121 Firenze (FI)	FLORENCE
Politecnico di Milano	Department of Civil and Environmental Engineering	Piazza Leonardo da Vinci 32 - 20133 Milano (MI)	MILAN
Politecnico di Torino	Department of Applied Science and Technology (DISAT)	Corso Duca degli Abruzzi 24 - 10129 Torino (TO)	TURIN
Sapienza Università di Roma	Department of Chemistry	Piazzale Aldo Moro 5 - 00185 Roma (RM)	ROME
Scuola Normale Superiore	Faculty of Sciences	Piazza dei Cavalieri 7 - 56126 Pisa (PI)	PISA
Tecnopole of the Università di Ferrara	Terra&Acqua Tech Laboratory	Via Luigi Borsari 46 - 44121 Ferrara (FE)	FERRARA
Università degli Studi del Piemonte Orientale	Department for the Sustainable Development and Ecological Transition (DISSTE)	Piazza S. Eusebio 5 - 13100 Vercelli (VC)	VERCELLI
Università degli Studi del Piemonte Orientale	Department of Pharmaceutical Sciences (DSF)	Largo Donegani 2/3 - 28100 Novara (NO)	NOVARA
Università degli Studi del Piemonte Orientale	Department of Science and Technological Innovation	Viale T. Michel 11 - 15121 Alessandria (AL)	ALESSANDRIA
Università degli Studi della Basilicata	Department of Sciences	Viale dell'Ateneo Lucano 10 - 85100 Potenza (PZ)	POTENZA
Università degli Studi dell'Aquila	Department of Industrial and Information Engineering and Economics (DIIE)	Piazzale Ernesto Pontieri 1 - 67100 Monteluco di Roio (AQ)	L'AQUILA
Università degli Studi dell'Aquila	Department of Physical and Chemical Sciences	Via Vetoio (Coppito 1) - 67100 Coppito (AQ)	L'AQUILA
Università degli Studi dell'Insubria	Department of Theoretical and Applied Sciences (DiSTA)	Via J.H. Dunant 3 - 21100 Varese (VA)	VARESE

Università degli Studi dell'Insubria	Department of Biotechnology and Life Sciences (DBSV)	Via J.H. Dunant 3 - 21100 Varese (VA)	VARESE
Università degli Studi di Bari Aldo Moro	Department of Chemistry	Via Edoardo Orabona 4 - 70126 Bari (BA)	BARI
Università degli Studi di Brescia	Department of Civil, Environmental, Architectural Engineering and Mathematics (DICATAM)	Via Branze 43 - 25123 Brescia (BS)	BRESCIA
Università degli Studi di Brescia	Department of Information Engineering (DII)	Via Branze 38 - 25123 Brescia (BS)	BRESCIA
Università degli studi di Cagliari	Department of Chemical and Geological Sciences	SS 554 - 09042 Monserrato (CA)	CAGLIARI
Università degli Studi di Cagliari	Department of Life and Environmental Sciences	Cittadella Universitaria – 09042 Monserrato(CA)	CAGLIARI
Università degli Studi di Cagliari	Department of Mechanical and Chemical Engineering Department	Via Marengo 2 - 09123 Cagliari (CA)	CAGLIARI
Università degli Studi di Camerino	School of Pharmacy - Department of Chemistry Interdisciplinary Project (CHIP)	Via Madonna delle carceri - 62032 Camerino (MC)	MACERATA
Università degli Studi di Camerino	School of Sciences and Technology - Department of Chemistry	Via Madonna delle Carceri (ChIP) – 62032 Camerino (MC)	MACERATA
Università degli Studi di Catania	Department of Civil Engineering and Architecture	Via Santa Sofia 64 - 95125 Catania (CT)	CATANIA
Università degli Studi di Ferrara	Department of Chemical, Pharmaceutical and Agricultural Sciences	Via Luigi Borsari 46 - 44121 Ferrara (FE)	FERRARA
Università degli Studi di Ferrara	Department of Engineering	Via Giuseppe Saragat 1 - 44122 Ferrara (FE)	FERRARA
Università degli Studi di Firenze	Department of Civil and Environmental Engineering (DICEA)	Via Santa Marta 3 - 50139 Firenze (FI)	FLORENCE
Università degli Studi di Genova	Department of Chemistry and Industrial Chemistry	Via Dodecaneso 31 - 16146 Genova (GE)	GENOA
Università degli Studi di Genova	Department of Civil, Chemical and Environmental Engineering (DICCA)	Via Montallegro 1 - 16145 Genova (GE)	GENOA
Università degli Studi di Messina	Department of Chemical, Biological, Pharmaceutical and Environmental Science	Viale F. Stagno d'Alcontres 31 – 98166 Messina (ME)	MESSINA
Università degli Studi di Messina	Department of Engineering	Contrada di Dio - 98166 Messina (ME)	MESSINA
Università degli Studi di Milano	Department of Chemistry	Via Golgi 19 - 20133 Milano (MI)	MILAN
Università degli Studi di Milano	Department of Pharmaceutical Science	Via Mangiagalli 25 - 20133 Milano (MI)	MILAN
Università degli Studi di Milano	Department of Biosciences	Via Celoria 26 - 20133 Milano (MI)	MILAN
Università degli Studi di Milano	Department of Agricultural and Environmental Sciences - Production, Territory, Agroenergy (DISAA)	Via Giovanni Celoria 2 - 20133 Milano (MI)	MILAN
Università degli Studi di Modena e Reggio Emilia	Department of Chemical and Geological Sciences	Via Campi 103 – 41125 Modena (MO)	MODENA
Università degli Studi di Napoli Federico II	Department of Pharmacy	Via Domenico Montesano 49 - 80131 Napoli (NA)	NAPLES
Università degli Studi di Napoli Federico II	Department of Chemical Sciences	Via Cintia 4 - 80126 Napoli (NA)	NAPLES
Università degli Studi di Napoli Federico II	Department of Chemical and Materials Engineering and Industrial Production	Piazzale Tecchio 80 - 80125 Napoli (NA)	NAPLES
Università degli Studi di Padova	Department of Industrial Engineering (DII)	Via Gradenigo 6/a - 35131 Padova (PD)	PADOVA
Università degli Studi di Padova	Department of Chemical Sciences	Via F. Marzolo 1 - 35131 Padova (PD)	PADOVA
Università degli Studi di Padova	Department of Pharmaceutical and Pharmacological Sciences	Via F. Marzolo 5 – 35131 Padova (PD)	PADOVA
Università degli Studi di Palermo	Department of Engineering	Viale delle Scienze, Edificio 7 – 90128 Palermo (PA)	PALERMO
Università degli Studi di Palermo	Department of Earth and Sea Sciences (DiSTeM)	Via Archirafi 22 - 90123 Palermo (PA)	PALERMO

Università degli Studi di Palermo	Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STeBiCeF)	Viale delle Scienze, Ed. 16 - 90128 Palermo (PA)	PALERMO
Università degli Studi di Parma	Department of Engineering and Architecture	Parco Area della Scienze 181/A - Padiglione 10 - 43124 Parma (PR)	PARMA
Università degli Studi di Parma	Department of Food and Drug	Parco Area delle Scienze 27/a - 43124 Parma (PR)	PARMA
Università degli Studi di Parma	Department of Chemistry, Life Sciences and Environmental Sustainability	Parco Area delle Scienze 11/A - 43124 Parma (PR)	PARMA
Università degli Studi di Pavia	Department of Chemistry	Via Taramelli, 12 - 27100 Pavia (PV)	PAVIA
Università degli Studi di Pavia	Department of Biology and Biotechnology L. Spallanzani	Via Ferrata 9 - 27100 Pavia (PV)	PAVIA
Università degli Studi di Perugia	Department of Agricultural, Food and Environmental Sciences	Borgo XX giugno 74 - 06121 Perugia (PG)	PERUGIA
Università degli Studi di Perugia	Department of Chemistry, Biology and Biotechnology	Via Elce di sotto 8 - 06123 Perugia (PG)	PERUGIA
Università degli Studi di Roma "Tor Vergata"	Department of Chemical Sciences and Technologies	Via della Ricerca Scientifica 1 - 00133 Roma (RM)	ROME
Università degli Studi di Salerno	Department of Chemistry and Biology "A. Zambelli"	Via Giovanni Paolo II, 132 - 84084 Fisciano (SA)	SALERNO
Università degli Studi di Salerno	Department of Pharmacy	Via Giovanni Paolo II 132 - 84084 Fisciano (SA)	SALERNO
Università degli Studi di Sassari	Department of Agriculture	Viale Italia 39 - 07100 Sassari (SS)	CAGLIARI
Università degli Studi di Siena	Department of Biotechnology, Chemistry and Pharmacy	Via Aldo Moro 2 - 53100 Siena (SI)	SIENA
Università degli Studi di Torino	Department of Chemistry	Via Pietro Giuria 7 - 10125 Torino (TO)	TURIN
Università degli Studi di Trento	Department of Industrial Engineering	Via Sommarive 9 - 38123 Trento (TN)	TRENTO
Università degli Studi di Trieste	Department of Life Sciences	Via Weiss 2 (Palazzina Q) - 34128 Trieste (TS)	TRIESTE
Università degli Studi di Trieste	Department of Chemical and Pharmaceutical Sciences	Via Licio Giorgieri 1 - 34127 Trieste (TS)	TRIESTE
Università degli Studi di Trieste	Department of Engineering and Architecture - DIA	Via Alfonso Valerio 6/1 - 341127 Trieste (TS)	TRIESTE
Università degli Studi di Udine	Department of Agricultural, Food, Environmental and Animal Sciences	Via delle Scienze 206 - 33100 Udine (UD)	UDINE
Università degli Studi di Urbino Carlo Bo	Department of Pure and Applied Sciences	Via S. Andrea 34 - 61029 Urbino (PU)	PESARO-URBINO
Università della Calabria	Department of Chemistry and Chemical Technologies	Via P. Bucci 12/C - 87036 Rende (CS)	COSENZA
Università di Pisa	Department of Pharmacy	Via Bonanno 33 - 56126 Pisa (PI)	PISA
Università di Pisa	Department of: Chemistry and Industrial chemistry	Via Moruzzi 13 - 56124 Pisa (PI)	PISA
University of Milano - Bicocca	Department of Biotechnology and Biosciences	Piazza della Scienza 2 - 20126 Milano (MI)	MILAN
University of Milano - Bicocca	Department of Materials Science	Via Roberto Cozzi 55 - 20125 Milano (MI)	MILAN
University of Torino	Department of Life Sciences and Systems Biology	Via Accademia Albertina 13 - 10123 Torino (TO)	TURIN

## How to read the data in the "Chemical Research Handbook" – Part 2

Data required to university institutions for this document includes both general information and specific information on training and patents.

There is also a section dedicated to research activities for sustainable chemistry and one dedicated to any related R&D facilities.

**Scientific area:**

- Chemistry and material sciences
- Biotechnologies
- Engineering
- Pharmacy and medicine
- Agricultural
- Veterinary

Institution logo

Participation to Federchimica's "SusChem Italy" platform

Department overview and contacts

Map

Department research activities

Other research facilities of the Department

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**GENERAL INFORMATION**

Università degli Studi di Cagliari  
Department of Mechanical and Chemical Engineering Department  
Via Marengo 2 - 09123 Cagliari (CA)  
sito web: [https://www.unica.it/unica/en/dip\\_ingmeccanica.page](https://www.unica.it/unica/en/dip_ingmeccanica.page)

**CONTACTS**

Prof. Antonio BALDI  
+39 0706755707

**DETAILED INFORMATION**

Staff: 13 Full Professors  
16 Associate Professors  
15 Researchers  
4 Structures Technicians  
6 Administrative Technicians  
Registered students: 850 (Academic year 2019/2020)  
Post Lauream Training: 19 enrolled in Doctorates in Industrial Engineering, Engineering and Environmental Sciences and Sciences and Technologies Innovation  
2 Research fellows  
Patents: 12

**LOCATION**

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**R&D ACTIVITIES DETAIL**

**CHEMISTRY**

Electrochemical processes for removal of emerging organic pollutants and microplastics from wastewaters	Annalisa Vacca (+39 0706755098) <a href="mailto:annalisa.vacca@dimcm.unica.it">annalisa.vacca@dimcm.unica.it</a>
Chemical and biological processes working in the presence of electromagnetic fields.	Francesco Desogus (+39 0706755078) <a href="mailto:francesco.desogus@dimcm.unica.it">francesco.desogus@dimcm.unica.it</a>
Bio-Electrochemical processes for water treatment and energy recovery, and H2 production.	Michele Mascia (+39 0706755094) <a href="mailto:michele.mascia@unica.it">michele.mascia@unica.it</a>
Modelling and control of crystallization processes and bio. Monitoring and control systems of distillation columns and reactors. Modelling and control of CCS processes	Roberto Baratti (+39 0706755094) <a href="mailto:roberto.baratti@dimcm.unica.it">roberto.baratti@dimcm.unica.it</a>
Synthesis of photoelectrodes for water splitting and H2 production.	Simonetta Palmas (+39 0706755068) <a href="mailto:simonetta.palmas@dimcm.unica.it">simonetta.palmas@dimcm.unica.it</a>
Cultivation processes of microalgae for the CO2 capture and biopetroleum production. Extraction of biopetroleum from microalgae. Extraction of high value added products from microalgae	Giacomo Cao (+39 0706755098) <a href="mailto:giacomo.cao@dimcm.unica.it">giacomo.cao@dimcm.unica.it</a>
Mechanical activation of physical and chemical transformations in biomass. Mechanochemical processes of heterogeneous molecular and polymeric systems	Francesco Delogu (+39 0706755078) <a href="mailto:francesco.delogu@dimcm.unica.it">francesco.delogu@dimcm.unica.it</a>
Synthesis and characterization of molecular catalysts for CO2 reduction	Luca Pilia (+39 0706755068) <a href="mailto:pilia@unica.it">pilia@unica.it</a>

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**OTHER R&D ORGANIZATIONS**

CINSA – Interdepartmental Centre of Engineering and Environmental Sciences | Contacts: Giacomo Cao (+39 0706755058) - [giacomo.cao@dimcm.unica.it](mailto:giacomo.cao@dimcm.unica.it)  
Web site: [https://www.unica.it/unica/it/atmeo\\_s03\\_s07.page?contentId=5TR19464](https://www.unica.it/unica/it/atmeo_s03_s07.page?contentId=5TR19464)



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA  
DIPARTIMENTO DI CHIMICA INDUSTRIALE  
"TOSO MONTANARI"

SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

### Alma Mater Studiorum Università di Bologna Department of Industrial Chemistry "Toso Montanari"

Viale del Risorgimento 4 - 40136 Bologna (BO)

sito web: <https://industrial-chemistry.unibo.it/en/index.html>

## CONTACTS

Prof. Andrea MAZZANTI

+39 0512093632

## DETAILED INFORMATION

**Staff:** 15 Full Professors

25 Associate Professors

22 Researchers

14 Structured Technicians

11 Administrative Technicians

2 General Services

**Registered students:** 779 (Academic year 2022/2023)

**Post Lauream Training:** 74 enrolled in doctoral programs in Chemistry, Industrial Chemistry and Nanoscience for Medicine and the Environment

12 enrolled in II level Master in Composite Materials

38 Research fellows

6 fellows

**Patents:** 71 (2005-2022)

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Hydrogen

Development of new industrial catalytic processes at low environmental impact; study of catalysts for H<sub>2</sub> production



**Fabrizio Cavani** (+39 0512093680)

[fabrizio.cavani@unibo.it](mailto:fabrizio.cavani@unibo.it)

### Semiconductors

Development of functional low-dimensional hybrid perovskite quantum wells for optoelectronic and photonic applications



**Daniele Cortecchia** (+39 3496825477)

[daniele.cortecchia2@unibo.it](mailto:daniele.cortecchia2@unibo.it)

### Fluidics

Advanced design, scale-up and optimization of process equipment by multiscale experimental and computational methods (PIV, ERT, CFD)



**Giuseppina Montante** (+39

051209406)

[giuseppina.montante@unibo.it](mailto:giuseppina.montante@unibo.it)

### Astrochemistry

Gas-phase molecules of atmospheric and astrophysical interest, studied by high resolution infrared and millimetre-wave spectroscopy in conjunction with ab-initio calculations



**Marco Garavelli** (+39 0512093693)

[marco.garavelli@unibo.it](mailto:marco.garavelli@unibo.it)

### Sensors

Design and characterization of advanced materials and innovative electrochemical devices to be used as sensors, catalysts, and systems for the conversion and storage of energy



**Erika Scavetta** (+39 0512093702)

[erika.scavetta2@unibo.it](mailto:erika.scavetta2@unibo.it)

<b>Structural analysis</b>	Structural analysis of organic molecules by spectroscopic techniques (NMR,CD,QM,HRMS)	    	<b>Andrea Mazzanti</b> (+39 0512093632) <i>andrea.mazzanti@unibo.it</i>
<b>Reactors</b>	Dynamic MFA (Material Flow Analysis) for the estimation of stocks and flows of materials of growing industrial interest	    	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>
<b>Sintesi asimmetrica</b>	Sustainable catalytic methods for asymmetric synthesis based on organocatalysis and the use of light	    	<b>Paolo Melchiorre</b> (+390512092623) <i>p.melchiorre@unibo.it</i>
<b>Luminescence</b>	Luminescent metal complexes and their application in the fields of energy transition (photo-ATRP, LSC, DSSC) and Life Sciences (cellular imaging)	    	<b>Stefano Stagni</b> (+39 0512093721) <i>stefano.stagni@unibo.it</i>
<b>Materials</b>	materials derived from natural and renewable sources as carbohydrates, proteins, terpenes. Applications are in the field of organic electronics and Additive Manufacturing (3D-Printing)	    	<b>Mauro Comes Franchini</b> (+39 0512093631) <i>mauro.comesfranchini@unibo.it</i>
<b>Photomaterials</b>	Modeling and design of photo-responsive organic materials, photo-biological systems, photo-reactive molecular switches and engines, photo-catalysis and photo-reactivity in complex environments	    	<b>Marco Garavelli</b> (+39 0512093693) <i>marco.garavelli@unibo.it</i>
<b>Transizione energetica</b>	Models for integrated energy management systems for Municipal Energy Plans	    	<b>Leonardo Setti</b> (+39 0512093672) <i>leonardo.setti@unibo.it</i>
<b>Polymers</b>	Characterization and structure-properties correlations of polymeric materials	    	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>
<b>Spettroscopia computazionale</b>	Modeling linear and non-linear spectroscopy at different spectral regimes (IR-NIR-VIS-UV-Xray) of photo-responsive (bio)organic molecular materials in their operational environment	    	<b>Marco Garavelli</b> (+39 0512093693) <i>marco.garavelli@unibo.it</i>
<b>Materials</b>	Study of nanostructured hybrid organic-inorganic materials for protecting and modifying of materials and substrates	    	<b>Daniele Caretti</b> (+39 051209368) <i>daniele.caretti@unibo.it</i>
<b>Circular economy</b>	catalytic processes for the production of chemicals and fuels from renewable raw materials; synthesis and characterization (also in situ) of innovative catalysts	    	
<b>Renewable energies</b>	Flux biofuel cell 3D printed	    	<b>Leonardo Setti</b> (+39 0512093672) <i>leonardo.setti@unibo.it</i>
<b>Devices</b>	Design, synthesis and the investigation of molecular and supramolecular systems capable of performing complex, useful functions in response to external physical or chemical stimuli. The final goal is the development of molecular devices and machines and smart materials	    	<b>Alberto Credi</b> (+39 0516398320) <i>alberto.credi@unibo.it</i>
<b>Circular economy</b>	Study and optimization of polymers and additive from renewable resources	    	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>

<b>Circular economy</b>	Characterization of industrial waste and residues, especially containing critical elements, and development of processes aimed at their recycling	  	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>
<b>Nanomaterials</b>	Study and development of nanomaterials	  	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>
<b>Metalorganic chemistry</b>	Molecular bifunctional catalysis for energy transition and circular economy. Biomass valorization, water oxidation and hydrogen production	  	<b>Rita Mazzoni</b> (+39 0512093714) <i>rita.mazzoni@unibo.it</i>
<b>Advanced materials</b>	Synthesis, electrosynthesis and characterization of new materials such as inorganic nanoparticles, hybrid organic/inorganic materials (Metal Organic Frameworks, MOFs), conductive polymers and their applications in catalysis, environment, energy and sensoristic fields	  	<b>Cristina Cassani</b> (+39 0512093700) <i>maria.cassani@unibo.it</i>
<b>Composite materials</b>	Carbon fibre recycle for automotive. Preparation, optimization and characterization of polymer composite materials and resin	  	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>
<b>Stoccaggio energia</b>	Electrochemical methods and spectroscopic ones involved in the development and characterization of new electrode materials for advanced electrochemical power sources	  	<b>Marco Giorgetti</b> (+39 0512093666) <i>marco.giorgetti@unibo.it</i>
<b>Renewable energies</b>	Sodium ion battery	  	<b>Leonardo Setti</b> (+39 0512093672) <i>leonardo.setti@unibo.it</i>
<b>Design</b>	Design of Experiments (DoE) and multivariate analysis techniques applied to industrial processes and products	  	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>
<b>Nanostructures</b>	Chemical and electrochemical synthesis of nanostructured materials for the fabrication of heterogeneous catalysts, electronic sensors, biosensors and biomaterials	  	<b>Barbara Ballarin</b> (+39 0512093704) <i>barbara.ballarin@unibo.it</i>
<b>Nanocluster</b>	Metal carbonyl clusters and nanoclusters, molecular metal nanoparticles and their applications in the field of nanostructured molecular materials, nanoelectronic and catalysis	  	<b>Stefano Zacchini</b> (+39 0512093711) <i>stefano.zacchini@unibo.it</i>
<b>Materials</b>	Modeling of condensed phases and functionalized organic materials such as liquid and molecular crystals, organic semiconductors and soft-materials like polymers and elastomers	  	<b>Marco Garavelli</b> (+39 0512093693) <i>marco.garavelli@unibo.it</i>
<b>Recycling</b>	Chemical and/or mechanical recycle of polymers and composite materials for the recovery of secondary raw materials	  	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>
<b>Polymers</b>	Synthesis and characterization of conjugate polymers for photovoltaic applications	  	<b>Elisabetta Salatelli</b> <i>elisabetta.salatelli@unibo.it</i>
<b>Cultural heritage</b>	Study of the interaction between environment and materials constituting cultural and architectural assets, as well as of the efficacy and durability of protective products. Ageing and leaching tests on different materials	  	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>

<b>Sustainability</b>	Life Cycle Assessment applied to industrial processes, products, management systems, also aimed at certification	    	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>
<b>Nanomedicine</b>	Functionalization of metallic nanostructures with polyfunctional organic molecules for applications in Theranostics (Therapy+Diagnosis) in nanomedicine.	    	<b>Mauro Comes Franchini</b> (+39 0512093631) <i>mauro.comesfranchini@unibo.it</i>
<b>Additive manufacturing</b>	Development of polymeric materials or thermoplastic matrix composites by Additive Manufacturing	    	<b>Loris Giorgini</b> (+39 0512093688) <i>loris.giorgini@unibo.it</i>
<b>Environmental monitoring</b>	Sampling and analysis of air (indoor and outdoor), water and soil pollutants	    	<b>Fabrizio Passarini</b> (+39 0512093683) <i>fabrizio.passarini@unibo.it</i>
<b>Tecnopolimeri</b>	Study of memory shape polymers	    	<b>Maurizio Toselli</b> (+39 0512090344) <i>maurizio.toselli@unibo.it</i>

## OTHER R&D ORGANIZATIONS

### Center for Chemical Catalysis-C3

The Center for Chemical Catalysis "C3" has been launched in 2021 by scientists of Chemistry Department "Giacomo Ciamician" and Industrial Chemistry Department "Toso Montanari" of Alma Mater Studiorum - Università of Bologna. Currently, the roster of the C3 counts more than 100 chemists, among senior and junior researchers, with interdisciplinary expertise covering many aspects of the chemical science. In the C3 the complementary skills of two Departments will be synergistically combined to tackle the ongoing challenges for a sustainable future. The Center for Chemical Catalysis aims to become a national and international "hub" for the development and investigation of chemical catalytic processes. The main objectives of C3 are: to promote the creation of profitable scientific networks comprising academic as well as industrial partners; to consolidate technology transfer from Academia to chemical Industry; to pursue high educational trainings of early-stage chemists in the field of chemical catalysis; to foster scientific dissemination and public engagement.

**Contacts:** Fabrizio Cavani (+39 0512093680) - [fabrizio.cavani@unibo.it](mailto:fabrizio.cavani@unibo.it)

**Web site:** <https://centri.unibo.it/c3/en>

### CERCO

CERCO, Research Center on Scientific Communication, is a center of the "Toso Montanari" Department of Industrial Chemistry, established by resolution of the Board of Directors of the University of Bologna dated 03/29/2022. The main purpose of CERCO is to be a point of connection for departmental research related to the topics of dissemination and sustainability and an opportunity to encourage interdisciplinary studies, involving researchers and scholars from all over the world and professionals in the sector.

**Contacts:** Laura Corazza - [laura.corazza@unibo.it](mailto:laura.corazza@unibo.it)

**Web site:** <https://centri.unibo.it/comunicazione-scientifica/it/centro>

### CIRI – MAM Advanced Mechanic and Materials

Inter-departmental Centre for the Industrial Research of the University of Bologna that performs activities of applied research on new materials, including polymers and composites, and on processes and technologies for different lines from the advanced mechanic to biomedical, automotive, air and sea, aerospace and, in general terms, to manufacturing

**Contacts:** Loris Giorgini (+39 0512093688) - [loris.giorgini@unibo.it](mailto:loris.giorgini@unibo.it)

**Web site:** <https://centri.unibo.it/mam/it>

### CIRI FRAME – Interdepartmental Centre for Industrial Research "Renewable Sources, Environment, Sea, Energy"

The objective of the center is to promote, coordinate and carry out industrial research, dissemination and disclosure of research and technology transfer results, in close interaction with companies, in the field of raw materials and energy renewable sources; the study and protection of the environment; the study and sustainable use of the sea and coasts; the sustainability in energy production and employment; the reduction of climate-changing gas emissions, to meet the needs of the industrial world

**Contacts:** Fabrizio Passarini (+39 0512093863) - [fabrizio.passarini@unibo.it](mailto:fabrizio.passarini@unibo.it)

**Web site:** <https://centri.unibo.it/frame/>

## COLLABORATIONS WITH COMPANIES

- Alpha Tauri
- Arpae
- BASF
- Bucci Industries
- Chiesi
- CPC group
- Dow-Chemical
- DSM
- ENEA
- Eni
- Eurocolor
- GSK
- Hera
- IFF
- Novamont
- Philip Morris
- Polynt
- Procter&Gamble
- SACMI
- Solvay
- Versalis
- Vulcanflex
- Zaitex



## GENERAL INFORMATION

**Alma Mater Studiorum Università di Bologna**  
**Department of Chemistry "Giacomo Ciamician"**

Via Selmi 2 - 40126 Bologna (BO)  
sito web: <https://chemistry.unibo.it/en/index.html>

## CONTACTS

Prof. Marco LUCARINI  
+39 0512099545

## DETAILED INFORMATION

**Staff:** 24 Full Professors

42 Associate Professors

21 Researchers

33 Structured and Administrative Technicians, Services

**Registered students:** 752 (Academic year 2023/2024)

**Post Lauream Training:** 125 enrolled in doctoral programs in Chemistry and Nanoscience

11 enrolled in II level Master in Materials and processes for the production of biomedical devices for the health sector

41 Research fellows

**Patents:** 100

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

<b>Sistemi fotoattivi</b>	Photoactive System for Energy Conversion and Imaging	 	   	<b>Paola Ceroni</b> (+39 0512099535) <a href="mailto:paola.ceroni@unibo.it">paola.ceroni@unibo.it</a>
<b>Nanoplastics</b>	Fluorescent Systems for the detection of Micro- and nanoplastics	 	   	<b>Luca Prodi</b> (+39 0512099481) <a href="mailto:luca.prodi@unibo.it">luca.prodi@unibo.it</a>
<b>Sostenibilità energetica</b>	Environmental and economical sustainability of production and end-of-life management of batteries, supercapacitors, fuel cells	 	   	<b>Francesca Soavi</b> (+39 0512099797) <a href="mailto:francesca.soavi@unibo.it">francesca.soavi@unibo.it</a>
<b>Sistemi fotoattivi</b>	Design and characterization of photochromic systems in solution and in liposomal membranes	 	   	<b>Serena Silvi</b> (+39 0512099463) <a href="mailto:serena.silvi@unibo.it">serena.silvi@unibo.it</a>
<b>Sistemi organizzati</b>	Synthesis and characterization of supramolecular systems and materials	 	   	<b>Stefano Masiero</b> (+39 0512095682) <a href="mailto:stefano.masiero@unibo.it">stefano.masiero@unibo.it</a>
<b>Spectroscopy</b>	Use and development of spectroscopic methods and models for the characterization of molecules and molecular aggregates and the analysis of complex mixtures	 	   	<b>Sonia Melandri</b> (+39 0512099480) <a href="mailto:sonia.melandri@unibo.it">sonia.melandri@unibo.it</a>
<b>Oligopeptides</b>	Design and synthesis of peptides, oligonucleotides and their bioactive mimetics as receptor ligands or enzymatic inhibitors	 	   	<b>Alessandra Tolomelli</b> (+39 0512099575) <a href="mailto:alessandra.tolomelli@unibo.it">alessandra.tolomelli@unibo.it</a>

<b>Biomimetics</b>	Design and development of new materials with applications as biomaterials for hard tissue replacement. Characterization of the solid state.	     	<b>Elisa Boanini</b> (+39 0512099548) <i>elisa.boanini@unibo.it</i>
<b>Polymeric materials</b>	Structure-property-processing correlation of polymers. Development of biomaterials, biobased and biodegradable polymers, functional polymers	     	<b>Maria Letizia Focarete</b> (+39 0512099577) <i>marialetizia.focarete@unibo.it</i>
<b>Energy materials</b>	Materials for energy storage and conversion systems. Electrochemical characterization of interphases, materials and devices	     	<b>Catia Arbizzani</b> (+39 0512099798) <i>catia.arbizzani@unibo.it</i>
<b>Luminescent biosensors</b>	Miniaturized luminescent analytical devices and biosensors for point-of-care/use application in clinical, agrifood and environmental fields	     	<b>Massimo Guardigli</b> (+39 0512099450) <i>massimo.guardigli@unibo.it</i>
<b>Organic catalysis</b>	Laboratory of Asymmetric Synthesis and Catalysis (LACS): Design and realization of sustainable synthetic organic methodology by means of catalytic tools.	     	<b>Marco Bandini</b> (+39 0512099751) <i>marco.bandini@unibo.it</i>
<b>Chemimetry</b>	Development of chemical analysis methods using multivariate statistical analysis and design of experiments	     	<b>Dora Melucci</b> (+39 0512099530) <i>dora.melucci@unibo.it</i>
<b>Bio-nanosystems</b>	Analytical Methods for Nano and Bioscience. Separation and dimensional, morphological and functional characterization of nano and biosystems.	     	<b>Pierluigi Reschiglian</b> (+39 0512099564) <i>pierluigi.reschiglian@unibo.it</i>
<b>Molecular materials</b>	Electrocatalysis and biosensors. Electrochemical properties of metals and nanocarbons. Electrochemiluminescence and scanning probe microscopies	     	<b>Francesco Paolucci</b> (+39 0512099460) <i>francesco.paolucci@unibo.it</i>
<b>Organic materials</b>	Solid state characterization of organic molecular material for electronic and optoelectronic: structure determination by means of X-ray diffraction (single crystal and powder), calorimetric technique.	     	<b>Lucia Maini</b> (+39 0512099597) <i>l.maini@unibo.it</i>
<b>Molecular materials</b>	Modeling functional and redox-active organic molecular materials for applications in electronics, optoelectronics and batteries	     	<b>Fabrizia Negri</b> (+39 0512099471) <i>fabrizia.negri@unibo.it</i>
<b>Cultural heritage</b>	Development of advanced analytical protocols to study artistic, historical, archaeological samples; development of advanced methods for the conservation-restoration of works of art	     	<b>Rocco Mazzeo</b> (+39 0512099532) <i>rocco.mazzeo@unibo.it</i>
<b>Crystal engineering</b>	Solid state screening of crystal forms of Active Pharmaceutical Ingredients (polymorphs, solvates, salts and cocrystals) by means of crystallographic and calorimetric methods - preparation and characterization of cocrystals and other aggregates	     	<b>Fabrizia Grepioni</b> (+39 0512099556) <i>fabrizia.grepioni@unibo.it</i>
<b>Sustainable biomaterials</b>	Advanced biomaterials from sustainable raw materials and industrial wastes for bone, osteo-cartilage tissue regeneration and wound dressing. Functionalization with active molecules and drugs	     	<b>Silvia Panzavolta</b> (+39 0512099566) <i>silvia.panzavolta@unibo.it</i>

<b>Hyperspectral methods</b>	Development and application of hyperspectral, spectroscopic methods both non destructive and microdestructive for the characterisation of materials in the environment, clinical, forensic and industrial field	    	<b>Rocco Mazzeo</b> (+39 0512099532) <i>rocco.mazzeo@unibo.it</i>
<b>Organic synthesis</b>	Design and development of new protocols and synthetic methodologies for the preparation of organic molecules having practical applications, with particular attention to sustainability and efficiency.	    	<b>Marco Lombardo</b> (+39 0512099544) <i>marco.lombardo@unibo.it</i>
<b>Green pharmaceutical chemistry</b>	Green Approach to drug discovery & Industrial pharmaceutical processes	    	<b>Walter Cabri</b> (+39 0512099575) <i>walter.cabri@unibo.it</i>
<b>Portable sensors</b>	Point of Care devices for Medical Diagnostics	    	<b>Luca Prodi</b> (+39 0512099481) <i>luca.prodi@unibo.it</i>
<b>Antioxidants</b>	Inhibition of the peroxidation of natural and synthetic materials, development of new antioxidants for food, cosmetics and plastics and organic materials	    	<b>Luca Valgimigli</b> (+39 0512095683) <i>luca.valgimigli@unibo.it</i>
<b>Sustainable chemistry</b>	Valorization of renewable sources in eco-compatible solvents to obtain chemical compounds and materials	    	<b>Guido Galletti</b> (+39 0512099459) <i>guido.galletti@unibo.it</i>
<b>Environmental chemistry</b>	Air quality (outdoor/indoor), Airborne particulate matter, Environmental impact studies (air, soil, water), Interactions between air pollution and materials, Environmental radioactivity, radioactivity in industrial processes, products and wastes	    	<b>Laura Tositti</b> (+39 0512099488) <i>laura.tositti@unibo.it</i>
<b>Free radicals</b>	Synthesis and characterization of supramolecular structures containing free radicals. Use of EPR spectroscopy for the characterization of supramolecular architectures	    	<b>Marco Lucarini</b> (+39 0512095691) <i>marco.lucarini@unibo.it</i>
<b>Molecular machines</b>	Design and characterization of artificial molecular machines	    	<b>Serena Silvi</b> (+39 0512099463) <i>serena.silvi@unibo.it</i>

## OTHER R&D ORGANIZATIONS

### Center for Chemical Catalysis-C3

The Center "C3" originates from the extensive research themes on chemical catalysis of the Department of Chemistry "Giacomo Ciamician" and the Department of Industrial Chemistry "Toso Montanari" of Alma Mater Studiorum Università di Bologna. The center is characterized by interdisciplinary expertise (electro and photo-catalysis asymmetric catalysis, biocatalysis, homogenous and heterogeneous catalysis and computational investigations related to catalytic transformations) that aim to address scientific challenges related to chemical sustainability at national as well as international level

**Contacts:** Marco Bandini (Co-Director) (+39 0512099751) - [marco.bandini@unibo.it](mailto:marco.bandini@unibo.it)

**Web site:** <https://centri.unibo.it/c3/en>

### CIRI - Aerospace

Interdepartmental Center for Industrial Research of the University of Bologna, which works in the fields of aeronautics, aerospace, metropolitan mobility, energy systems, advanced materials and mechanical systems, sensors technologies, nautical and ground transportation

**Contacts:** Sonia Melandri (+39 0512099480) - [sonia.melandri@unibo.it](mailto:sonia.melandri@unibo.it)

Luca Evangelisti (+39 0512099500) - [luca.evangelisti6@unibo.it](mailto:luca.evangelisti6@unibo.it)

Assimo Maris (+39 0512099502) - [assimo.maris@unibo.it](mailto:assimo.maris@unibo.it)

Mara Mirasoli (+39 0512099533) - [mara.mirasoli@unibo.it](mailto:mara.mirasoli@unibo.it)

**Web site:** <https://centri.unibo.it/aerospace/en>

## CIRI – Agrifood

Interdepartmental Center for Industrial Research of the University of Bologna for industrial agri-food research. The activity of the agri-food CIRI is directed towards two research areas: "Process area, food, consumption and health" and "Bioanalytical Area, bioactivity, microbiology and valorization of microorganisms for industrial purposes". The research focuses on improving the shelf - life, process optimization, quality control techniques, traceability and safety, on the packaging of food products and on the development of new functional foods and nutraceuticals

**Contacts:** Martina Zangheri (+39 0541/21847) - [martina.zangheri2@unibo.it](mailto:martina.zangheri2@unibo.it)

Sonia Melandri (+39 0512099480) - [sonia.melandri@unibo.it](mailto:sonia.melandri@unibo.it)

Dora Melucci (+39 0512099530) - [dora.melucci@unibo.it](mailto:dora.melucci@unibo.it)

**Web site:** <https://centri.unibo.it/agroalimentare/it>

## CIRI - Renewable Sources, Environment, Sea and Energy

Interdepartmental Research Center for Energy and the Environment. Develops applied research activities of industrial interest for the entire sector of the energy supply chain, optimization of production processes and human activities, waste management, renewable sources

**Contacts:** Emilio Tagliavini (+39 0512099526) - [emilio.tagliavini@unibo.it](mailto:emilio.tagliavini@unibo.it)

Paola Galletti (+39 0512099515) - [paola.galletti@unibo.it](mailto:paola.galletti@unibo.it)

Daniele Fabbri (+39 0541 434486) - [dani.fabbri@unibo.it](mailto:dani.fabbri@unibo.it)

Cristian Torri (+39 0544 937351) - [cristian.torri@unibo.it](mailto:cristian.torri@unibo.it)

**Web site:** <https://centri.unibo.it/frame/it>

## CIRI - Advanced Applications in Mechanical Engineering and Materials Technology

Interdepartmental Center for Industrial Research of the University of Bologna, which works in the field of advanced applications in mechanical engineering and materials technology

**Contacts:** Claudia Tomasini (+39 0512099486) - [claudia.tomasini@unibo.it](mailto:claudia.tomasini@unibo.it)

Chiara Gualandi (+39 0512099572) - [c.gualandi@unibo.it](mailto:c.gualandi@unibo.it)

**Web site:** <http://www.mam.unibo.it/it/meccanica-avanzata-e-materiali>

## CIRI - Health Sciences & Technologies

The Health Sciences & Technologies CIRI brings together biomedical and technological knowledge that covers the whole range of research and development, from the laboratory bench to the bed and the patient's home

**Contacts:** Luca Prodi (+39 0512099481) - [luca.prodi@unibo.it](mailto:luca.prodi@unibo.it)

Maria Letizia Focarete (+39 0512099577) - [marialetizia.focarete@unibo.it](mailto:marialetizia.focarete@unibo.it)

**Web site:** <http://www.technologie-salute.unibo.it/>

## COLLABORATIONS WITH COMPANIES

- Alfasigma S.p.A.
- B-PLAS sbrl
- BASF Italia S.p.A.
- BIONIKS S.R.L.
- DAVINES SPA
- CHEMESSENTIA SRL
- Dompé Farmaceutici SpA
- ECOMAVI SRL UNIPERSONALE
- FERRARI SPA
- FINCERAMICA FAENZA S.p.A
- GLUETON SRL
- INTERTEK ITALIA SPA
- NEWCHEM S.p.A.
- PERSONAL GENOMICS SRL
- POLYCRYSTALLINE SPA
- SAATI S.P.A.
- SACMI Imola S.C.
- SCUDERIA ALPHATAURI S.P.A.

## PUBBLICAZIONI

- A. Zanut et al. "Insights into the mechanism of coreactant electrochemiluminescence facilitating enhanced bioanalytical performance" Nature Communications volume 11, Article number: 2668 (2020)
- M. Monari et al. "Structure and Thermal Stability of Two Estetrol Solvates" Crystals 2023, 13(8), 1211
- L. Ferrazzano et al. "Sustainability in peptide chemistry: current synthesis and purification technologies and future challenges." Green Chemistry 2022, 24,975
- T. Fantoni et al. "Palladium catalyst recycling for Heck-Cassar-Sonogashira cross coupling reactions in the green N-hydroxyethyl pyrrolidone/water/N,N,N',N'-tetramethyl guanidine blend." ChemSusChem 2021, 14, 2591–2600
- L. Dall'Olio et al. "Direct Derivation of the Crystalline Fraction of Highly Potent Active Pharmaceutical Ingredients by X-Ray Powder Diffraction" Eur. J. Pharm. Sci. 2021, 159, 105692
- V. Marassi et al. "FFF-based high-throughput sequence shortlisting to support the development of aptamer-based analytical strategies" Analytical and Bioanalytical Chemistry (2022) 414 (18), pp. 5519 – 5527
- V. Marassi et al. "An ultracentrifugation – hollow-fiber flow field-flow fractionation orthogonal approach for the purification and mapping of extracellular vesicle subtypes" (2021) Journal of Chromatography A, 1638, art. no. 461861.

## MORE INFO

In the laboratories, in addition to research and teaching activities, experimental activities are carried out relating to consultancy and agreements that the Department stipulates with Companies, Public Bodies and other clients. - <https://chimica.unibo.it/it/terza-missione/servizi-alle-imprese>



## GENERAL INFORMATION

### Alma Mater Studiorum Università di Bologna Department of Agricultural and Food Sciences (DISTAL)

Viale Giuseppe Fanin 44 - 40127 Bologna (BO)

sito web: <https://distal.unibo.it/en/index.html>

## CONTACTS

Prof.ssa Rosalba LANCIOTTI

+39 0512096691

## DETAILED INFORMATION

**Staff:** 40 Full Professors

74 Associate Professors

52 Researchers

69 Structured Technicians

53 Administrative Technicians

4 General Services

**Registered students:** 2,255 (Academic year 2022/2023)

**Post Lauream Training:** 124 enrolled in doctoral programs in Agricultural, Environmental and Food Science and Technology

11 enrolled in doctoral programs in Health, Safety and Green Systems

3 enrolled in doctoral program in Future Earth, Climate Change and Societal Challenges

2 enrolled in doctoral program in Innovative Technologies and Sustainable Use of Mediterranean Sea Fishery and Biological Resources

99 Research fellows

28 fellows

**Patents:** 53

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Bioactivity

Bioactivity of proteins, protein hydrolysates and peptides  
(from food, by-products or industrial waste)



**Elena Babini** (+39 0547338159)  
[elena.babini@unibo.it](mailto:elena.babini@unibo.it)

### By-products reuse

Reuse of agro-industrial by-products in agriculture for  
soil fertility



**Luciano Cavani** (+39 0512096360)  
[luciano.cavani@unibo.it](mailto:luciano.cavani@unibo.it)

### Plant protection

Defense and control of the adversities of plants, products  
and foodstuffs



**Claudio Ratti** (+39 0512096733)  
[claudio.ratti@unibo.it](mailto:claudio.ratti@unibo.it)

### Photochemistry

Study of the interaction between light and chemicals  
Study of chemical species and nano-structured  
luminescent and / or photo-reactive materials



**Massimo Baroncini** (+39 0516398325)  
[massimo.baroncini@unibo.it](mailto:massimo.baroncini@unibo.it)

### Organic substance

Evaluations of organic matter, carbon and nutrients  
stocks in agricultural and forestry soils



**Claudio Marzadori** (+39 0512096211)  
[claudio.marzadori@unibo.it](mailto:claudio.marzadori@unibo.it)

### Sistemi biologici

Analysis of the three-dimensional structure of complex  
biological systems and evaluation of the impact of  
exposure to chemicals using metabolomics indicators



**Francesco Capozzi** (+39 0547338104)  
[francesco.capozzi@unibo.it](mailto:francesco.capozzi@unibo.it)

<b>Biotechnology</b>	Biotechnological approaches for the enhancement of agro-industrial by-products and wastewaters	    	<b>Rosalba Lanciotti</b> (+39 0547338132) <i>rosalba.lanciotti@unibo.it</i>
<b>Chemical impact</b>	Assessment of the impact of exposure to chemicals in biological systems by using metabolomics indicators	    	<b>Francesco Capozzi</b> (+39 0547338104) <i>francesco.capozzi@unibo.it</i>
<b>Non-food crops</b>	Non-food crops for the bio-based industry, green chemistry and bio-fuel production	    	<b>Andrea Monti</b> (+39 0512096653) <i>a.monti@unibo.it</i>
<b>Antibiotics</b>	Antibiotic abatement and antibiotic resistance in livestock wastewaters and wastewaters	    	<b>Ilaria Braschi</b> (+39 0512096208) <i>ilaria.braschi@unibo.it</i>
<b>Waste water</b>	Precision irrigation, treatment and reuse of waste water	    	<b>Attilio Toscano</b> (+39 0512096179) <i>attilio.toscano@unibo.it</i>
<b>Soil fertility</b>	Soil fertility and plant nutrition	    	<b>Claudio Ciavatta</b> (+39 0512096201) <i>claudio.ciavatta@unibo.it</i>
<b>Irrigated water</b>	Sustainable management of water resources in agriculture	    	<b>Brunella Morandi</b> (+39 0512096428) <i>brunella.morandi@unibo.it</i>

## OTHER R&D ORGANIZATIONS

### Center for Light Activated Nanostructures - CLAN

**Contacts:** Massimo Baroncini (+39 0516398325) - [massimo.baroncini@unibo.it](mailto:massimo.baroncini@unibo.it)  
**Web site:** <https://centri.unibo.it/clan/en>

### Interdepartmental Centre for Agri-food industrial Research

**Contacts:** Francesco Capozzi (+39 0547 338104) - [ciriagro.cirifood@unibo.it](mailto:ciriagro.cirifood@unibo.it)  
**Web site:** <http://www.agroalimentare.unibo.it/>

## COLLABORATIONS WITH COMPANIES

- AEB group
- Agrosistemi
- Allvineyard
- Amadori SpA
- ANBI ER
- Apicoltori Felsinei Le nostre api
- Barilla
- BeeBo
- Bestack
- BIOMAN SpA
- BIORENOVA SpA
- Bonifiche Ferraresi
- CAB Massari
- Caffè concerto
- Caseificio Mambelli
- CEFLA -Imola
- Clai S.c.a.
- CNH Industrial
- CON\_AMI
- Consorzio Bestack
- Consorzio Biorepack
- Consorzio Cuoiodapur SpA
- Consorzio Italiano Compostatori
- Consorzio Vini di Romagna
- DEPOFARMA
- Fattorie Rabboni e Zanetti
- Fertilizzanti Certaldo Srl
- FOMET SpA
- Gruppo Amadori
- Herambiente SpA
- Idea Verde srl
- ILSA-Huber
- Legacoop Bologna
- Mace fruit
- MARR SpA
- Martini Alimentare Srl
- Novamont SpA
- Organazoto Fertilizzanti SpA
- Organizzazione Produzione Allevatori Suini
- Orogel
- PROBIOTICAL
- Rossovivo
- S.E.S.A. Spa
- Sacmi - Imola
- Salumificio Dalvecchio
- SCAM SpA
- Steroglass
- Unigrà

## PUBBLICAZIONI

- Baghdadi A., Della Lucia M.C., Borella M., Monti A., Mangione, F. (2022). **A dual-omics approach for profiling plant responses to biostimulant applications under controlled and field conditions.** *Frontiers in Plant Science*, 13: 983772
- Bortolotti G., Mengoli D., Piani M., Grappadelli L.C., Manfrini L. (2022). **A computer vision system for in-field quality evaluation: preliminary results on peach fruit.** *IEEE Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)*, Perugia, Italy, 2022, pp. 180-185, doi: 10.1109/MetroAgriFor55389.2022.9965022
- Di Francesco, A., Di Foggia, M., Baldo, D., Ratti C., Baraldi E. (2022). **Preliminary results on *Cadophora luteo-olivacea* pathogenicity aspects on kiwifruit.** *Eur. J. Plant Pathol.* 163: 997-1001. <https://doi.org/10.1007/s10658-022-02518-6>
- Gottardi D., Ciccone M., Siroli L., Lanciotti R., Patrignani F. (2022). **Use of *Yarrowia lipolytica* to Obtain Fish Waste Functional Hydrolysates Rich in Flavoring Compounds.** *Fermentation*, <https://doi.org/10.3390/fermentation8120708>
- Fasolino N.G., Zavalloni M., Viaggi D. (2022). **The role of collaboration and entrepreneurship in strengthening the participation of primary producers in the bioeconomy in (2022).** *Agricultural Bioeconomy: Innovation and Foresight in the Post-COVID Era*, pp. 231-244. DOI: 10.1016/B978-0-323-90569-5.00013-5
- Mahboubi M., Talebi R., Mehrabi R., Mohammad Najj A., Maccaferri M., Kema G.H. (2022). **Genetic analysis of novel resistance sources and genome-wide association mapping identified novel QTLs for resistance to *Zymoseptoria tritici*, the causal agent of septoria tritici blotch in wheat.** *Journal of Applied Genetics*, 63(3): 429-445
- Mazzon M., Gioacchini P., Montecchio D., Rapisarda S., Ciavatta C., Marzadori C. (2022). **Biodegradable plastics: effects on functionality and fertility of two different soils.** *Applied Soil Ecology* 169: 104216. <https://doi.org/10.1016/j.apsoil.2021.104216>.



## GENERAL INFORMATION

**Alma Mater Studiorum Università di Bologna**  
**Department of Civil, Chemical, Environmental, and Materials Engineering (DICAM)**

Viale Risorgimento 2 - 40136 Bologna (BO)

sito web: <http://www.dicam.unibo.it/en>

## CONTACTS

Prof. Valerio COZZANI

+39 0512090240

## DETAILED INFORMATION

**Staff:** 37 Full Professors

53 Associate Professors

40 Researchers

25 Technologists

6 Structured Technicians

16 Administrative Technicians

6 General Services

**Registered students:** 2,575 (Academic year: 2023/2024)

**Post Lauream Training:** 140 enrolled in doctoral programs

10 enrolled in II level Master in Sustainable and integrated Mobility in Urban Regions

10 enrolled in II level Master in Impresa e Tecnologia Ceramica

52 Research fellows

**Patents:** 14 <https://dicam.unibo.it/it/con-societa-e-impresa/brevetti>

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Materiali ceramici

Durability: corrosion and protection of metals and ceramic materials. Alkali activated materials



**Maria Bignozzi** (+39 0512090342)  
[maria.bignozzi@unibo.it](mailto:maria.bignozzi@unibo.it)

### Termodinamica

Thermodynamic and transport properties in polymeric systems. Gas phase membrane separation systems



**Ferruccio Doghieri** (+39 0512090269)  
[ferruccio.doghieri@unibo.it](mailto:ferruccio.doghieri@unibo.it)

### Ultrafiltrazione

Liquid-liquid separation systems (nanofiltration, reverse osmosis, electrodialysis, membrane contactors, membrane reactors)



**Serena Bandini** (+39 0512090231)  
[serena.bandini@unibo.it](mailto:serena.bandini@unibo.it)

### LCA

Environmental sustainability and life cycle assessment of chemical processes and supply chains in the chemical industry. Technologies for acid gas removal and carbon capture and sequestration



**Alessandro Dal Pozzo** (+39 0152090235)  
[a.dalpozzo@unibo.it](mailto:a.dalpozzo@unibo.it)

### Polymers

Synthesis and characterization of eco-friendly polymers. Design and preparation of materials with useful properties for specific applications



**Andrea Munari** (+39 0512090345)  
[andrea.munari@unibo.it](mailto:andrea.munari@unibo.it)

### Polymeric materials

Materials for advanced applications and industrial engineering: bioplastics, biomedical materials, polymers, biopolymers, and advanced composite materials



**Paola Fabbri** (+39 0512090364)  
[p.fabbri@unibo.it](mailto:p.fabbri@unibo.it)

<b>Membranes</b>	Separation of biomolecules using chromatographic techniques and/or membrane processes	    	<b>Cristiana Boi</b> (+39 0512090432) <i>cristiana.boi@unibo.it</i>
<b>Hydrogen</b>	Comparative analysis of technological systems for the energy supply integrated with the development of suitable models for the characterization of reactive systems.	    	<b>Gianmaria Pio</b> (+39 0512090284) <i>gianmaria.pio@unibo.it</i>
<b>Plant security</b>	Quantitative risk assessment of industrial sites exposed to natural events and dealing with hydrogen	    	<b>Federica Ricci</b> (+39 0512090253) <i>federica.ricci18@unibo.it</i>
<b>Biomass</b>	Development of methodologies, models and tools aimed at the analysis and assessment of: biomass treatment (including bioprocesses); bioremediation; wastewater treatment; biochemical from biomass waste; biofuels; flue gas treatment; sanitary risk assessment	    	<b>Dario Frascari</b> (+39 0512090416) <i>dario.frascari@unibo.it</i>
<b>Food safety</b>	Food risk assessment (chemical, microbiological, emerging), optimization of innovative processes for food preservation, and the development of new ingredients and materials	    	<b>Alessandro Zambon</b> (+39 0512090273) <i>alessandro.zambon2@unibo.it</i>
<b>Membranes</b>	Mass transport properties of gases and vapors in polymers, membrane separation and barrier applications (eg. packaging)	    	<b>Matteo Minelli</b> (+39 0512090426) <i>matteo.minelli@unibo.it</i>
<b>Biotechnology</b>	Environmental and industrial biotechnologies. Wastewater treatment	    	<b>Fabio Fava</b> (+39 0512090330) <i>fabio.fava@unibo.it</i>
<b>Sicurezza processo</b>	CFD numerical simulation of the behaviour of process industry equipment under fire exposure	    	<b>Giordano Emrys Scarponi</b> (+39 0512090250) <i>giordano.scarponi@unibo.it</i>
<b>Plant security</b>	Process safety. Domino effects and natural hazards triggering technological scenarios (NaTech). Quantitative Risk Assessment (QRA). Safety of technologies for energy transition, decarbonization, and CCUS	    	<b>Valerio Cozzani</b> (+39 0512090240) <i>valerio.cozzani@unibo.it</i>
<b>Big data</b>	Big data in the chemical and process industry	    	<b>Giacomo Antonioni</b> (+39 0512090230) <i>giacomo.antonioni3@unibo.it</i>
<b>Plant security</b>	Environmental sustainability assessment and process intensification. Inherent safety	    	<b>Alessandro Tugnoli</b> (+39 0512090283) <i>a.tugnoli@unibo.it</i>
<b>Cybersecurity</b>	Cybersecurity of industrial plants handling hazardous materials	    	<b>Matteo Iaiani</b> (+39 0512090248) <i>matteo.iaiani@unibo.it</i>
<b>Plant security</b>	Security for chemical and process industry. Improvised explosive devices (IED). Combustion, deflagration, and detonation	    	<b>Ernesto Salzano</b> (+39 0512090255) <i>ernesto.salzano@unibo.it</i>
<b>Big data</b>	Molecular understanding of cellular processes from biological big data	    	<b>Camilla Luni</b> (+39 3494239272) <i>camilla.luni@unibo.it</i>

## OTHER R&D ORGANIZATIONS

<b>Italian Ceramic Centre</b>	<p>The Italian Ceramic Centre carries out research and testing for the Ceramics Industry. It is based on the cooperation among Enterprises, Territory and University. The multiplicity of technical-scientific skills and of laboratory instruments allows to solve technical and technological problems at small, medium and large scale and, at the same time, to carry out research activities in different fields, even if the ceramic sector remains the core business</p> <p><b>Contacts:</b> Maria Bignozzi - maria.bignozzi@unibo.it <b>Web site:</b> <a href="http://www.centroceramico.it">http://www.centroceramico.it</a></p>
<b>The Centre of Research on the Identification of Materials and Structures - CIMEST</b>	<p>CIMEST aims at promoting research on the basic and practical questions of inverse problems, in in the research fields of Identification, Diagnostics and Structural Strengthening, also serving as support to the solution of problems of civil society</p> <p><b>Contacts:</b> Stefano De Miranda - stefano.demiranda@unibo.it</p>
<b>Interdepartmental Centre for Industrial Aerospace Research - CIRI Aerospace</b>	<p>CIRI Aerospace is the Interdepartmental Center for Industrial Research of the University of Bologna, which works in the fields of aeronautics, aerospace, metropolitan mobility, energy systems, advanced materials and mechanical systems, sensors technologies, nautical and ground transportation</p> <p><b>Contacts:</b> Paolo Tortora - paolo.tortora@unibo.it <b>Web site:</b> <a href="https://centri.unibo.it/aerospace/en">https://centri.unibo.it/aerospace/en</a></p>
<b>Interdepartmental Centre for Industrial Agrofood Research - CIRI Agrofood</b>	<p>CIRI - Agrifood belongs to the University of Bologna and has the aim of reinforcing the relation between industry and research centre, promoting the technological transfer in order to meet the needs of the productive sector</p> <p><b>Contacts:</b> Francesco Capozzi - francesco.capozzi@unibo.it <b>Web site:</b> <a href="https://centri.unibo.it/agroalimentare/it">https://centri.unibo.it/agroalimentare/it</a></p>
<b>Interdepartmental Centre for Industrial Research in Health Sciences and Technologies - CIRI Health Sciences and Technologies</b>	<p>The Health Sciences &amp; Technologies (HST) CIRI brings together biomedical and technological knowledge that covers the whole range of research and development, from the laboratory bench to the bed and the patient's home</p> <p><b>Contacts:</b> Monica Forni - monica.forni@unibo.it <b>Web site:</b> <a href="https://centri.unibo.it/tecnologie-salute/it/">https://centri.unibo.it/tecnologie-salute/it/</a></p>
<b>Interdepartmental Centre for Industrial ICT Research - CIRI ICT</b>	<p>The CIRI ICT research personnel holds strong background and outstanding expertise in several aspects of the ICT field, with a special focus on green ICT and ICT for sustainable development</p> <p><b>Contacts:</b> Luca Foschini - luca.foschini@unibo.it <b>Web site:</b> <a href="https://centri.unibo.it/ict-tecnologie-informazione/it">https://centri.unibo.it/ict-tecnologie-informazione/it</a></p>
<b>InterdepartmentCentre for Industrial Research in Building and Construction - CIRI Building and Construction</b>	<p>The Interdepartmental Centre for Applied Research on Buildings and Construction (CIRI-EC) promotes research co-operation and innovation within industries and small/medium enterprises by means of technological support, knowledge transfer and business development. Applied research on buildings and construction technologies is the CIRI-EC mission</p> <p><b>Contacts:</b> Marco Savoia - marco.savoia@unibo.it <b>Web site:</b> <a href="https://centri.unibo.it/edilizia-costruzioni/it">https://centri.unibo.it/edilizia-costruzioni/it</a></p>
<b>Interdepartmental Centre for Industrial Research in Advanced Mechanical Engineering Applications and Materials Technology - CIRI Advanced Mechanics and Materials</b>	<p>CIRI MAM is the Interdepartmental Center for Industrial Research of the University of Bologna, which works in the filed of advanced applications in mechanical engineering and materials technology</p> <p><b>Contacts:</b> Dario Croccolo - dario.croccolo@unibo.it</p> <p><b>Web site:</b> <a href="https://centri.unibo.it/mam/it">https://centri.unibo.it/mam/it</a></p>
<b>Research Centre of Applied Mathematics - CIRAM</b>	<p>CIRAM works in the field of applied mathematics and, in particular, on the development of new teaching methodologies by the implementation of original mathematical software</p> <p><b>Contacts:</b> Tommaso Ruggeri - tommaso.ruggeri@unibo.it</p>
<b>Center for Off-shore and Marine Systems Engineering - COMSE</b>	<p>The main aim of COSME is to promote and develop activities related to the design and management of marine and offshore systems, the study of marine environment and the sustainable exploitation and management of offshore resources</p> <p><b>Contacts:</b> Renata Archetti - renata.archetti@unibo.it</p>

**Centre for International  
Cooperation and Development on  
the thematic areas of Engineering,  
Environment and Emergency -  
CODE<sup>3</sup>**

The Center aims at coordinating and promoting the organization of scientific and training initiatives, information and awareness campaigns on issues that are relevant to development in emerging countries, information exchanges between Italian and foreign institutions and research centers in all fields of Civil, Environmental and Materials Engineering

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Antonio Zanutta - [antonio.zanutta@unibo.it](mailto:antonio.zanutta@unibo.it)

**Interdepartmental Centre for  
Industrial Research in Renewable  
Resources, Environment, Sea and  
Energy - CIRI Renewable  
Resources, Environment, Sea and  
Energy – FRAME**

This Interdepartmental Centre is aimed at technological research in the fields of Renewable Sources and Sustainability, Marine Resources and Blue Growth, and Technologies for Energy and Environment

**Contacts:** Francesco Basile - [f.basile@unibo.it](mailto:f.basile@unibo.it)  
**Web site:** <https://centri.unibo.it/frame/it>

**Osservatorio Claudio Ceccoli**

This Research Centre focuses on the observation of vices and defects of the subject of the dispute in subcontracting and commerce, with the aim of creating an integrated and organized knowledge on this topic

**Contacts:** Tomaso Trombetti - [tomaso.trombetti@unibo.it](mailto:tomaso.trombetti@unibo.it)

## COLLABORATIONS WITH COMPANIES

- BASF Italia S.p.A.
- Eni S.p.A.
- GlaxoSmithKline S.p.A.
- Herambiente Servizi Industriali S.r.l.
- IMA group
- NEST Consulting S.r.l.
- Nuovo Pignone Tecnologie S.r.l.
- Rina Consulting S.r.l.
- SACMI Imola S.C
- Snam S.p.A.
- Versalis S.p.A.

## PUBBLICAZIONI

<https://dicam.unibo.it/it/ricerca/pubblicazioni-scientifiche>



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**

**Institute for Chemical Physical Processes (IPCF)**

Viale Ferdinando Stagno d'Alcontres 37 - 98158 Messina (ME)

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## CONTACTS

Dott. Onofrio M. MARAGÒ

+39 09039762200

## DETAILED INFORMATION

### Staff:

45 Researchers

2 Technologists

14 Structured Technicians

10 Administrative Technicians

### Registered students:

**Post Lauream Training:** 20 Research fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Cultural heritage

Diagnostic and sensors for cultural heritage



**Rosina Celeste Ponterio** (+39 09039762201)  
[ponterio@ipcf.cnr.it](mailto:ponterio@ipcf.cnr.it)

### Life science

Solution NMR spectroscopy for the investigation of molecular recognition phenomena



**Federica Aiello** (+39 0503152244)  
[federica.aiello@pi.ipcf.cnr.it](mailto:federica.aiello@pi.ipcf.cnr.it)

### Green chemistry

Multi-scale modeling of (metal-free) carbon-based materials for catalytic applications; depolymerization processes of lignin materials



**Giovanni Barcaro** (+39 0503152455)  
[giovanni.barcaro@pi.ipcf.cnr.it](mailto:giovanni.barcaro@pi.ipcf.cnr.it)

### Energy

Spectroscopic characterization and stability profiling of materials for photovoltaic applications



**Federica Aiello** (+39 0503152244)  
[federica.aiello@pi.ipcf.cnr.it](mailto:federica.aiello@pi.ipcf.cnr.it)

### Green chemistry

Development of effective agro-food waste adsorbent materials for the removal of wastewater contaminants



**Paola Fini** (+39 0805442226)  
[p.fini@ba.ipcf.cnr.it](mailto:p.fini@ba.ipcf.cnr.it)

### Advanced materials

Development of 2D materials for advanced sensor applications



**Pietro Gucciardi** (+39 09039762248)  
[gucciardi@ipcf.cnr.it](mailto:gucciardi@ipcf.cnr.it)

### Energy

Design, synthesis and characterization of di nanomaterials, hybrid systems and nanocomposites for energy conversion



**Marinella Striccoli** (+39 08054420279)  
[m.striccoli@ba.ipcf.cnr.it](mailto:m.striccoli@ba.ipcf.cnr.it)

<b>Advanced materials</b>	Spectroscopy on nanostructured systems and hybrid nanocomposites	    	<b>Valentina Villari</b> (+39 09039762219) <i>villari@ipcf.cnr.it</i>
<b>Advanced materials</b>	Development of noble metal nanostructured thin films for SERS sensing applications	    	<b>Sebastiano Trusso</b> (+39 09039762210) <i>sebastiano.trusso@cnr.it</i>
<b>Advanced materials</b>	Synthesis and characterization of oxide, perovskite and semiconductor nanocrystals, plasmonic and magnetic nanoparticles and luminescent carbon dots	    	<b>Marinella Striccoli</b> (+39 08054420279) <i>m.striccoli@ba.ipcf.cnr.it</i>
<b>Advanced materials</b>	Synthesis of hybrid nanocomposites based on graphene derivatives and inorganic colloidal nanoparticles (NPs) for the detection of pollutants in water resources, additives in food and disease biomarkers in human samples	    	<b>Chiara Ingrosso</b> (+39 0805442027) <i>c.ingrosso@ba.ipcf.cnr.it</i>
<b>Energy</b>	Multi-scale modeling of high-efficiency catalysts for fuel cells	    	<b>Giovanni Barcaro</b> (+39 0503152455) <i>giovanni.barcaro@pi.ipcf.cnr.it</i>
<b>Life science</b>	Optical nanospectroscopies and nanoimaging for ultrasensitive detection of biomolecules	    	<b>Pietro Gucciardi</b> (+39 09039762248) <i>gucciardi@ipcf.cnr.it</i>
<b>Energy</b>	Biohydrogen production via the use of photosynthetic microorganisms in fresh and salty waters	    	<b>Massimo Trotta</b> (+39 0805442027) <i>massimo.trotta@cnr.it</i>
<b>Advanced materials</b>	Development of photoactive (nano) materials for the abatement of organic pollutants and pathogenic microorganisms (viruses and bacteria) in water, air and surfaces	    	<b>Roberto Comparelli</b> (+39 0805442027) <i>roberto.comparelli@cnr.it</i>
<b>Life science</b>	Design, realization and study of artificial and physiological nanovectors for treatment of cancer and neurological disorders	    	<b>Nicoletta Depalo</b> (Nicoletta Depalo) <i>n.depalo@ba.ipcf.cnr.it</i>
<b>Green chemistry</b>	Bioplastics: properties in the lifetime and biodegradation	    	<b>Maria Cristina Righetti</b> (+39 0503152068) <i>cristina.righetti@pi.ipcf.cnr.it</i>
<b>Green chemistry</b>	Valorization of biomasses in preparation according to Eco-design strategy and characterization of the behaviour of bioplastics in natural environments	    	<b>Simona Bronco</b> (+39 0503152519) <i>simona.bronco@pi.ipcf.cnr.it</i>
<b>Green chemistry</b>	Bioremediation of water basins and soil polluted with heavy metals via photosynthetic bacteria	    	<b>Massimo Trotta</b> (+39 0805442027) <i>massimo.trotta@cnr.it</i>
<b>Life science</b>	Multiscale modeling of nanostructured materials to be used as drug-delivery devices in cancer therapy	    	<b>Giovanni Barcaro</b> (+39 0503152455) <i>giovanni.barcaro@pi.ipcf.cnr.it</i>
<b>Cultural heritage</b>	Development of self-cleaning photocatalytic coatings for the protection and conservation of cultural heritage	    	<b>Roberto Comparelli</b> (+39 0805442027) <i>roberto.comparelli@cnr.it</i>

## OTHER R&D ORGANIZATIONS

### Ar3Digilab

The laboratory is equipped with instrumentation for the 3D reconstruction in the cultural heritage field  
**Contacts:** Rosina Celeste Ponterio (+39 09039762201)

<b>Electron Microscopy Lab</b>	Facilities (TEM and SEM FEG equipped with EDX) for imaging, morphological and chemical characterization of materials, thin films and nanostructures at nano and micro scale <b>Contacts:</b> Roberto Comparelli (+39 0805442027) - roberto.comparelli@cnr.it
<b>Laser Ablation Lab</b>	The laboratory is equipped with a system for the preparation of nanostructured materials by laser ablation <b>Contacts:</b> Sebastiano Trusso (+39 09039762210)
<b>High-performance computing center - Molecular Modelling Team MMT@CNR.PI</b>	The laboratory is equipped with server/computing nodes, ethernet/infiniband switches and storage disks to perform high-performance multiscale modeling on a variety of systems of chemical and physical interest for the research activities of the Institute <b>Contacts:</b> Giovanni Barcaro (+39 0503152455) - giovanni.barcaro@pi.ipcf.cnr.it Luca Sementa (+39 0503152263) - luca.sementa@pi.ipcf.cnr.it Giuseppe Annino (+39 0503152249) - giuseppe.annino@pi.ipcf.cnr.it
<b>Lab for physical and chemical characterization of nanomaterials and thin films</b>	The laboratory is equipped with instrumentation for the optical and chemical-physical characterization (UV-Vis Abs, stationary and time resolved PL, absolute QY, FTIR, AFM, etc.) of nanoparticles, nanocomposites, hybrid materials and thin films <b>Contacts:</b> Marinella Striccoli (+39 08054420279) - m.striccoli@ba.ipcf.cnr.it
<b>NanoLab</b>	The laboratory is equipped with optical tweezer for the manipulation of micro- and nanomaterials <b>Contacts:</b> Onofrio Maragò (+39 0909762249)
<b>Lab for the synthesis and characterization of polymer materials for functional applications and high performances</b>	<b>Contacts:</b> Simona Bronco (+39 0503152519) - simona.bronco@pi.ipcf.cnr.it
<b>Photocatalysis Lab: investigation of the photocatalytic properties of structured (nano)materials</b>	The laboratory carries out photocatalytic tests with UV light or simulated sunlight on (nano) catalysts for applications in water purification (model dyes, pesticides, antibiotics), air (NO <sub>x</sub> abatement), and for the abatement of pathogenic microorganisms in class I (e.g. E. coli, Enterococcus hirae, Bacillus Cereus, Candida Albicans) <b>Contacts:</b> Roberto Comparelli (+39 0805442027) - roberto.comparelli@cnr.it



ISTITUTO DI SCIENZE E TECNOLOGIE CHIMICHE GIULIO NATTA

SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali  
Istituto di Scienze e Tecnologie Chimiche "Giulio Natta" (SCITEC)**

via Alfonso Corti 12 - 20133 Milano (MI)

sito web: <http://www.scitec.cnr.it/en/>

## CONTACTS

Dott. Salvatore IANNACE

+39 0223699476

## DETAILED INFORMATION

**Staff:** 91 Researchers

18 Technologists

8 Structured Technicians

11 Administrative Technicians

**Registered students:**

**Post Lauream Training:** 30 Research fellows

**Patents:** 85

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Lignocellulose

Valorization of biomass through enzymatic processes



**Gianluca Ottolina** (+39 0228500021)  
[gianluca.ottolina@scitec.cnr.it](mailto:gianluca.ottolina@scitec.cnr.it)

### Biopolymers

Synthesis, characterization and processing technologies of polymers and composites from renewable resources



**Fabio Bertini** (+39 0223699356)  
[bertini@scitec.cnr.it](mailto:bertini@scitec.cnr.it)

### Hydrogen

Development of materials for hydrogen production (Steam Reforming; photo(electro)chemical splitting of water; alkaline electrolysis); photocatalysis



**Vladimiro Dal Santo** (+39 0250314401)  
[vladimiro.dalsanto@scitec.cnr.it](mailto:vladimiro.dalsanto@scitec.cnr.it)

### Functional polymers

Synthesis and characterization of functional polymers obtained with novel catalysts based on organometallic complexes



**Giovanni Ricci** (+39 0223699376)  
[ricci@scitec.cnr.it](mailto:ricci@scitec.cnr.it)

### Pollution

Solid inorganic catalysts for sustainable and selective oxidation of high added value chemicals; systems for decontamination of highly toxic and pollutant substances



**Matteo Guidotti** (+39 0250314428)  
[matteo.guidotti@scitec.cnr.it](mailto:matteo.guidotti@scitec.cnr.it)

### Photovoltaic

Computational and synthetic methods for materials and devices for solar cells (perovskites, hybrids, organic)



**Chiara Botta** (+39 0223699734)  
[chiara.botta@scitec.cnr.it](mailto:chiara.botta@scitec.cnr.it)

### Energy conversion

Design and synthesis of organic and organometallic compounds and their integration in energy conversion/storage devices



**Gianluca Pozzi** (+39 0223699361)  
[gianluca.pozzi@scitec.cnr.it](mailto:gianluca.pozzi@scitec.cnr.it)

<b>Health</b>	Computational and omics-driven drug discovery, bioactive compounds, technologies for precision medicine, structure–function elucidation	    	<b>Marina Cretich</b> (+39 0228500042) <i>marina.cretich@cnr.it</i>
<b>Biocatalysis</b>	Enzymatic catalysis in organic solvents, synthesis of aroma and fragrance, industrial use of enzymes (textile, tanning, detergency etc)	    	<b>Sergio Riva</b> (+39 0228500025) <i>sergio.riva@scitec.cnr.it</i>
<b>Cultural heritage</b>	Non-invasive methodologies for the study of the degradation phenomena of materials in art works aimed at their conservation and protection	    	<b>Laura Cartechini</b> (+39 0755855645) <i>laura.cartechini@cnr.it</i>
<b>Biophysic methodologies</b>	Biophysic based methodologies for the advanced structural characterization of macromolecules and metabolites from renewable resources	    	<b>Roberto Consonni</b> (+39 0223699578) <i>consonni@scitec.cnr.it</i>
<b>Recycling</b>	Reconversion of (bio)plastics into monomers, oligomers, intermediates, and new materials with by using biocatalysis and chemical catalysis	    	<b>Sergio Riva</b> (+39 0228500025) <i>sergio.riva@scitec.cnr.it</i>
<b>Biomass</b>	Heterogeneous catalysis for biomass and agroindustrial wastes valorisation (oils and fats, oligosaccharidic fractions, lignocellulosic derived materials)	    	<b>Federica Zaccheria</b> (+39 0250314384) <i>federica.zaccheria@scitec.cnr.it</i>

## OTHER R&D ORGANIZATIONS

### NMR Laboratory

A series of advanced NMR equipment

**Contacts:** Roberto Consonni - roberto.consonni@scitec.cnr.it

### ISTeM – TEM and Nanotechnology LABS

Laboratory for TEM, characterization and synthesis for nanotechnologies

**Contacts:** istem@scitec.cnr.it

+39 0250995632

**Web site:** <http://istemlab.scitec.cnr.it>

### LabCAT – Catalysis Lab

R&D lab for development of innovative heterogeneous catalysts for energy, green chemistry and industrial applications

**Contacts:** Vladimiro Del Santo (+39 3921084494) - vladimiro.dalsanto@scitec.cnr.it

**Web site:** <http://labcat.scitec.cnr.it/>

## COLLABORATIONS WITH COMPANIES

- AB Medica S.p.A.
- AGRICOLA FORTE S..S
- Callegari S.r.l.
- CHIMITRADE S.p.A.
- ECU
- Enel S.p.A.
- Eni S.p.A.
- E.P. Sintesi
- HyDEP S.r.l.
- ICAP Gropu
- IGM RESINS ITALIA S.r.l.
- Indena S.p.A.
- Italmatch Chemicals S.p.A.
- Lamberti S.p.A.
- MTA S.p.A.
- Olon S.p.A.
- Prysmian Group S.p.A.
- Rigreen S.r.l.
- Sanidrink S.r.l.
- Sidam Group
- SLIDE

## PUBBLICAZIONI

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- Leone G., Palucci B., Zanchin G., Vignali A., Ricci G., and Bertini F., **"Dynamically Cross-Linked Polyolefins via Hydrogen Bonds: Tough yet Soft Thermoplastic Elastomers with High Elastic Recovery"**, ACS Appl. Polym. Mater. 2022, 4, 5, 3770–3778.



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**  
**Istituto di Chimica Biomolecolare (ICB)**  
Via Campi Flegrei 34 - 80078 Pozzuoli (NA)  
sito web: <http://www.icb.cnr.it>

## CONTACTS

Dott. Angelo FONTANA  
+39 0818675018

## DETAILED INFORMATION

**Staff:** 1 Full Professor  
4 Associate Professors  
10 First Investigators  
53 Researchers  
5 Technologists  
23 Structured Technicians  
11 Administrative Technicians  
1 General Service

**Registered students:** 20

**Post Lauream Training:** 15 enrolled in Doctoral programs

20 Research fellows

**Patents:** 7

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Chemical ecology</b>	Chemical ecology							<b>Ernesto Mollo</b> (+39 0818675312) <i>ernesto.mollo@icb.cnr.it</i>
<b>Organic synthesis</b>	Organic Synthesis							<b>Pietro Spanu</b> (+39 0792841221) <i>pietro.spanu@icb.cnr.it</i>
<b>Omics</b>	Omics methods for life science							<b>Andrea Motta</b> (+39 0818675228) <i>andrea.motta@icb.cnr.it</i>
<b>Sintesi peptidica</b>	Peptide synthesis							<b>Barbara Biondi</b> (+39 0498275254) <i>barbara.biondi@icb.cnr.it</i>
<b>Supramolecular chemistry</b>	Supramolecular Chemistry							<b>Grazia Consoli</b> (+39 0957338319) <i>grazia.consoli@icb.cnr.it</i>
<b>Drug discovery</b>	Drug Discovery							<b>Emiliano Manzo</b> (+39 0818675310) <i>emiliano.manzo@icb.cnr.it</i>
<b>Fermentation</b>	Fermentation and Biotrasformation							<b>Annarita Poli</b> (+39 0818675311) <i>apoli@icb.cnr.it</i>
<b>Molecular pharmacology</b>	Molecular Pharmacology							<b>Alessia Ligresti</b> (+39 0818675093) <i>alessia.ligresti@icb.cnr.it</i>

<b>Pharmaceutical chemistry</b>	Pharmaceutical Chemistry	     	<b>Genoveffa Nuzzo</b> (+390818675166)
<b>Pharmaceutical biotechnology</b>	Pharmaceutical biotechnology	     	<b>Giuliana d'Ippolito</b> (+39 0818675075) <i>gdippolito@icb.cnr.it</i>
<b>Computational chemistry</b>	Computational Chemistry	     	<b>Pietro Amodeo</b> (+39 0818675072) <i>pietro.amodeo@icb.cnr.it</i>
<b>Green Hydrogen</b>	Hydrogen and Bio-Hydrogen	     	<b>Elisabetta Alberico</b> (+39 0792841206) <i>elisabetta.alberico@icb.cnr.it</i>
<b>Analytical chemistry</b>	Chemical methods	     	<b>Adele Cutignano</b> (+39 0818675313) <i>adele.cutignano@icb.cnr.it</i>
<b>Biofuels</b>	Biofuel and sustainable biocatalytic process	     	<b>Carmelo Drago</b> (+39 0957338350) <i>carmelo.drago@cnr.it</i>
<b>Chemical biology</b>	Chemical Biology	     	<b>Carmela Gallo</b> (+39 0818675096) <i>cgallo@icb.cnr.it</i>
<b>Biocatalysis</b>	Biocatalysis	     	<b>Nicola D'Antona</b> (+39 0957338342) <i>nicola.dantona@icb.cnr.it</i>
<b>Green chemistry</b>	Sustainable chemical reactions and processes	     	<b>Maurizio Solinas</b> (+39 0792841219) <i>maurizio.solinas@icb.cnr.it</i>
<b>Biochemistry</b>	Biochemistry	     	<b>Paolo Ruzza</b> (+39 0498275282) <i>paolo.ruzza@icb.cnr.it</i>
<b>Bioinorganic chemistry</b>	Organometallic Chemistry	     	<b>Daniele Sanna</b> (+39 0792841207) <i>daniele.sanna@icb.cnr.it</i>
<b>Natural products</b>	Chemistry of natural substances. Functional natural products	     	<b>Edoardo Napoli</b> (+39 0957338346) <i>edoardo.napoli@icb.cnr.it</i>
<b>Organic molecules</b>	Structural elucidation of small organic molecules	     	<b>Maria Letizia Ciavatta</b> (+39 0818675243) <i>letizia.ciavatta@icb.cnr.it</i>
<b>Glycochemistry</b>	Glycochemistry and Glycobiology	     	<b>Fabrizio Chiodo</b> (+39 081985018) <i>fabrizio.chiodo@icb.cnr.it</i>
<b>Agrifood</b>	Chemistry of molecules for the agro-food	     	<b>Giuseppe Granata</b> (+39 0957338318) <i>giuseppe.granata@cnr.it</i>
<b>Neuroscience</b>	Neuroscience	     	<b>Luigia Cristino</b> (+39 0818675134) <i>luigia.cristino@icb.cnr.it</i>

## OTHER R&D ORGANIZATIONS

**Laboratory of Cell and Molecular Analysis by Mass Spectrometry**

The structure is the product of the collaboration of the Institute of Biomolecular Chemistry and the Department of Biology of the University of Naples Federico II to carry out research and teaching activities of excellence in bio-organic chemistry, chemical biology, chemistry of natural products, biology, food chemistry, biopharmaceutical and cosmetics

**Contacts:** Angelo Fontana (+39 081 8675018) - afontana@icb.cnr.it ; angelo.fontana@unina.it

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**Nuclear Magnetic Resonance Platform**

The Nuclear Magnetic Resonance Platform is positioned as the support of choice in NMR spectroscopic analysis support in the determination of molecular structure, dynamics and kinetics of reaction and purity of compounds for chemical research in "Health and Life Sciences" (synthesis, identification and characterization of new biologically active organic molecules), for "Green Chemistry - Bioeconomy" (new green molecules, products and processes) or as a technique for metabolomics analysis for applications in the biomedical field

**Contacts:** Andrea Motta (+39 0819675026) - amotta@icb.cnr.it

**Web site:** <https://www.icb.cnr.it/ricerca/piattaforme-tecnologiche-e-infrastrutture-di-ricerca/>

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**Joint International Research Unit (UMI)**

The Joint International Research Unit (UMI) is a bilateral research unit between the Italian National Research Council (CNR) and the Université Laval of Quebec. The UMI is aimed at strengthening the scientific and technological cooperation between Université Laval and the CNR through exchanges of students and professors in the framework of pioneering bilateral research projects.

**Contacts:**

Vincenzo Di Marzo (+39 0818675024) - vincenzo.dimarzo@icb.cnr.it



## GENERAL INFORMATION

CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali  
Institute for the Chemistry of Organometallic Compounds (ICCOM)

Via Madonna del Piano 10 - 50019 Sesto Fiorentino (FI)

sito web: <http://www.iccom.cnr.it/en/home-2/>

## CONTACTS

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## DETAILED INFORMATION

**Staff:** 71 Researchers

15 Structured Technicians

2 Technologists

4 Administrative Technicians

**Registered students:**

**Post Lauream Training:** 11 enrolled in doctoral programs in Industrial Chemistry and Chemistry

12 Research fellows

4 Grant holders

**Patents:** 87

[https://publications.cnr.it/search/f/c3RydXR0dXJlY25yX3MtaS1zLW06IkIDQ09NLCBjc3RpdHV0byBkaSBjaGItaWNhIGRlaSBjb21wb3N0aSBvcmdhbm8gbWV0YWxsaWNpIlg\\_dGlwb19zLWktdzoiQnJldmV0dG8gZGkgaW52ZW56aW9uZSBpbmR1c3RyaWFsZSI](https://publications.cnr.it/search/f/c3RydXR0dXJlY25yX3MtaS1zLW06IkIDQ09NLCBjc3RpdHV0byBkaSBjaGItaWNhIGRlaSBjb21wb3N0aSBvcmdhbm8gbWV0YWxsaWNpIlg_dGlwb19zLWktdzoiQnJldmV0dG8gZGkgaW52ZW56aW9uZSBpbmR1c3RyaWFsZSI)

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Analytical spectrometry

Analytical methodology for trace elements determination



**Emanuela Pitzalis** (+39 0503152558)  
[emanuela.pitzalis@pi.iccom.cnr.it](mailto:emanuela.pitzalis@pi.iccom.cnr.it)

### Electrocatalysis

Electrocatalysis for O<sub>2</sub>, CO<sub>2</sub> and N<sub>2</sub> conversion to valuable products



**Manuela Bevilacqua** (+39 0405583941)  
[manuela.bevilacqua@iccom.cnr.it](mailto:manuela.bevilacqua@iccom.cnr.it)

### Solar cells

Design and synthesis of organic compounds as light-absorbing and charge transport materials in new generation photovoltaic cells, also for indoor applications



**Gianna Reginato** (+39 0555225255)  
[gianna.reginato@iccom.cnr.it](mailto:gianna.reginato@iccom.cnr.it)

### Electrocatalysis

(Electro) catalytic reduction of CO<sub>2</sub> in liquid or gaseous fuels, alcohols and chemical compounds



**Jonathan Filippi** (+39 0555225228)  
[jonathan.filippi@iccom.cnr.it](mailto:jonathan.filippi@iccom.cnr.it)

### Biopolymers

Synthesis of biobased polycarbonates and synthesis of polyols from vegetable oils



**Caterina Fusco** (+39 0805442068)  
[fusco@ba.iccom.cnr.it](mailto:fusco@ba.iccom.cnr.it)

### Nanotechnologies

Organic, inorganic and hybrid polymeric materials with functional properties. Synthesis, characterization and post-functionalization. Nanotechnologies for multifunctional packaging



**Elisa Passaglia**  
[elisa.passaglia@pi.iccom.cnr.it](mailto:elisa.passaglia@pi.iccom.cnr.it)

### Green Hydrogen

Electrocatalysis and photocatalysis for applications in the energy sector, particularly in the sector of fuel cells and green hydrogen production by electrolysis



**Francesco Vizza** (+39 0555225286)  
[francesco.vizza@iccom.cnr.it](mailto:francesco.vizza@iccom.cnr.it)

<b>NMR</b>	Structural and dynamic characterization of synthetic and natural polymers by means of solid state NMR	    	<b>Silvia Pizzanelli</b> (+39 0503152549) <i>silvia.pizzanelli@pi.iccom.cnr.it</i>
<b>Green Hydrogen</b>	Hydrogen chemistry and technology: production, storage and use in fuel cells	    	<b>Hamish Miller</b> (+39 0555225201) <i>hamish.miller@iccom.cnr.it</i>
<b>Archives</b>	Volatile compounds trapped in solids for the control of biodeteriogens in paper archives and libraries	    	<b>Andrea Ienco</b> (+39 0555225282) <i>andrea.ienco@cnr.it</i>
<b>Carbon capture</b>	Carbon dioxide chemistry and technology: processes for the capture and valorization of CO <sub>2</sub> from flue gases (CCUS) or directly from the air (DAC)	    	<b>Francesco Barzagli</b> (+39 0555225298) <i>francesco.barzagli@iccom.cnr.it</i>
<b>Catalytic depolymerisation</b>	Selective catalytic depolymerization of polyesters, polycarbonates and polyamides	    	<b>Carmen Moreno-Marrodán</b> (+39 0555225219) <i>carmen.moreno@iccom.cnr.it</i>
<b>2D materials</b>	Advanced multifunctional 2D materials	    	<b>Maria Caporali</b> (+39 0555225249) <i>maria.caporali@iccom.cnr.it</i>
<b>Analytical spectroscopy</b>	Advanced analytical and spectroscopic techniques for environment, health and conservation of artistic and cultural heritage	    	<b>Stefano Legnaioli</b> (+39 0503152221) <i>stefano.legnaioli@pi.iccom.cnr.it</i>
<b>Solar concentrators</b>	Design e sintesi di nuovi fluorfori organici da utilizzare in concentratori solari luminescenti per il fotovoltaico integrato in edifici (BIPV)	    	<b>Massimo Calamante</b> (+39 0554573587) <i>mcalamante@iccom.cnr.it</i>
<b>Sustainable catalysis</b>	New sustainable chemical processes with high efficiency and selectivity through the optimization of already existing catalytic and stoichiometric processes and design and implementation of new processes	    	<b>Pierluigi Barbaro</b> (+39 0555225287) <i>pierluigi.barbaro@iccom.cnr.it</i>
<b>Exhausted batteries</b>	Sustainable processes for the recovery of critical materials (Li, Co, Ni, Cu, etc.) from end-of-life lithium batteries through hydro- and solvometallurgical processes	    	<b>Andrea Marchionni</b> (+39 0555225206) <i>andrea.marchionni@iccom.cnr.it</i>
<b>Catalysis</b>	Catalytic processes in aqueous phase; hydrogen storage by reversible hydrogenation of CO <sub>2</sub> to formic acid and methanol	    	<b>Luca Gonsalvi</b> (+39 0555225251) <i>l.gonsalvi@iccom.cnr.it</i>
<b>NMR spectroscopy</b>	Solid state NMR methods for pharmaceutical applications	    	<b>Elisa Carignani</b> (+39 0503152083) <i>elisa.carignani@pi.iccom.cnr.it</i>
<b>NMR spectroscopy</b>	Characterization of materials for the energy transition (optoelectronics, fuel cells, ...) and sustainability by means of Solid State NMR spectroscopy	    	<b>Silvia Borsacchi</b> (+39 0503153052) <i>silvia.borsacchi@pi.iccom.cnr.it</i>
<b>Heterogeneous catalysis</b>	Design of nanostructured metal catalysts and their use for processes for fine chemicals and hydrogen production	    	<b>Claudio Evangelisti</b> (+39 0503152345) <i>claudio.evangelisti@cnr.it</i>
<b>Nanomateriali magnetici</b>	Novel nanostructured magnetic materials for the realization of rare-earth free permanent magnets, for catalysis, and biomedicine	    	<b>Claudio Sangregorio</b> (+39 0555225280) <i>csangregorio@iccom.cnr.it</i>

<b>Sustainable synthesis</b>	Green chemistry: use of sustainable and eco-compatible solvents and C-H activation processes for the synthesis of molecules with applications in photovoltaics and organic electronics	  	<b>Alessandro Mordini</b> (+39 0554573555) <i>alessandro.mordini@iccom.cnr.it</i>
<b>Bioanalytical methodologies</b>	Spectroscopic and separative analytical and bioanalytical methodologies for the study of metabolism in cells and biofluids and for the characterization of materials and biomaterials	  	<b>Emilia Bramanti</b> (+39 0503152293) <i>emilia.bramanti@pi.iccom.cnr.it</i>
<b>Metal-free catalysis</b>	Metal-free catalytic processes to reduce the environmental impact of the release of exhausted catalysts	  	<b>Giuliano Giambastiani</b> (+39 0555225288) <i>giuliano.giambastiani@iccom.cnr.it</i>
<b>Photocatalysis</b>	Design and synthesis of organic dyes and organometallic catalysts towards hydrogen production via photocatalytic or photoelectrochemical processes	  	<b>Lorenzo Zani</b> (+39 0555225245) <i>lorenzo.zani@iccom.cnr.it</i>
<b>Computational chemistry</b>	Theoretical and computational chemistry for predictive modeling	  	<b>Fabrizio Santoro</b> (+39 0503152458) <i>fabrizio.santoro@pi.iccom.cnr.it</i>
<b>NMR spectroscopy</b>	Characterization of solid porous materials by solid state NMR spectroscopy and NMR relaxometry	  	<b>Lucia Calucci</b> (+39 0503152517) <i>lucia.calucci@pi.iccom.cnr.it</i>

## OTHER R&D ORGANIZATIONS

### Ce.M.E. - Centro di Microscopie Elettroniche "Laura Bonzi

Center for Electronic microscopy characterization and nano-manipulation (FIB-SEM, HRTEM).  
**Contacts:** Alessandro Lavacchi (+39 0555225250) - [alessandro.lavacchi@iccom.cnr.it](mailto:alessandro.lavacchi@iccom.cnr.it)  
**Web site:** <http://www.ceme.cnr.it/>

## COLLABORATIONS WITH COMPANIES

- ALESCO S.r.l.
- Altair Chimica S.p.A.
- Belenos Clean Power
- Cicci Research S.r.l.
- CISA S.p.A.
- Cobat
- Colorobbia Italia S.p.A.
- Danger & Safety S.r.l.
- Dipharma Francis S.r.l.
- EDInnovation S.r.l.
- Endostart
- ENECOM S.r.l.
- ENEL GREEN POWER S.p.A.
- ERREDUE S.p.A.
- Faggi Enrico S.p.A.
- FORETHINKING S.r.l.
- Greenswitch S.r.l.
- Gruppo Menarini
- I&S S.r.l.
- International Tin S.r.l.
- Italmatch Chemicals S.p.A., Sede di Arese
- Laboratori Archa S.r.l.
- Leonardo S.p.A.
- LMPE S.r.l.
- MAE S.p.A.
- Makros S.r.l.
- Nemesys energy
- Scapigliato S.r.l.
- Solvay Specialty Polymers S.p.A.
- Sotacarbo S.r.l.
- Stelar
- Worgas

## PUBBLICAZIONI

- Mirshokrae, Seyed Ariana; Muhyuddin, Mohsin; Lorenzi, Roberto; Tseberlidis, Giorgio; Lo Vecchio, Carmelo; Baglio, Vincenzo; Berretti, Enrico; Lavacchi, Alessandro; Santoro, Carlo; **Litchi-derived platinum group metal-free electrocatalysts for oxygen reduction reaction and hydrogen evolution reaction in alkaline media**; *SusMat* 2023, 3, 248-262 (IF = 28,4).
- Berretti, Enrico; Osmieri, Luigi; Baglio, Vincenzo; Miller, Hamish A.; Filippi, Jonathan; Vizza, Francesco; Santamaria, Monica; Specchia, Stefania; Santoro, Carlo; Lavacchi, Alessandro; **Direct Alcohol Fuel Cells: A Comparative Review of Acidic and Alkaline Systems**; *Electrochemical Energy Reviews* 2023, 6, art. no. 30 (IF = 31,3).
- Perez Schmidt, P., Pagano, K., Lenardi, C., Penconi, M., Ferrando, R.M., Evangelisti, C., Lay, L., Ragona, L., Marelli, M., Polito, L.; **Photo-Induced Microfluidic Production of Ultrasmall Glyco Gold Nanoparticles**; *Angewandte Chemie Int. Ed.* 2023, 62, art. no. e202210140 (IF = 16,6).
- Huang J.; Sementa L.; Liu Z.; Barcaro G.; Feng M.; Liu E.; Jiao L.; Xu M.; Leshchev D.; Lee S.-J.; Li M.; Wan C.; Zhu E.; Liu Y.; Peng B.; Duan X.; Goddard W.A.; Fortunelli A.; Jia Q.; Huang Y.; **Experimental Sabatier plot for predictive design of active and stable Pt-alloy oxygen reduction reaction catalysts**; *Nature Catalysis* 2022, 5, 513-523 (IF = 40,706).
- Serrano G.; Poggini L.; Cucinotta G.; Sorrentino A.L.; Giaconi N.; Cortigiani B.; Longo D.; Otero E.; Sainctavit P.; Caneschi A.; Mannini M.; Sessoli R.; **Magnetic molecules as local sensors of topological hysteresis of superconductors**; *Nature Communications* 2022, 13, art. no. 3838 (IF = 17,694).
- Gabbani A.; Sangregorio C.; Tandon B.; Nag A.; Gurioli M.; Pineider F.; **Magnetoplasmonics beyond Metals: Ultrahigh Sensing Performance in Transparent Conductive Oxide Nanocrystals**; *Nano Letters* 2022, 22, 9036-9044 (IF = 12,262).
- Pagliaro M.V.; Wen C.; Sa B.; Liu B.; Bellini M.; Bartoli F.; Sahoo S.; Singh R.K.; Alpay S.P.; Miller H.A.; Dekel D.R.; **Improving Alkaline Hydrogen Oxidation Activity of Palladium through Interactions with Transition-Metal Oxides**; *ACS Catalysis* 2022, 12, 10894-10904 (IF = 13,700).

## MORE INFO

CNR industrial doctorates

- <https://www.cnr.it/it/dottorati-imprese>
- <https://www.cnr.it/it/archivio-dottorati-industriali>



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**  
**Institute of Science, Technology and Sustainability for Ceramics (ISSMC)**

Via Granarolo 64 - 48018 Faenza (RA)

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## CONTACTS

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+39 0546699753

## DETAILED INFORMATION

**Staff:** 9 Full Professors

11 Associate Professors

21 Researchers

5 Technologists

7 Structured Technicians

6 Administrative Technicians

4 General Services

**Registered students:**

**Post Lauream Training:** 12 enrolled in doctoral programs

15 Research fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Photovoltaic

Fabrication and characterization of organic dye solar cells (DSSC)



**Alex Sangiorgi** (+39 0546699732)  
[alex.sangiorgi@issmc.cnr.it](mailto:alex.sangiorgi@issmc.cnr.it)

### Circular economy

Valorization of food industry by-products into multifunctional ceramics



**Michele Iafisco** (+39 0546699730)  
[michele.iafisco@issmc.cnr.it](mailto:michele.iafisco@issmc.cnr.it)

### Fibre-reinforced composites

New sustainable fiber-reinforced composites with inorganic matrix



**Annalisa Natali Murri** (+39 0546699788)  
[annalisa.natalimurri@issmc.cnr.it](mailto:annalisa.natalimurri@issmc.cnr.it)

### Fluid treatment

Porous geopolymers as adsorbents for fluid treatments



**Elettra Papa** (+39 0546699788)  
[elettra.papa@issmc.cnr.it](mailto:elettra.papa@issmc.cnr.it)

### Solar fuels

Development of materials for electrodes and photo-electrodes for solar fuels production



**Nicola Sangiorgi** (+39 0546699732)  
[nicola.sangiorgi@issmcc.cnr.it](mailto:nicola.sangiorgi@issmcc.cnr.it)

### Catalysts

Processes for catalysts development for the production of hydrogen (steam reforming, biomass gasification, etc.)



**Angela Gondolini** (+39 0546699743)  
[angela.gondolini@issmc.cnr.it](mailto:angela.gondolini@issmc.cnr.it)

### Big data

Multi criteria optimisation tools for supporting the design of advanced materials



**Davide Gardini** (+39 0546699749)  
[davide.gardini@issmc.cnr.it](mailto:davide.gardini@issmc.cnr.it)

### Biomass

Thermochemical processes for green production of chemicals from biomass



**Francesco Miccio** (+39 0546699774)  
[francesco.miccio@cnr.it](mailto:francesco.miccio@cnr.it)

<b>SSbD</b>	Rationale and criteria for the implementation of SSbD approach to the advanced material production		<b>Anna Luisa Costa</b> (+39 0546699718) <i>anna.costa@issmc.cnr.it</i>
<b>Geopolymers</b>	Chemically bonded ceramics and inorganic polymers – geopolymers. Waste valorization through a sustainable process of chemical consolidation		<b>Valentina Medri</b> (+39 0546699751) <i>valentina.medri@issmc.cnr.it</i>
<b>Solid batteries</b>	Development of ceramic-based solid state batteries		<b>Elisa Mercadelli</b> (+39 0546699743) <i>elisa.mercadelli@issmc.cnr.it</i>
<b>SOFC-SOEC</b>	Development of devices for the energy production and storage of hydrogen (SOFC-SOEC)		<b>Angela Gondolini</b> (+39 0546699743) <i>angela.gondolini@issmc.cnr.it</i>
<b>Additive manufacturing</b>	Development and optimization of AM (inkjet printing and micro-extrusion) processes to produce ceramic, polymeric and their hybrid products		<b>Alex Sangiorgi</b> (+39 0546699732) <i>alex.sangiorgi@issmc.cnr.it</i>
<b>Regenerative medicine</b>	Development of bioactive ceramic and hybrid implants for the regeneration of bone, osteochondral and skin tissues		<b>Simone Sprio</b> (+39 0546699760) <i>simone.sprio@issmc.cnr.it</i>
<b>Nanomedicine</b>	Development of biocompatible and bioactive nanoparticles as carrier of bioactive molecules		<b>Anna Tampieri</b> (+39 0546699759) <i>anna.tampieri@issmc.cnr.it</i>
<b>Ceramic membranes</b>	Development of ceramic membranes for gas separations (H <sub>2</sub> , O <sub>2</sub> e CO <sub>2</sub> )		<b>Elisa Mercadelli</b> (+39 0546699743) <i>elisa.mercadelli@issmc.cnr.it</i>
<b>Micro/nano plastics</b>	Colloidal and physicochemical characterisation of micro/nano plastics (MNP) in environmental and biological matrices. Development of new methods for their traceability.		<b>Simona Ortelli</b> (+39 0546699729) <i>simona.ortelli@issmc.cnr.it</i>
<b>Blue deal</b>	Valorisation of marine resources for the protection of environment		<b>Magda Blosi</b> (+39 0546699718) <i>magda.blosi@issmc.cnr.it</i>
<b>Piezoelectric materials</b>	Development of ceramic-based piezoelectric materials and devices		<b>Elisa Mercadelli</b> (+39 0546699743) <i>elisa.mercadelli@issmc.cnr.it</i>
<b>Electroreology</b>	Study and development of electrorheological fluids (ERFs) for applications in electromechanical and haptic devices		<b>Davide Gardini</b> (+39 0546699749) <i>davide.gardini@issmc.cnr.it</i>

## OTHER R&D ORGANIZATIONS

### NANO-SSbD-Lab

Laboratory for the design and production of nanostructured materials for the protection of human and environmental health, accordingly to SSbD approach.

**Contacts:** Anna Luisa Costa (+39 0546699718) - [anna.costa@istec.cnr.it](mailto:anna.costa@istec.cnr.it)

**Web site:** <https://www.istec.cnr.it/en/research/lines-of-research/nanotechnology-and-nanosafety/>

### RHEOCOL Lab

Rheological and colloidal properties laboratory for the characterization of nano and microdispersed systems

**Contacts:** Davide Gardini (+39 0546699749) - [davide.gardini@istec.cnr.it](mailto:davide.gardini@istec.cnr.it)

**Web site:** <https://www.istec.cnr.it/en/research/technological-laboratories/colloidal-property-laboratory-of-interface/>

### SHAPE-Lab

Shaping Lab for ceramic materials for energetics (3D printing, ink-jet, spin coating, etc.)

**Contacts:** Alessandra Sanson (+39 0546699742) - [alessandra.sanson@istec.cnr.it](mailto:alessandra.sanson@istec.cnr.it)

**Web site:** <https://www.istec.cnr.it/en/research/technological-laboratories/3d-printers-laboratory/>

## COLLABORATIONS WITH COMPANIES

- Aurel S.p.A.
- Curti Costruzioni Meccaniche S.p.A.
- Euroarce S.r.l.
- Finceramica
- Florim S.p.A. S.B.
- Gitoma S.r.l.
- GreenBone Ortho S.p.A.
- Hydea S.p.A.
- Industrie Bitossi S.p.A.
- Industrie Ceramiche Piemme S.p.A.
- ITT Italia S.r.l.
- Kalikem S.r.l.
- Marazzi Group S.r.l.
- Meccanotecnica Umbra s.p.A.
- NDG
- Novabell S.p.A.
- Panariagroup Industrie Ceramiche S.p.A.
- Plumestars S.r.l.
- Projecta Engineering S.r.l.
- Rosati Arte
- SAAti S.p.A.
- Sacmi Imola S.C.
- SICER S.p.A.
- Smalticeram Unicer S.p.A.
- Smaltochimica S.r.l.
- System ceramics S.p.A.
- SMEG S.p.A.

## PUBBLICAZIONI

- Blosi, M., Brigliadori, A., Zaroni, I., Ortelli, S., Albonetti, S., & Costa, A. L. (2022); **Chlorella vulgaris meets TiO<sub>2</sub> NPs: effective sorbent/photocatalytic hybrid materials for water treatment application**; Journal of environmental management, 304, 114187.
- Costa, A. L., Blosi, M., Brigliadori, A., Zaroni, I., Ortelli, S., Simeone, F. C., & Gardini, D. (2022); **Eco design for Ag-based solutions against SARS-CoV-2 and E. coli**; Environmental Science: Nano, 9(11), 4295-430.
- R. Bondoni, F. Miccio, V. Medri, P. Benito, A. Vaccari, E. Landi; **Geopolymer composites for the catalytic cleaning of tar in biomass-derived gas**; Renewable Energy, 131 (2019) 1107-1116.
- A. Adamiano, S. Scialla, F. Carella, M. Casella, S. Camerini, A. Quarta, A. Muntiu, F. Ferrari, A. Vitali, M. Iafisco, C. Piccirillo; **Simultaneous extraction of calcium phosphates and proteins from fish bones. Innovative valorisation of food by-products**; J Cleaner Prod 2023 385: 135656. doi: 10.1016/j.jclepro.2022.135656.
- E. Quarta, M. Chiappi, A. Adamiano, A. Tampieri, W. Wang, T.D. Tetley, F. Buttini, F. Sonvico, D. Catalucci, P. Colombo, M. Iafisco, L. Degli Esposti; **Inhalable Microparticles Embedding Biocompatible Magnetic Iron-Doped Hydroxyapatite Nanoparticles**; J Funct Biomater 2023 14(4):189. doi: 10.3390/jfb14040189.
- A. Natali Murri, V. Medri, E. Papa, L. Laghi, C. Mingazzini, E. Landi; **Porous geopolymer insulating core from a metakaolin/biomass ash composite**; Environments, 4 (2017) 86, <https://doi.org/10.3390/environments4040086>.
- Bartoletti, A. Sangiorgi\*, A. Gondolini, E. Mercadelli, S. Casadio, S. Garcia-Gonzalez, M. Morales, E. Jiménez-Piqué, A. Sanson; **Dispersant- and solvent-free pastes for UV-assisted micro-extrusion of porous proton conductive membrane supports**; Journal of The European Ceramic Society 43, 11, (2023) 4844-4853.
- J. Yus\*, Z. Gonzalez, A. Javier Sanchez-Herencia, A. Sangiorgi, A. Sanson, C. Galassi, B. Ferrari; **High photocatalytic efficiency of inkjet printed patterns by formulation of eco-friendly TiO<sub>2</sub>-based inks**; Open Ceramics 8, (2021), 100197.

## MORE INFO

The Institute at the moment holds an industrial PhD issued by Bologna University and 3 more are financed for the XXXIX cycle for the PhD programme in Materials Science and Technologies of the Parma University.



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**  
**Istituto per lo Studio dei Materiali Nanostrutturati (ISMN)**  
Strada Provinciale 35 d, n. 9 - 00010 Montelibretti (RM)  
sito web: <http://www.ismn.cnr.it>

## CONTACTS

Dott. Michele MUCCINI  
+39 0690672484

## DETAILED INFORMATION

**Staff:** 63 Researchers  
6 Technologists  
12 Structured Technicians  
15 Administrative Technicians  
**Registered students:**  
**Post Lauream Training:** 7 Research fellows  
**Patents:** 7

### DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Bioeconomy</b>	Sustainable processes for the extraction and the conversion of biomolecules and biomaterials from agrifood and forestal waste	 	   	<b>Rosaria Ciriminna</b> (+39 0916809369) <a href="mailto:rosaria.ciriminna@cnr.it">rosaria.ciriminna@cnr.it</a>
<b>Green chemistry</b>	Sol-gel microencapsulation for the production of multifunctional sustainable materials	 	   	<b>Rosaria Ciriminna</b> (+39 0916809369) <a href="mailto:rosaria.ciriminna@cnr.it">rosaria.ciriminna@cnr.it</a>
<b>Hydrogen</b>	Innovative materials for green hydrogen production	 	   	<b>Mario Pagliaro</b> (+39 0916809370) <a href="mailto:mario.pagliaro@cnr.it">mario.pagliaro@cnr.it</a>
<b>H2</b>	Capture and valorization of CO2 for sustainable production of H2 and e-fuels from biogas	 	   	<b>Leonarda Francesca Liotta</b> (+39 0916809371) <a href="mailto:leonarda.liotta@cnr.it">leonarda.liotta@cnr.it</a>
<b>Environmental catalysis</b>	Catalytic abatement of NO and N2O-Preparation, characterization and catalytic activity of mixed oxides-based systems	 	   	<b>Giuseppe Fierro</b> (+39 3381705583) <a href="mailto:giuseppe.fierro@cnr.it">giuseppe.fierro@cnr.it</a>
<b>Sustainable materials</b>	Development of eco-friendly, functional and innovative materials for environmental protection and remediation, and for sustainable applications	 	   	<b>Maria Rosaria Plutino</b> (+39 3929076004) <a href="mailto:rosaria.plutino@cnr.it">rosaria.plutino@cnr.it</a>
<b>Green chemistry</b>	Produzione e applicazione di nanomateriali nella conversione di biomassa in prodotti sostenibili. Processi ecosostenibili	 	   	<b>Maria Luisa Testa</b> (+39 0916809253) <a href="mailto:marialuisa.testa@cnr.it">marialuisa.testa@cnr.it</a>

**Sustainable preservation**

Development of smart ecosustainable materials with a tailored protective action for the safe and long-term conservation of cultural heritage. The recovery and reuse of waste materials (i.e. polysaccharides and plastics)



**Gabriella Di Carlo** (+39 0690672214)  
*[gabriella.dicarlo@cnr.it](mailto:gabriella.dicarlo@cnr.it)*

**Heterogeneous catalysis**

Preparation, characterization and study of nanostructured materials active for catalytic reactions in energy and environmental fields



**Maria Cristina Campa** (+39 0649913376)  
*[mariacristina.campa@cnr.it](mailto:mariacristina.campa@cnr.it)*

**Ecosustainable materials**

Innovation and eco-sustainability in the field of the protection of industrial materials and the Conservation of Cultural Heritage



**Maria Pia Casaletto** (+39 0916809378)  
*[maripia.casaletto@cnr.it](mailto:maripia.casaletto@cnr.it)*

**Solar energy**

Utilizzo dell'energia solare per processi fotocatalitici innovativi di interesse della chimica fine e del settore delle vernici



**Mario Pagliaro** (+39 0916809370)  
*[mario.pagliaro@cnr.it](mailto:mario.pagliaro@cnr.it)*

**Sustainable materials**

Sustainable materials and synthesis methodologies for clean energy production and environmental remediation



**Francesca Deganello** (+39 0916809387)  
*[francesca.deganello@cnr.it](mailto:francesca.deganello@cnr.it)*



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**  
**Institute for Organic Synthesis and Photoreactivity (ISOF)**

Via Gobetti 101 - 40129 Bologna (BO)  
 sito web: <https://www.isof.cnr.it/>

## CONTACTS

Prof. Vincenzo PALERMO  
 +39 0516399773

[direzione@isof.cnr.it](mailto:direzione@isof.cnr.it)

## DETAILED INFORMATION

**Staff:** 7 Full Professors

7 Associate Professors

22 Researchers

4 Technologists

6 Structured Technicians

2 Administrative Technicians

**Registered students:**

**Post Lauream Training:** 27 Research fellows

**Patents:** 48 Some examples of patents are: nanoparticles as drug-delivery vehicles; production of all-carbon conductive paths attached on flexible substrate in order to obtain RFID antennas, or interconnects, or other applications; production of water-based solutions of PLA for alogen-free packaging; purification of bee wax using UV light and radicals; microfiltration in fibers for removal of contaminants of water; microfluidic patch for separating specific species in biological fluids and related electrochemical sensing device.

Go to CNR patent archive for a complete list of all ISOF patents: <https://www.cnr.it/it/catalogo-brevetti>

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Organic photovoltaics

Characterization of new organic materials for electronics, especially in organic photovoltaics, and study of mobility



**Francesca Tinti** (+39 0516399829)  
[francesca.tinti@isof.cnr.it](mailto:francesca.tinti@isof.cnr.it)

### Electrochemistry

Electrochemistry of conjugated polymers for energy, biological and sensor applications



**Alberto Zanelli** (+39 0516399855)  
[alberto.zanelli@isof.cnr.it](mailto:alberto.zanelli@isof.cnr.it)

### Medical imaging

Optoelectronic device for bone tissue analysis



**Massimo Cocchi** (+39 0516399818)  
[massimo.cocchi@isof.cnr.it](mailto:massimo.cocchi@isof.cnr.it)

### Chemical analysis

Chemical analysis of surfaces using X-rays photoelectron spectroscopy (XPS)



**Alessandro Kovtun** (+39 0516398437)  
[alessandro.kovtun@isof.cnr.it](mailto:alessandro.kovtun@isof.cnr.it)

### Biopolymers

Conductive biopolymers for optoelectronic devices



**Massimo Cocchi** (+39 0516399818)  
[massimo.cocchi@isof.cnr.it](mailto:massimo.cocchi@isof.cnr.it)

<b>Biopolymers</b>	Natural polymers extraction and nanofibers and nanoparticles preparation for pharmaceutical and cosmetic applications	    	<b>Giovanna Sotgiu</b> (+39 0516399777) <i>giovanna.sotgiu@isof.cnr.it</i>
<b>Ecosustainable materials</b>	Nanocomposites and 2D/3D scaffolds preparation starting from food and textile wastes for applications in biomedical, diagnostic and technological sectors	    	<b>Tamara Posati</b> (+39 0516399766) <i>tamara.posati@isof.cnr.it</i>
<b>Selective transport</b>	Design and development of (nano)systems for the selective delivery of anti-cancer drugs to the tumor tissues	    	<b>Greta Varchi</b> (+39 0516398283) <i>greta.varchi@isof.cnr.it</i>
<b>Organic semiconductors</b>	Functional p-conjugated molecular materials for electronics and photonics applications	    	<b>Manuela Melucci</b> (+39 0516398272) <i>manuela.melucci@isof.cnr.it</i>
<b>Porous composites</b>	Chemically tailored graphenes and their polymeric 3D hybrid structures (adsorbent membranes and filters) for environmental remediation	    	<b>Manuela Melucci</b> (+39 0516398271) <i>manuela.melucci@isof.cnr.it</i>
<b>Nano-composites</b>	Addition of graphene and nano-materials to thermoset or thermoplastic polymers for aerospace, automotive or industrial applications	    	<b>Vincenzo Palermo</b> (+39 0516399773) <i>palermo@isof.cnr.it</i>
<b>Epigenetic drugs</b>	Development of bioactive molecules capable of inhibiting specific epigenetic targets for the treatment of solid tumours	    	<b>Greta Varchi</b> (+39 0516398283) <i>greta.varchi@isof.cnr.it</i>
<b>Molecular systems</b>	Synthesis and development of (supra-)molecular systems activated by external stimuli for applications in energy conversion, drug delivery and functional materials	    	<b>Jessica Groppi</b> (+39 0516398326) <i>jessica.groppi@isof.cnr.it</i>

## COLLABORATIONS WITH COMPANIES

- Airbus S.A.S.
- Applied Polymers Materials
- ENI S.p.A.
- Graphene-XT
- Kerline S.r.l.
- Lipinutragen S.r.l.
- Meditekology S.r.l.
- Nanesa S.r.l.
- Stellantis N.V.

## PUBBLICAZIONI

- **Polymer solar cells with active layer thickness compatible with scalable fabrication processes: a meta-analysis** (2023) *Advanced Materials*, 35 (8), art. no. 2210146. Joint publication with Eni S.p.A., Via G. Fauser 4, Novara, 28100, Italy; Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, 02139, MA, United States.
- **Tuneable conductivity at extreme electric fields in zno tetrapod-silicone composites for high-voltage power cable insulation** (2022) *Scientific Reports*, 12 (1), art. no. 6035. Joint publication with Hitachi Energy Research, Västerås, 72178, Sweden.
- **Graphene and related materials in hierarchical fiber composites: production techniques and key industrial benefits** (2020) *Composites Science and Technology*, 185, 107848. Joint publication with CRF, Centro Ricerche FIAT, Strada Torino 50, Orbassano, Torino, 10043, Italy; Airbus Operations, S.L., Getafe, 28906, Spain; Nanesa S.r.l., Via del Gavardello 52c, Arezzo, 52100, Italy; Avanzare Innovacion Tecnologica S.L, Avenida Lentiscales 4-6, Navarrete, 26370, La Rioja, Spain.
- **Application of graphene-based flexible antennas in consumer electronic devices** (2018) *Materials Today*, 21 (3), pp. 223 - 230. Joint publication with STMicroelectronics, Stradale Primosole, Catania, 50 95121, Italy; Nokia Technologies, Broers Building, Cambridge, CB3 0FA, United Kingdom.
- **Small plastic debris in sediments from the central Adriatic sea: types, occurrence and distribution** (2017) *Marine Pollution Bulletin*, 124 (1), pp. 435 - 440. Joint publication with Advanced Polymer Materials, Via G. Saragat 9, Ferrara, 44122, Italy; CESI, via Nino Bixio 39, Piacenza, 29121, Italy; TERNA, V.le E. Galbani 70, Rome, 00156, Italy.

## MORE INFO

More than 2100 scientific articles on peer-reviewed international journals have been published at ISOF in the last 20 years, with an average 90 articles/year and a citation h-index =103 (Source: SCOPUS; June 2023).

Another excellence of ISOF is its long-lasting engagement in scientific dissemination activities and communication. ISOF researchers have ideated and successfully promoted several National and EU projects targeting the establishing scientific cultural values in younger generations, participated in several editions of the European researchers' night and published several books and articles in public media to increase the general public's awareness of key problems of our age. Such publications have collected several awards.

Besides dissemination to the scientific and public communities, ISOF has an excellent track record of technology transfer to industries, with long-lasting research contracts and collaborations with key industries like ENI, FIAT/Stellantis, AIRBUS etc

In the last years, the vocation of ISOF for research on sustainability has been strengthened, while keeping also a strong research activity in the fields of new materials to improve human health, with the final goal of supporting the transition of our country and our society to a healthier and more sustainable way of life.



## GENERAL INFORMATION

**CNR - Dipartimento Scienze Chimiche e Tecnologie dei Materiali**

**Institute of Crystallography (IC)**

Via Amendola 122/O - 70126 Bari (BA)

sito web: <http://www.ic.cnr.it>

## CONTACTS

Dr. Cinzia GIANNINI

+39 0805929167

## DETAILED INFORMATION

**Staff:** 57 Researchers

7 Technologists

6 Structured Technicians

13 Administrative Technicians

**Registered students:**

**Post Lauream Training:** 7 Research fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Ageing

Characterization of the biological features of candidate compounds by using dedicated cellular models examined by the means of High-content (HCS) and high-throughput screening (HTS) approaches, towards the identification of new therapeutic approaches to be used in aging-related pathologies



**Marianna Flora Tomasello** (+39 0957338443)

[mariannaflora.tomasello@ic.cnr.it](mailto:mariannaflora.tomasello@ic.cnr.it)

### Crystallisation

Crystallization techniques for the separation of biopharmaceutical products such as antibodies in the post-production stages. Use of immobilized enzymes in crystalline form for semi-artificial photosynthesis and for the conversion of CO<sub>2</sub> into chemical compounds



**Rocco Caliendo** (+39 0805929150)

[rocco.caliandro@ic.cnr.it](mailto:rocco.caliandro@ic.cnr.it)

### Biosensors

Characterization and implementation of biological processes for the production of biosensors, bioenergy and fine chemicals



**Giuseppina Rea** (+39 0690672631)

[giuseppina.rea@ic.cnr.it](mailto:giuseppina.rea@ic.cnr.it)

### Methodologies

Characterization, through the development and application of advanced diffraction methods, of molecules of pharmaceutical interest



**Angela Altomare** (+39 0805929155)

[angela.altomare@ic.cnr.it](mailto:angela.altomare@ic.cnr.it)

### Drug design

Design and synthesis of molecules with potential biological activity in the pharmacological and diagnostic fields



**Michele Saviano** (+39 0823274757)

[michele.saviano@ic.cnr.it](mailto:michele.saviano@ic.cnr.it)

### Crystallography

Advanced characterization with diffraction/imaging techniques of organic and inorganic materials for technological applications



Design, synthesis and characterization of derivatives of natural molecules or peptide / peptidomimetic sequences and their functionalization with bioactive scaffolds for the realization of new systems with biological elements (receptors, proteins, metal ions) molecular recognition ability and mechanisms modulation for the restoration of cellular homeostasis altered by pathological processes



## OTHER R&D ORGANIZATIONS

### 2Cryst-Lab

Laboratory is devoted mainly to the preparation of biological samples before performing measurements through x-ray, such as diffraction from crystals (MX) or Small/ Wide Angle Scattering (SAXS, WAXS), at the instrumentations of our institute and / or synchrotron facilities. Preparation consists of purification and, if necessary, subsequent crystallization. In addition, the laboratory is used as a support for other laboratories, both for the preparation of samples in the nano-material sector (XMIL@B) and for the crystallization of small molecules. In addition, it also carries out the activity of synthesis of materials (mainly based on phosphates) in the liquid and / or solid phase for use in the cultural heritage and biomedical sectors.

**Contacts:** Dritan Siliqi (+39 0805929164) – dritan.siliqi@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/bio-crystallography-preparation-laboratory/>

### Molecular analysis and biosensoristic

The laboratory is dedicated to the quantitative analysis of molecular recognition events carried out through the application of PCR and Real-Time PCR techniques for the determination of differential gene expression from different types of samples, and electrochemical techniques for the development of sensors / biosensors. for use in the agro-environmental and medical sectors.

**Contacts:** Giuseppina Rea (+39 0690672631) - giuseppina.rea@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/molucular-analysis-and-biosensoristic/>

### Biophysical Characterization

The Biophysical Characterization Laboratory houses a range of equipment for the analysis of the biophysical properties of proteins as well as intermolecular interactions. Techniques available include: UV-visible spectrophotometry; Dynamic Light Scattering for molecular size and polydispersity characterization; Differential Scanning Fluorimetry to track protein thermal stability and to qualitatively study protein-ligand interaction in HT format; Isothermal titration calorimetry by a Malvern MicroCal iTC200 to deliver direct, label-free in solution measurement of all binding parameters (binding constants (KD), reaction stoichiometry (n), enthalpy ( $\Delta H$ ) and entropy ( $\Delta S$ )), providing a complete thermodynamic profile of the molecular interaction between binding partners in their native states; Grating Coupled Interferometry by GCI Creoptix Wave, an innovative technique developed for the high-sensitivity kinetics and affinity analysis (KD, kon, koff) of label-free molecular interactions with improved sensitivity levels respect to SPR.

**Contacts:** Sonia Covaceuszach (+39 0403757520) - sonia.covaceuszach@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/biophysical-characterization/>

### Algal Growth

The laboratory allows for the growth of different algal strains of fresh and marine water sources, as well as their physiological characterization by absorption and fluorescence spectroscopy through main parameters as growth rate, cell count, microscopical observation, analysis of the main photosynthetic pigment content, photosynthetic activity. This activity enables the selection of novel biological recognition components for the development of biosensors for agro-environmental monitoring, as well as new genetic variants of the algae suitable for bioremediation applications. Finally, these studies help to produce novel functional materials and estimate their performance propensity towards cultural heritage and green building, in relation to the durability requirement in the presence of colonizing microorganisms (observations under an optical microscope) and its non-toxicity (algal vitality).

**Contacts:** Viviana Scognamiglio (+39 0690672479) - viviana.scognamiglio@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/algal-growth/>

### Photosynthesis

Research is mainly focused on: i) studies of adaptation and acclimation of photochemical reactions toward biotic and abiotic stress factors; ii) unraveling the correlation between structure and functionality of pigment-protein complexes; iii) development of biological assays based on photosynthetic activity (whole cells, extracts and macromolecular assemblies) for the detection of environmental pollutants; studies on the interaction of nanomaterials and microalgae. The laboratory is equipped to perform analyses on the efficiency of the primary photosynthetic reactions and photosynthetic yield of unicellular phototrophs and higher plants. Main technics exploited in the laboratory are based on chlorophyll a fluorescence spectroscopy and polarographic detection of oxygen production or consumption rate.

**Contacts:** Giuseppina Rea (+39 0690672631) - giuseppina.rea@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/photosynthesis/>

### INSIDEL@b

Laboratory dedicated to the application of computational methods to understand, characterize and design chemical systems in the context of drug discovery and predictive toxicology. Research activities focus on: i) structure-based and ligand-based drug design; ii) development of algorithms for bioactivity and toxicity prediction; iii) application of molecular dynamics simulations on complex biological systems. This computational activity is fully integrated with structural biology and medicinal chemistry experiments

**Contacts:**

Giuseppe Mangiatordi (+39 0805929158) - giuseppe.mangiatordi@ic.cnr.it

**Web site:** <https://www.ic.cnr.it/en/laboratorio/insidelb-in-silico-molecular-design-laboratory-2/>

### Protein expression and purification laboratory

The protein expression and purification laboratory provides highly pure protein samples suitable for structural studies. It employs traditional and Restriction free cloning techniques to construct expression plasmids, using a wide range of bacterial expression vectors to improve protein solubility. In case of insoluble proteins, refolding protocols can be routinely optimized. The lab specializes in parallel small-scale screening in multiple bacteria strains to optimize protein quality and in scaling-up to 10L of culture to obtain milligrams of recombinant protein, using thermostatic and refrigerated shaking incubators. Large capacity refrigerated centrifuges, a high speed refrigerated centrifuge and a Sonicator allow to obtain clear extracts. Protein purification is achieved combining multiple steps of different chromatographic techniques (AC, IEX, HIC, SEC) by a FPLC AKTA PURE 25 system. A dedicated cold room is available in case of temperature sensitive targets.

**Contacts:** Alessandro Pesaresi (+39 0403757520) - [alessandro.pesaresi@ic.cnr.it](mailto:alessandro.pesaresi@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/protein-expression-and-purification-laboratory/>

### Mass Spectrometry lab

Laboratory dedicated to complementary mass spectrometry techniques (High-Resolution Accurate-Mass Orbitrap system, connect to Ultra-High Performance Liquid Chromatography and a MALDI-TOF spectrometer), that allow the identification and characterization of wide spectrum of compounds, from small molecules to large polymers, and that reach accuracy (nanomolar), sensitivity and resolution suitable for many applications.

**Contacts:**

Giulia Grasso (+39 0957338432) - [giulia.grasso@ic.cnr.it](mailto:giulia.grasso@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/mass-spectrometry>

### Thermodynamic Lab

The Thermodynamics laboratory is equipped with the following instruments: Differential Scanning NanoCalorimeter TA Instruments; Isothermal Titration NanoCalorimeter TA Instruments; Metrohm Autolab 86465 potentiostat; Metrohm Titrando 905 titrator.

**Contacts:** Danilo Milardi (+39 0957338438) - [danilo.milardi@ic.cnr.it](mailto:danilo.milardi@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/thermodynamic/>

### RINT2500 RIGAKU

X-ray diffractometer using a 18kW rotating anode with copper target and a horizontal  $2\theta/\theta$  goniometer (independent or coupled) with a range of measure from 4 to 145 degrees (in  $2\theta$  geometry). The diffractometer is equipped with an asymmetric Johansson Ge(111) crystal on the incident beam to select the monochromatic Cu K $\alpha$  1 radiation ( $\lambda = 1.54056 \text{ \AA}$ ). The diffractometer is provided with two detectors: 1) NaI scintillator counter; 2) Silicon strip D/teX Ultra detector. The measurements are executed at room temperature in Debye Scherrer geometry by introducing the sample in a Lindemann glass capillary (capillary size: 0.1mm  $\varnothing$  - 2.0 mm  $\varnothing$ ), which is mounted on the axis of the diffractometer. To reduce the effect of possible preferred orientation, the capillary is rotated during measurement to improve the randomization of the orientations of the individual crystallites.

**Contacts:** Rosanna Rizzi (+39 0805929157) - [rosanna.rizzi@ic.cnr.it](mailto:rosanna.rizzi@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/x-ray-diffractometer-rint2500-rigaku/>

### Synthesis laboratory

Two microwave-assisted peptide synthesizers (Liberty, CEM) are operating at the IC synthesis laboratory in Catania, capable of satisfying the growing demand for synthetic peptides. Microwave-assisted solid-phase peptide synthesis (MW-SPPS) is a very high-speed, high-efficiency technology widely used for research, recently also available on a kilo scale. MW-SPPS is advantageous in terms of yield, purity, time savings and solvent consumption. The reaction temperature in the mono-modal cavity, monitored by an internal fiber optic sensor, makes the procedure highly reproducible. MW-SPPS can be a reliable technological support for the rapid production of difficult peptide sequences and peptide conjugates, with an incomparable quality.

**Contacts:** Giuseppe Pappalardo (+39 0957338428) - [giuseppe.pappalardo@ic.cnr.it](mailto:giuseppe.pappalardo@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/synthesis-laboratory/>

### To.Sca.Lab

Experimental and computational laboratory aiming at reconstructing structural, microstructural and dynamic behavior of nanocrystalline, partially ordered and disordered materials at different length scales (ranging from atomic resolution up to the mm size), and to correlate it with the material functional properties.

**Contacts:**

Antonietta Guagliardi (+39 0312386635) - [antonella.guagliardi@ic.cnr.it](mailto:antonella.guagliardi@ic.cnr.it)

**Web site:** <http://toscalab.uninsubria.it>

### X-RAY Microimaging Laboratory (XMI-L@b)

Imaging diffraction facility where it is possible to collect low and high scattering angle data in transmission mode (SAXS / WAXS) or in reflection mode (GISAXS / GIWAXS). It is used for molecular and atomic scale analysis of fabrics, natural or engineered, thin films, nanostructured surfaces.

**Contacts:** Davide Altamura (+39 0805929163) - [davide.altamura@ic.cnr.it](mailto:davide.altamura@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/x-ray-microimaging-laboratory-xmi-lb/>

### XRD1

Hard X-ray diffraction beamline, equipped with Huber goniometer ( $k$  geometry), fully controllable remotely, coupled to a two-dimensional hybrid Dectris Pilatus 2M detector. The beamline hosts experiments of single crystal diffraction on small molecules and proteins, diffraction from powders or surfaces (in grazing incidence) and physics of high pressures.

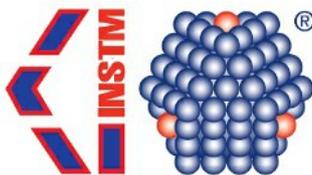
**Contacts:**

Luisa Barba (+39 0403757524) - [luisa.barba@ic.cnr.it](mailto:luisa.barba@ic.cnr.it)

**Web site:** <https://www.ic.cnr.it/en/laboratorio/beamline-xrd1elettra/>

## PUBBLICAZIONI

[www.ic.cnr.it/pubblicazioni](http://www.ic.cnr.it/pubblicazioni)



SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

### National Interuniversity Consortium of Materials Science and Technology - INSTM

Via Giuseppe Giusti 9 - 50121 Firenze (FI)  
sito web: <https://www.instm.it/en/instm.aspx>

## CONTACTS

Prof. Federica BONDIOLI (President)  
+39 055233871

Prof. Andrea CANESCHI (Director)  
segreteria@instm.it (Secretariat)

## DETAILED INFORMATION

### Staff:

2 Full Professors  
6 Researchers  
1 Journalist  
11 Administrative Technicians

**Registered students:** 422

**Post Lauream Training:** 50 Research fellows  
29 fellows

**Patents:** 36

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Life science

Approaches for the prevention and treatment of bacterial and viral diseases, Development of solutions for disabilities and improvement of social life, Development of biomedical systems based on artificial intelligence (AI), Innovative therapeutic approaches, Innovative regenerative medicine approaches, Advanced diagnostic systems, Patient-Specific Medical Devices, E-health and home therapy systems, Advanced computational approaches for life sciences



**Silvia Faré** (+39 055233871)  
[direzione@instm.it](mailto:direzione@instm.it)

### Food science

Food preservation and storage solutions, New materials for substrates for primary production, New sources for food development, Advanced nutraceuticals, development and testing of molecules, Development of food biotechnology, Technologies and new materials for packaging, Quality and food safety, valorization of raw materials and food waste products, environmental and energy sustainability, advanced computational approaches for food sciences



**Silvia Faré** (+39 055233871)  
[direzione@instm.it](mailto:direzione@instm.it)

<b>Energy</b>	Solar radiation Conversion, Electrochemical accumulators and batteries, Low temperatures Electrochemical systems, High temperatures Electrochemical systems, Production of fuels and energy carriers, Heat storage systems, Components with high mechanical and corrosion resistance, High conductivity materials electric with magnetic properties, Materials for separation, storage and process control, Production, replacement, reduction and recovery of critical materials, Advanced computational approaches for the ecological transition			<b>Francesco Basile</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Made in Italy</b>	Biodegradable and recyclable materials and products, Innovative and high technological materials, Natural materials for jewelry and fashion industries, Enhancement of Made in Italy supply chains, Treatment and transformation of natural and synthetic materials for the furniture industry, Materials for the manufacturing industry, Integration of nanotechnologies in production processes, New transformation processes of materials for industrial uses, Innovative materials for design, Advanced computational approaches for Made in Italy			<b>Paolo Fino</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Sustainable mobility</b>	Lightweight materials, Electronics and sensors for mobility, On-board electrical and thermal storage, Vehicle power technologies, New sustainable materials, Advanced computational approaches for the ecological transition, Magnets and engines			<b>Elisabetta Di Bartolomeo</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Advanced manufacturing</b>	Smart Materials, Flexible Manufacturing Technologies, Hybrid Manufacturing Technologies, Critical Materials Manufacturing Technologies, Hybrid Materials, Development and Production of Metamaterials, Materials and Techniques for Micromanufacturing, Bio-based Materials for Advanced Manufacturing Techniques, Advanced manufacturing methods for material recovery and recycling, Advanced computational approaches for advanced manufacturing			<b>Gianluca Cicala</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Aerospace</b>	High temperature metallic materials, Metallic lightweight materials, Advanced metallic materials for structural applications, Advanced ceramic materials and composites, Technopolymers and polymer matrix composites, Glasses for special applications, Functional materials, Advanced computational approaches for aerospace			<b>Paolo Fino</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Green economy</b>	Recovery of metals and critical elements, Recycling of materials, Biodegradable materials and products, Life Cycle Assessment (LCA), Carbon footprint and Cost-Benefit Analysis (CBA), Advanced computational approaches for the green economy, Biodegradation and composting			<b>Elisabetta Di Bartolomeo</b> (+39 055233871) <i>direzione@instrm.it</i>
<b>Circular economy</b>	Circular chemistry approaches for molecules and materials, Eco-design for reduced environmental impact and recycling at the end of life, Quantification of circularity, Valorization of biomass waste, Nanotechnologies for the development of eco-sustainable materials and products, Advanced computational approaches for the circular economy			<b>Silvia Gross</b> (+39 055233871) <i>direzione@instrm.it</i>

## Building preservation

Self-healing materials, Inorganic fiber-reinforced composites for structural reinforcement, High-performance fiber-reinforced concrete, Use of composite material bars in reinforced concrete, Supplementary cementing materials, Corrosion monitoring, Alternative binders to portland cement with low environmental impact, Use of materials from recycling to produce concrete, Advanced computational approaches for materials and building conservation



Luigi Coppola (+39 055233871)  
direzione@instm.it

## Cultural heritage

Inclusive fruition of cultural heritage, fruition of underwater cultural heritage, Management, valorisation and fruition, Monitoring, Consolidation and protection, Cleaning strategies for cultural heritage, Diagnostics and risk prevention, Digital ecosystem for tourism and cultural promotion, Advanced computational approaches for cultural heritage



Stefana Milioto (+39 055233871)  
direzione@instm.it

## OTHER R&D ORGANIZATIONS

### BIOlab (Laboratory for Bioactive polymer materials for biomedical and environmental applications)

This laboratory focuses specifically on the study and synthesis of biodegradable and biocompatible polymer materials for use in areas such as food packaging and catalytic resin formulation, as well as biomedical and pharmaceutical applications, for instance, as matrices for controlled-release pharmaceutical delivery, or as hydrogels in tissue engineering.

**Contacts:** Dario Puppi (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### CASPE (Laboratory of Catalysis for Sustainable Production and Energy)

CASPE is dedicated to the development of catalysts, catalytic processes and technologies for applications in environmental protection, the reduction of greenhouse gases and the development of cleaner alternatives to chemical manufacturing processes to reduce their environmental impact.

**Contacts:** Siglinda Perathoner (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### Centre of Reference for Controlled porosity materials

This laboratory concentrates its research activities on the preparation and characterisation of mesoporous materials created using supramolecular assembly, ceramic-based hierarchically porous materials, carbon-based nanotubes and porous carbons and silicon. Among its activities, it also represents a point of contact between university- and industry-driven research, a role that is facilitated by its internationally renowned services, know-how and capabilities.

**Contacts:** Plinio Innocenzi (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### Centre of Reference for Technologies for the transformation of polymer and composite materials

This is a relatively broad field that, as well as covering materials transformation as its title suggests, also studies the use of innovative technologies to develop new polymer systems, characterising the macromolecular systems used as well as the resultant products

**Contacts:** Giuseppe Mensitieri (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### Centre of Reference for Nanosized materials for microelectronics and related sectors

The laboratory investigates the synthesis of various types of nanostructured systems like innovative thin film materials, new low environmental impact molecules for use as vapour phase precursors, and special shaped materials for use in leading edge applications such as nanotubes.

**Contacts:** Maria Elena Fragalà (+39 0552338712/23) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### Centre of Reference for Semicrystalline polymeric materials

The laboratory focuses on the synthesis of semi-crystalline polymers (mainly hydrocarbons) and the characterisation of the physical properties of polymer materials. It also analyses and develops the structure and morphology of new polymers for appropriate industrial sectors (semiconductive and conductive materials for electronics, photochromic materials for optics and electro-optic modulator materials for opto-electronics)

**Contacts:** Gaetano Guerra (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

### Centre of Reference for Surfaces and nanostructured interphases

Large surface extension materials: synthesis, characterisation and modelling. Their particular research focus is on the synthesis, characterisation and modelling of nanostructured materials with highly developed surfaces, and their interaction with gases and liquids

**Contacts:** Silvia Bordiga (+39 055233871) - direzione@instm.it

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**CRIMSON (Laboratory for modelling and simulation of molecular organisations and nanosystems)**

It develops techniques for calculations linking the molecular properties of functional materials with their more visible aspects and performance in the field, when subjected to the conditions of their real working environments. These include the temperatures, pressures, and where appropriate, the applied fields to which they will be exposed, as well as any surface constrictions or nanometric-scale phenomena that may be applied

**Contacts:** Claudio Zannoni (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**GISEL (National Centre of Reference for Electrochemical Energy Storage Systems)**

Is the first and only national center in the field of research and development of advanced materials for electrochemical energy storage technologies

**Contacts:** Claudio Gerbaldi (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**LAMM (Molecular Magnetism Laboratory)**

LAMM uses magnetic techniques and magnetic resonance to investigate molecular and nano magnets. It also works with external public and private owned academic and industrial laboratories, offering state-of-the-art instruments for magnetic characterisation as well as the measurement of magnetic systems using electronic and nuclear magnetic resonance

**Contacts:**

Roberta Sessoli (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**LASCAMM (Laboratory for the synthesis and characterisation of organometallic molecular materials)**

This laboratory focuses on the synthesis of new materials for low-threshold organic lasers, emitting diodes, optical switches, variable optical filters and polarisers

**Contacts:** Iolinda Aiello (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**LINCE (Laboratory for ceramic materials technology and engineering)**

This is the centre of excellence for ceramic materials. Its research focuses on conventional ceramic materials for use in the construction industry, ceramic-based engineering materials for mechanical and thermo-mechanical applications, and production of materials with high temperature wear resistance, high tenacity at high temperatures, and even superplastic properties

**Contacts:** Laura Montanaro (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**LITS (Surface treatment engineering laboratory)**

LITS' primary focus is investigation, development and modelling of surface treatments for high technology structural materials of coatings

**Contacts:** Teodoro Valente (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**NIPLAB (Laboratory for nanocomposites and multifunctional polymeric hybrid materials)**

This laboratory studies the conventional structural composite materials, to develop and characterise carbon-based nano-additives to increase the mechanical resistance of polymer nanocomposites, and to synthesise new hybrid materials for applications in sectors such as biomedicine

**Contacts:** Jose M. Kenny (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**PREMIO (Laboratory for the preparation of innovative materials with optimised chemico-physical properties)**

PREMIO carries out theoretical modelling, synthesis and characterisation of materials for various sectors and applications. This centre is unique in that it has the capabilities, equipment and instrumentation necessary to develop such materials in bulk

**Contacts:** Lorenzo Malvasi (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

**SKIES-VILLAGE (Science, Knowledge and Innovation for Earth and Space)**

Virtual Italian Laboratory for Large Scale Applications in a Geographically-distributed Environment. This laboratory is developing a virtual laboratory as the backbone of a high-performance computational grid to be distributed across the country whose purpose will be to solve certain classes of particularly complex computational problems concerning chemistry and materials science

**Contacts:** Vincenzo Barone (+39 055233871) - [direzione@instm.it](mailto:direzione@instm.it)

**Web site:** [https://www.instm.it/en/research/excellence\\_to\\_the\\_power\\_of\\_16.aspx](https://www.instm.it/en/research/excellence_to_the_power_of_16.aspx)

## COLLABORATIONS WITH COMPANIES

- Acea S.p.A.
- Baker Hughes S.r.l.
- Eni S.p.A.

## PUBBLICAZIONI

- **"Damp heat–stable perovskite solar cells with tailored-dimensionality 2D/3D heterojunctions"**, Randi Azmi et al., SCIENCE, 376, 2022, pp. 73-77. DOI: 10.1126/science.abm5784.
- **"A multifunctional chemical toolbox to engineer carbon dots for biomedical and energy applications"**, Luka Đorđević et al., Nature Nanotechnology, 17, 2022, pp. 112–130. DOI:10.1038/s41565-021-01051-7.
- **"Single-Atom (Iron-Based) Catalysts: Synthesis and Applications"**, Baljeet Singh et al., Chem. Rev., 121, 2021, pp. 13620–13697. DOI: 10.1021/acs.chemrev.1c00158.
- **"A comprehensive review on the nanocomposites loaded with chitosan nanoparticles for food packaging"**, Farhad Garavand et al., CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION, 62, 2021, pp. 1383-1416. DOI: 10.1080/10408398.2020.1843133.
- **"Transition metal-catalysed molecular n-doping of organic semiconductors"**, Han Guo et al., Nature, 599, 2021, pp. 67–73. DOI: 10.1038/s41586-021-03942-0.
- **"A Complete Ab Initio View of Orbach and Raman Spin-Lattice Relaxation in a Dysprosium Coordination Compound"**, Briganti Matteo et al., Journal of the American Chemical Society, 143, 2021, pp. 13633-13645. DOI: 10.1021/jacs.1c05068.
- **"Integrated energy conversion and storage devices: Interfacing solar cells, batteries and supercapacitors"**, Fagiolari Lucia et al., Energy Storage materials, 51, 2022, pp. 400-434. DOI: 10.1016/j.ensm.2022.06.051.

## MORE INFO

Technology transfer partners:

- EUREKA Venture SGR S.p.A.
- MATERIAS S.r.l.
- Mi. To Tech S.r.l.
- Techint Compagnia Tecnica Internazionale S.p.A.



## GENERAL INFORMATION

**Politecnico di Milano**

**Department of Civil and Environmental Engineering**

Piazza Leonardo da Vinci 32 – 20133 Milano (MI)

sito web: <https://www.dica.polimi.it/about-us/?lang=en>

## CONTACTS

Prof. Attilio FRANGI

+39 0223994213

## DETAILED INFORMATION

**Staff:** 34 Full Professors

54 Associate Professors

36 Researchers

17 Structured Technicians

22 Administrative Technicians

2 General Services

**Registered students:**

**Post Lauream Training:** 87 enrolled in doctoral programs in Environmental and Infrastructure Engineering

72 enrolled in doctoral programs in Structural, Seismic and Geotechnical Engineering

80 Research fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Remediation

Soil and groundwater electrode-based remediation



**Sabrina Saponaro** (+39 0223996432)  
*sabrina.saponaro@polimi.it*

### Biotechnology

Innovative biotechnologies for efficient and sustainable wastewater treatment



**Andrea Turolla** (+39 0223996417)  
*andrea.turolla@polimi.it*

### Circular economy

Recovery of fertilizers and biostimulants from waste streams



**Andrea Turolla** (+39 0223996417)  
*andrea.turolla@polimi.it*

### Biotechnology

Bioelectrochemical remediation



**Elena Sezenna** (+39 0223996405)  
*elena.sezenna@polimi.it*

### Risk analysis

Risk assessment for human health and the environment related to: drinking water and wastewater, food, reclaimed wastewater for reuse



**Manuela Antonelli** (+39 0223996407)  
*manuela.antonelli@polimi.it*

### Trattamento acque

Removal of micropollutants (e.g. PFAS) from drinking water and wastewater: optimization and modeling of advanced treatment processes



**Manuela Antonelli** (+39 0223996407)  
*manuela.antonelli@polimi.it*

<b>Waste treatment</b>	Mass and energy balances of waste management systems (material recycling, biological treatments, waste-to-energy plants)	     	<b>Mario Grosso</b> (+39 0223996415) <i>mario.grosso@polimi.it</i>
<b>Biofuels</b>	Production of biomethane from hydrogen and waste CO <sub>2</sub> by anaerobic microorganisms	     	<b>Francesca Malpei</b> (+39 0223996434) <i>francesca.malpei@polimi.it</i>
<b>Social LCA</b>	Development of the social LCA methodology for the evaluation of the social impacts of waste management systems	     	<b>Lucia Rigamonti</b> (+39 0223994249) <i>lucia.rigamonti@polimi.it</i>
<b>Biotechnology</b>	Bioremediation of wastewater via microalgae/bacteria consortia	     	<b>Elena Ficara</b> (+39 0223996240) <i>elena.ficara@polimi.it</i>
<b>Drinking water</b>	Management of drinking water distribution networks: chemical and microbiological stability, release from materials in contact	     	<b>Manuela Antonelli</b> (+39 0223996407) <i>manuela.antonelli@polimi.it</i>
<b>Atmospheric emissions</b>	Stack emissions and removal efficiencies of gaseous and particulate pollutants from residential and industrial activities	     	<b>Stefano Cernuschi</b> (+39 0223996411) <i>stefano.cernuschi@polimi.it</i>
<b>Biotechnology</b>	Volatile fatty acid production from waste sludge and algal biomass fermentation	     	<b>Elena Ficara</b> (+39 0223996240) <i>elena.ficara@polimi.it</i>
<b>Micropollutants</b>	Predictive models based on molecular descriptors, treatment plant characteristics, and operational parameters for predicting micropollutant removal	     	<b>Arianna Azzellino</b> (+39 0223996432) <i>arianna.azzellino@polimi.it</i>
<b>Microplastics</b>	Degradation and removal of microplastics in wastewater and sludge	     	<b>Francesca Malpei</b> (+39 0223996434) <i>francesca.malpei@polimi.it</i>
<b>LCA</b>	Methodological developments of the life cycle assessment (LCA) for the evaluation of the environmental impacts of products and processes	     	<b>Lucia Rigamonti</b> (+39 0223994249) <i>lucia.rigamonti@polimi.it</i>
<b>Recovery</b>	Environmental evaluation of the integration and synergies between material and energy recovery from waste (e.g. recovery of metals from waste incineration bottom ash)	     	<b>Lucia Rigamonti</b> (+39 0223994249) <i>lucia.rigamonti@polimi.it</i>
<b>Biofuels</b>	Anaerobic digestion process optimization through co-digestion, pre-treatments and mathematical modelling	     	<b>Arianna Catenacci</b> (+39 0223994350) <i>arianna.catenacci@polimi.it</i>
<b>Biodegradability</b>	Aerobic degradation analysis of packaging materials	     	<b>Giovanni Dolci</b> (+39 0223994350) <i>giovanni.dolci@polimi.it</i>
<b>LCA assessment</b>	Application of the LCA methodology for the evaluation of waste, water and soil treatment technologies, and potentially sustainable products	     	<b>Lucia Rigamonti</b> (+39 0223994249) <i>lucia.rigamonti@polimi.it</i>
<b>LCSA</b>	Development of the LCSA (Life Cycle Sustainability Assessment) methodology for the assessment of environmental, social, and economic impacts	     	<b>Lucia Rigamonti</b> (+39 0223994249) <i>lucia.rigamonti@polimi.it</i>

<b>Micropollutants</b>	Data-driven source apportionment methods of micropollutants	  	<b>Data-driven source apportionment methods of micropollutants</b> (+39 0223996431) <i>arianna.azzellino@polimi.it</i>
<b>Circular economy</b>	Nutrient recovery from sewage sludge and derived products via wet chemical extraction	  	<b>Roberto Canziani</b> (+39 0223996410) <i>roberto.canziani@polimi.it</i>
<b>Remediation</b>	Soil and groundwater treatability by physical, chemical or biological technologies	  	<b>Elena Sezenna</b> (+39 0223996405) <i>elena.sezenna@polimi.it</i>
<b>Waste management</b>	Waste prevention, reuse and collection	  	<b>Mario Grosso</b> (+39 0223996415) <i>mario.grosso@polimi.it</i>
<b>Renewable energies</b>	Environmental assessments of renewable energy (wind, photovoltaic, agrivoltaic)	  	<b>Mario Grosso</b> (+39 0223996415) <i>mario.grosso@polimi.it</i>
<b>Circular economy</b>	Recovery of high-value bio-based compounds (proteins, biopolymers) from waste streams	  	<b>Andrea Turolla</b> (+39 0223996417) <i>andrea.turolla@polimi.it</i>
<b>Waste management</b>	Waste management in developing countries and international cooperation scenarios	  	<b>Mario Grosso</b> (+39 0223996415) <i>mario.grosso@polimi.it</i>
<b>Water quality</b>	Advanced monitoring of drinking water and wastewater quality (fluorescence, flow cytometry, neural networks, adaptive optimization, etc.)	  	<b>Manuela Antonelli</b> (+39 0223996407) <i>manuela.antonelli@polimi.it</i>

## OTHER R&D ORGANIZATIONS

### Fabbrica della Bioenergia (A. Rozzi Laboratory)

Bioenergy Factory is a knowledge center with three main action lines (research, service, training), aimed at promoting the development of bioenergy facilities, ensuring the achievement of maximum performance in terms of biomass treated and producible energy, while respecting the territorial vocation

**Contacts:** Arianna Guerreschi (+39 0372567767) - [info@fabbricabioenergia.it](mailto:info@fabbricabioenergia.it)

Laboratorio (+39 0372567769) - [laboratorio@fabbricabioenergia.it](mailto:laboratorio@fabbricabioenergia.it)

**Web site:** [https://www.fabbricabioenergia.polimi.it/index.php?option=com\\_content&view=featured&Itemid=102&lang=en](https://www.fabbricabioenergia.polimi.it/index.php?option=com_content&view=featured&Itemid=102&lang=en)

### LEAP - Laboratory for Energy and Environment Piacenza

Research center within the field of energy and environmental systems, with activities located within scientific research studies and consultancy, and to organization of professional training courses and scientific events in four main areas of interest: waste to value, low carbon technologies, smart energy systems, emissions and air quality

**Contacts:** Marina Bacis (+39 0523357711/579774) - [info.leap@polimi.it](mailto:info.leap@polimi.it)

**Web site:** <http://www.leap.polimi.it>



**Politecnico  
di Torino**



## GENERAL INFORMATION

**Politecnico di Torino**

**Department of Applied Science and Technology (DISAT)**

Corso Duca degli Abruzzi 24 - 10129 Torino (TO)

sito web: <http://www.disat.polito.it>

## CONTACTS

Prof. Debora FINO

+39 0110904618/4793

CREST Group: Catalytic Reaction Engineering for Sustainable Technologies

[http://www.disat.polito.it/it/la\\_ricerca/gruppi\\_di\\_ricerca/crest](http://www.disat.polito.it/it/la_ricerca/gruppi_di_ricerca/crest)

## DETAILED INFORMATION

**Staff:** 69 Full Professors

65 Associate Professors

80 Researchers

10 Structured Technicians

23 Administrative Technicians

8 General Services

**Registered students:** 850 (Academic year 2021/2022)

**Post Lauream Training:** 75 enrolled in doctoral programs in Chemical Engineering

96 enrolled in doctoral programs in Material Science and Technology

42 enrolled in doctoral programs in Physics

90 Research fellows

30 fellows

**Patents:** 146

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Biorefinery

Aqueous Phase Reforming of organic compounds diluted in water solution and autothermal reforming of biogas, for the production of renewable H<sub>2</sub> production.  
Valorization of lignin and lignocellulosic residuals by catalytic, biological and enzymatic processes. Selective hydrogenation of hexose and pentose sugars.  
Conversion of animal and vegetable fats to fuel. Life Cycle Assessment (LCA)



**Raffaele Pirone** (+39 0110904580)  
[raffaele.pirone@polito.it](mailto:raffaele.pirone@polito.it)

### CCU

Photo/electro-catalytic conversion of CO<sub>2</sub> to high-value chemicals or fuels (syngas, H<sub>2</sub>, methane, alcohols, etc).  
Advanced oxidative processes (AOP) for wastewater treatments or transformation into useful chemicals and their integration with CO<sub>2</sub> reduction processes into multifunctional systems. CO<sub>2</sub> capture with absorbents and micro- and mesoporous materials. Desert soils quality improvement by using organic matter as fertilizer.  
Thermochemical catalytic processes (e.g. power to gas) and biological processes (anaerobic or electrochemical) for bioplastics and biofuels production from CO<sub>2</sub> and syngas. Modelling and processes simulation and Life Cycle Assessment (LCA)



**Nunzio Russo** (+39 0110904710)  
[nunzio.russo@polito.it](mailto:nunzio.russo@polito.it)

<b>Catalysts</b>	Development of catalysts for the abatement of pollutants. Study and optimization of novel catalytic and biological processes for exploitation, valorization and reuse of wastes. Limitation of the environmental impact of production processes. Fundamental and applied research on heterogeneous catalysts, photo-catalysts and electro-catalysts		<b>Debora Fino</b> (+39 0110904710) <i>debora.fino@polito.it</i>
<b>Agroindustry</b>	Study of processes and sustainable technologies for monitoring quality and safety of agri-food products (foodomics). Quality and safety of agri-food products through the monitoring of indicators. Nutri-metabolomics: Study of human and food metabolic interaction to verify the food claims or to improve the food practices. Development and application of chemometric tools to automate the production process, monitoring and control or for food processing purpose		<b>Francesco Geobaldo</b> (+39 0110904633 / 0110904562) <i>francesco.geobaldo@polito.it</i>
<b>Plant security</b>	Development of experimental methods for the measurement of the deflagrating parameters of powder and layers of dust clouds. Development of risk assessment methods for explosive atmospheres, development of mitigation methods of the explosion hazard. Development of fire risk assessment methods in industrial and civil buildings installations. Risk assessment of the processes of production of biofuels		<b>Luca Marmo</b> (+39 0110904697 / 0110904697) <i>luca.marmo@polito.it</i>

## OTHER R&D ORGANIZATIONS

<b>CO2 Circle Lab (CCL)</b>	The CCL infrastructure promotes an articulated variety of innovative technologies for the capture, accumulation and use of carbon dioxide emissions of anthropogenic origin (Carbon Capture Utilization and Storage - CCUS). CCL therefore focuses on the development of biotechnological, electrochemical and thermochemical processes, based on Renewable Energy Sources (RES), for the formation of products with high added value from CO <sub>2</sub> , with sustainable process management. Furthermore, CCL develops CCUS processes in strong integration with energy storage systems: hubs of integrated FER-accumulation-CCUS systems (power-to-chemicals, P2C protocols); hub between the main energy networks (power-to-gas (P2G) and gas-to-power (G2P) protocols) <b>Contacts:</b> Fabrizio Pirri (+39 0110907355) - <a href="mailto:fabrizio.pirri@polito.it">fabrizio.pirri@polito.it</a> <b>Web site:</b> <a href="https://co2circlelab.eu/">https://co2circlelab.eu/</a>
<b>Solar fuels laboratory</b>	Laboratory for the development of photo/bio/electro-catalytic technologies for the conversion of CO <sub>2</sub> into sustainable products <b>Web site:</b> <a href="https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/solar_fuels_laboratory">https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/solar_fuels_laboratory</a>
<b>Anaerobic fermentation laboratory (FERMAN)</b>	Laboratory for the development of biotechnological processes for the transformation of waste into biofuels and biomolecules <b>Web site:</b> <a href="https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/anaerobic_fermentation_laboratory_ferman">https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/anaerobic_fermentation_laboratory_ferman</a>
<b>Biorefinery processes laboratory</b>	Laboratory for the development of sustainable catalytic technologies for the production of fuels and chemical compounds through biorefinery processes <b>Web site:</b> <a href="https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/biorefinery_processes_laboratory">https://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_ingegneria_chimica/biorefinery_processes_laboratory</a>
<b>"DISAT Excellent Departments" project</b>	The Department of Applied Science and Technology (DISAT) is the reference structure of the Polytechnic of Turin in the cultural areas that study the foundations of matter and energy, their transformation, and related engineering applications. Through the "Departments of Excellence" project, DISAT has equipped itself with a center of excellence for ionic, electronic, optical and atomic force microscopy, an integral spectroscopic instrument <b>Contacts:</b> Debora Fino (+39 0110904710 , +39 0110904738) - <a href="mailto:debora.fino@polito.it">debora.fino@polito.it</a> <b>Web site:</b> <a href="http://www.disat.polito.it/it/focus/progetto_dipartimenti_di_eccellenza">http://www.disat.polito.it/it/focus/progetto_dipartimenti_di_eccellenza</a>

## COLLABORATIONS WITH COMPANIES

- ACEA
- Danieli
- Eni
- Ferrero
- General Motors Global Propulsion Systems
- Lavazza
- Technip Energies
- Versalis

[https://www.disat.polito.it/it/la\\_ricerca/progetti\\_di\\_ricerca\\_finanziati](https://www.disat.polito.it/it/la_ricerca/progetti_di_ricerca_finanziati)

## PUBBLICAZIONI

Publications available at the Institutional Repository PORTO@IRIS: <https://iris.polito.it/>

## MORE INFO

Full list of research groups at DISAT:

[https://www.disat.polito.it/it/la\\_ricerca/gruppi\\_di\\_ricerca](https://www.disat.polito.it/it/la_ricerca/gruppi_di_ricerca)



## GENERAL INFORMATION

Sapienza Università di Roma

Department of Chemistry

Piazzale Aldo Moro 5 - 00185 Roma (RM)

sito web: <https://www.chem.uniroma1.it/en>

## CONTACTS

Prof. Luciano GALANTINI

+39 0649693269

Research contact: Raffaella Gianferri - [chimicaricerca@uniroma1.it](mailto:chimicaricerca@uniroma1.it)

## DETAILED INFORMATION

**Staff:** 11 Full Professors

36 Associate Professors

28 Researchers

10 Structured Technicians

11 Administrative Technicians

5 General Services

**Registered students:** 2,581 (Academic year 2022/2023)

**Post Lauream Training:** 66 enrolled in doctoral programs in Chemical Science

2 enrolled in doctoral programs in Mathematical Modelling for Engineering, Electromagnetism, Nanoscience

4 enrolled in doctoral programs in Chemical processes for industry and the environment

24 enrolled in II level Master in Characterisation and technologies for the remediation of polluted sites

19 enrolled in II level Master in Forensic analytical methodologies

9 enrolled in II level Master in Scientific investigation techniques in the food sector

25 Research fellows

2 fellows

**Patents:** 37

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Multi-stimulus polymers

Meccanismi di reazione di interesse chimico o biochimico e sintesi di nuovi copolimeri metacrilici multi-stimolo sensibili



**Patrizia Gentili** (+39 0649913396)  
[patrizia.gentili@uniroma1.it](mailto:patrizia.gentili@uniroma1.it)

### Biomaterials

Molecules from biological precursors for the preparation of nanostructured biomaterials



**Luciano Galantini** (+39 0649913687)  
[luciano.galantini@uniroma1.it](mailto:luciano.galantini@uniroma1.it)

### Homogeneous catalysis

C-H functionalization by echocompatible Supramolecular catalysts



**Stefano Di Stefano** (+39 0649913057)  
[stefano.distefano@uniroma1.it](mailto:stefano.distefano@uniroma1.it)

### Materials

Functionalized nanomaterials for applications in nanomedicine optoelectronics and sensing



**Ilaria Fratoddi** (+39 0649913182)  
[ilaria.fratoddi@uniroma1.it](mailto:ilaria.fratoddi@uniroma1.it)

<b>Remediation</b>	Combined chemical-physical and biological processes for the sustainable remediation of contaminated groundwater	    	<b>Marco Petrangeli Papini</b> (+39 0649913948) <i>marco.petrangelipapini@uniroma1.it</i>
<b>Bioactive compounds</b>	Asymmetric synthesis of natural products and new compounds with antiviral and anticancer activity	    	<b>Paolo Lupattelli</b> (+39 0649913077) <i>paolo.lupattelli@uniroma1.it</i>
<b>Circular economy</b>	Treatment of e-wastes	    	<b>Francesca Pagnanelli</b> (+39 0649913367) <i>francesca.pagnanelli@uniroma1.it</i>
<b>Materials</b>	Solid state materials characterization for eco-sustainable processes	    	<b>Ida Pettiti</b> (+39 0649913378) <i>ida.pettiti@uniroma1.it</i>
<b>Sustainable chemistry</b>	Nonheme iron complexes: efficient and selective catalysts for sustainable oxidative processes	    	<b>Oswaldo Lanzalunga</b> (+39 0649913711) <i>osvaldo.lanzalunga@uniroma1.it</i>
<b>Circular economy</b>	Extraction and characterization of polyhydroxialkanoates from microbial mixed cultures	    	<b>Andrea Martinelli</b> (+39 0649913950) <i>andrea.martinelli@uniroma1.it</i>
<b>Green solvents</b>	Development of "green" extractive methods by supercritical fluids to extract bioactive molecules and biopolymers to biological matrices	    	<b>Cleofe Palocci</b> (+39 0649913317) <i>cleofe.palocci@uniroma1.it</i>
<b>Circular economy</b>	Heavy metal removal by biomasses (biosorption)	    	<b>Francesca Pagnanelli</b> (+39 0649913367) <i>francesca.pagnanelli@uniroma1.it</i>
<b>Remediation</b>	New sorbent materials and neoteric solvents for environmental and bioanalytical applications	    	<b>Alessandra Gentili</b> (+39 0649913230) <i>alessandra.gentili@uniroma1.it</i>
<b>Remediation</b>	Microalgae cultivation for the production of fine chemicals	    	<b>Pietro Altimari</b> (+39 0649913368) <i>pietro.altimari@uniroma1.it</i>
<b>Energy</b>	Solar radiation for the production of energy	    	<b>Daniilo Dini</b> (+39 0649913986) <i>daniilo.dini@uniroma1.it</i>
<b>Heterogeneous catalysis</b>	Eco-sustainable processes for the abatement of polluting gases and for production of hydrogen by heterogeneous catalysis	    	<b>Daniela Pietrogiaconi</b> (+39 0644913304) <i>daniela.pietrogiaconi@uniroma1.it</i>
<b>Nanomaterials</b>	Bio and nanomaterials for the delivery of nucleic acids for human cancer control	    	<b>Cleofe Palocci</b> (+39 0649913317) <i>cleofe.palocci@uniroma1.it</i>
<b>Solar energy</b>	Electrochemical devices for energy production and storage (batteries, fuel cells and electrolyzers for the production of hydrogen)	    	<b>Maria Assunta Navarra</b> (+39 0649913711) <i>mariassunta.navarra@uniroma1.it</i>
<b>Materials</b>	Bio-based polymers for biomedical and environmental applications	    	<b>Iolanda Francolini</b> (+39 0649913162) <i>iolanda.francolini@uniroma1.it</i>

## OTHER R&D ORGANIZATIONS

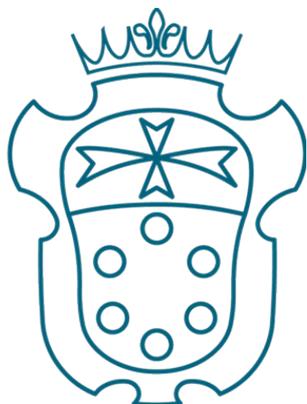
<b>Scientific calculation cluster 6DOT</b>	<p>6DOT is a computing platform that has 4 computing nodes, with the following configuration: 2 Intel SKL-ST4116 12C 2.1GHz; 4 16Gb DDR4; 2 NVIDIA Geforce GTX 1080Ti. The Cluster is accessible from the front-end node through the ssh protocol. The calculations are managed with a Torque / Maui-based queuing system that optimizes the available resources at best. The available development packages are: gcc, g ++, gfortran, Intel / 13.1.1, pgi / 16.1, openmpi / gcc, openmpi / icc</p> <p><b>Contacts:</b> Marco D'Abramo - cluster6dot.chimica@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/cluster-per-il-calcolo-scientifico">https://www.chem.uniroma1.it/ricerca/cluster-per-il-calcolo-scientifico</a></p>
<b>Nuclear Magnetic Resonance spectroscopy (NMR) laboratories</b>	<p>The NMR instrumentation of the service uses a superconducting magnet at 9.4 T (400 MHz for the proton) with specific measuring heads (carbon and hydrogen) and multinuclear heads for all nuclei with resonance frequencies between that of phosphorus 31 and that of the silver 109, has the most advanced type of software and hardware and is able to perform the most modern multidimensional, homonuclear and inverse heteronuclear experiments also in relation to the presence of an efficient magnetic field gradient generation system</p> <p><b>Contacts:</b> Francesca Leonelli (+39 0649913197) - francesca.leonelli@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/risonanza-magnetica-nucleare">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/risonanza-magnetica-nucleare</a></p>
<b>Elementary Analysis Laboratory</b>	<p>The elemental analyzer, EA 1110 CHNS-O, is an equipment that allows the determination of the percentage of C, H, N and S in organic, inorganic solid or liquid samples (non-volatile liquids, oils). The analytical method of determination consists in: combustion of the sample (1000 ° C) followed by catalytic oxidation and reduction processes; separation of the gases produced in a gas-chromatographic column and analysis of the same with a thermal conductivity detector; signal processing and determination of the percentage of elements present in the sample with the EAGER 200 program</p> <p><b>Contacts:</b> Maria Pia Donzello (+39 0649913330) - mariapia.donzello@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/analisi-elementare">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/analisi-elementare</a></p>
<b>Single Crystal X-ray Diffraction Laboratory (XRD)</b>	<p>The Xcalibur O diffractometer operates with a 4-circle goniometer in kappa geometry. It is equipped with a Spellman DF60N3 X-ray generator, an Opal CCD detector, a video microscope and fiber optic lighting. Work with CrysAlisPro software packag3</p> <p><b>Contacts:</b> Gustavo Portalone (+39 0649913106) - gustavo.portalone@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/diffrazione-raggi-x-da-cristallo-singolo">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/diffrazione-raggi-x-da-cristallo-singolo</a></p>
<b>Porosimetry Laboratory for the characterization of micro- and meso-porous solids</b>	<p>Micrometrics 3FLEX (Surface Characterization Analyzer - porosimeter) with automatic physisorption and chemisorption analyzer for the characterization of micro- and meso-porous solids, both crystalline and amorphous, of inorganic, organic nature or with mixed organic-inorganic structure</p> <p><b>Contacts:</b> Ida Pettiti (+39 0649913378) - ida.pettiti@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/porosimetria">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/porosimetria</a></p>
<b>Photoemission Spectroscopy Laboratory (XPS)</b>	<p>Integrated X-ray photoemission apparatus and photoemission spectroscopy</p> <p><b>Contacts:</b> Andrea Giacomo Marrani (+39 0649913316) - andrea.marrani@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/spettroscopia-di-fotoemissione">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/spettroscopia-di-fotoemissione</a></p>
<b>Raman Spectroscopy Laboratory</b>	<p>Raman spectroscopy is based on the phenomenon of inelastic diffusion of electromagnetic radiation due to interaction with the vibrational and rotational motions of a molecule (Raman effect). The spectrum of light scattered by materials illuminated by a coherent and monochromatic radiation (laser) depends only on the vibrations of the chemical bonds that make up the compound under examination, allowing to obtain information on the chemical composition, the molecular structure and the intermolecular interactions. It is a non-invasive, non-destructive technique and is of fundamental interest in various fields of materials science and cultural heritage</p> <p><b>Contacts:</b> Andrea Giacomo Marrani (+39 0649913316) - andrea.marrani@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/spettroscopia-raman">https://www.chem.uniroma1.it/ricerca/attrezzature-e-strumentazione/spettroscopia-raman</a></p>
<b>MSLab</b>	<p>UHPLC-MS/MS system with hybrid triple quadrupole-linear ion trap analyzer 6500 QTRAP Plus and Selex Ion technology (differential mobility). The analytical system is suitable for the analysis of complex liquid samples, the instrumentation is based on ultra-high performance liquid chromatography, which consent the separation of analytes, coupled with mass spectrometry for their detection. The system is characterized by ultra-high sensitivity for the detection of trace analytes.</p> <p><b>Contacts:</b> Roberta Curini (+39 0649913559) - roberta.curini@uniroma1.it</p>
<b>NSC_Lab</b>	<p>The activities of NSC_Lab (Nanosynthesis and characterization laboratory) focus on innovative and nanostructured materials with the final aim of developing knowledge-based materials for advanced technological applications. In particular, our approach integrates the advanced synthesis methods and characterizations for organometallic complexes and rigid rod polymers, nanostructured polymers, and functionalized metal nanoparticles, for applications in optoelectronics, sensors, nanomedicine and biotechnology. Keywords: nanosynthesis, metal nanoparticles, functionalized nanoparticles, nanocomposites</p> <p><b>Contacts:</b> Iliara Fratoddi (+39 0649913182) - ilaria.fratoddi@uniroma1.it</p> <p><b>Web site:</b> <a href="https://research.uniroma1.it/laboratorio/163862#/0">https://research.uniroma1.it/laboratorio/163862#/0</a></p>
<b>Sapienza NMLab</b>	<p>The Metabolomics Laboratory based on NMR (Nuclear Magnetic Resonance) spectroscopy of the Sapienza University (NMLab) is an integrated system of equipment and knowledge mainly dedicated to metabolomic analysis. Its nerve center is the high-resolution NMR spectrometer JNM-ECZ 600R, equipped with a 14.09 Tesla magnet, autosampler and cryoprobe</p> <p><b>Contacts:</b> Federico Marini - nmlab.sapienza@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/nmlab/home">https://www.chem.uniroma1.it/nmlab/home</a></p>
<b>SAXSLab Sapienza</b>	<p>SAXSLab Sapienza is a structural characterization laboratory by Xenocs XEUS 2.0 X-ray diffractometer. The instrument allows measurements of Small Angle X-Ray Scattering (SAXS), Wide Angle X-ray Scattering (WAXS) and Grazing Incidence Small Angle Scattering (GISAXS). These techniques are widely applicable for the characterization of matter at the nano and meso-scale</p> <p><b>Contacts:</b> Luciano Galantini (+39 0649913687) - saxslabsapienza@uniroma1.it</p> <p><b>Web site:</b> <a href="https://www.chem.uniroma1.it/ricerca/saxslab">https://www.chem.uniroma1.it/ricerca/saxslab</a></p>

## COLLABORATIONS WITH COMPANIES

- Analytical Solutions S.r.l.
- D-Art S.r.l.
- Eco Recycling S.r.l.
- RePET S.r.l.
- Trireme S.r.l.

## MORE INFO

The Chemistry Department has numerous research collaborations with Italian and foreign companies. These include those for the implementation of Research, Development and Innovation Projects of potential interest to companies in Lazio (on FESR funds European Regional Development Fund 2014-2020 POR). Furthermore, it participates in the DTC Lazio, Center of Excellence of the Technological District of Culture of the Lazio Region. Some of the PhD scholarships in Chemical Sciences are financed by the Lazio Region as innovation doctorates in collaboration with companies



## GENERAL INFORMATION

### Scuola Normale Superiore Faculty of Sciences

Piazza dei Cavalieri 7 - 56126 Pisa (PI)  
sito web: <https://www.sns.it/en/faculty-sciences>

## CONTACTS

Prof. Luigi AMBROSIO  
+39 050509255

## DETAILED INFORMATION

**Staff:** 16 Full Professors  
10 Associate Professors  
14 Researchers

222 Structured and Administratives Technicians

**Registered students:** 167 (Academic year 2021/2022)

**Post Lauream Training:** 21 enrolled in Doctorates in Methods and models for molecular sciences; astrochemistry  
67 Research fellows

**Patents:** 24

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Photocatalysis

Modeling design of photocatalytic materials to produce renewable energy and/or to degrade environmental pollutants



**Nicola Tasinato** (+39 0509783)  
*[nicola.tasinato@sns.it](mailto:nicola.tasinato@sns.it)*

### Global warming

Quantification of the environmental impact of anthropogenic greenhouse gases by evaluation of their radiative forcing and atmospheric reactivity



**Nicola Tasinato** (+39 0509783)  
*[nicola.tasinato@sns.it](mailto:nicola.tasinato@sns.it)*

## OTHER R&D ORGANIZATIONS

### The Ennio De Giorgi Mathematical Research Centre

**Contacts:** Andrea Malchiodi - [andrea.malchiodi@sns.it](mailto:andrea.malchiodi@sns.it)  
**Web site:** <https://www.sns.it/en/ennio-de-giorgi-mathematical-research-centre>

### The "Carlo Azeglio Ciampi" Institute of Advanced Studies

**Contacts:** Mario Pianta - [mario.pianta@sns.it](mailto:mario.pianta@sns.it)  
**Web site:** <https://www.sns.it/en/carlo-azeglio-ciampi-institute-advanced-studies>

### Biology Laboratory

**Contacts:** Antonino Cattaneo - [antonino.cattaneo@sns.it](mailto:antonino.cattaneo@sns.it)  
**Web site:** <https://www.sns.it/it/laboratorio-di-biologia>

### DocStAr Laboratory

**Contacts:** Flavio Fergonzi - [flavio.fergonzi@sns.it](mailto:flavio.fergonzi@sns.it)  
**Web site:** <https://www.sns.it/en/laboratorio-di-documentazione-storico-artistica-docstar>

**NEST Laboratory****Contacts:** Fabio Beltram - [fabio.beltram@sns.it](mailto:fabio.beltram@sns.it)  
**Web site:** <https://www.sns.it/en/nest-laboratory>**SAET Laboratory****Contacts:** Anna Magnetto - [anna.magnetto@sns.it](mailto:anna.magnetto@sns.it)  
**Web site:** <https://www.sns.it/en/laboratorio-di-storia-archeologia-epigrafia-tradizione-dellantico-saet>**SMART Laboratory****Contacts:** Vincenzo Barone - [vincenzo.barone@sns.it](mailto:vincenzo.barone@sns.it)  
**Web site:** <https://www.sns.it/en/laboratorio-strategie-multidisciplinari-applicate-alla-ricerca-e-alla-tecnologia-smart>



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## GENERAL INFORMATION

**Tecnopole of the Università di Ferrara**

**Terra&Acqua Tech Laboratory**

Via Luigi Borsari 46 - 44121 Ferrara (FE)

sito web: <https://www.tat.tecnopolo.fe.it/>

## CONTACTS

Prof. Luisa PASTI

+39 0532455346

Laboratory afferent to the Tecnopolo of Ferrara, connected to the Departments of: Chemistry and Pharmaceutical Sciences, Physics and Earth Sciences, Engineering, Life Sciences and Biotechnology

<https://www.tecnopolo.fe.it/laboratori/>

## DETAILED INFORMATION

**Staff:** 13 Full Professors

17 Associate Professors

14 Researchers

2 Structured Technicians

2 Administrative Technicians

**Registered students:**

**Post Lauream Training:** 13 Research fellows

**Patents:** 5

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# Università Ca' Foscari Venezia



## Dipartimento di Scienze Molecolari e Nanosistemi

### GENERAL INFORMATION

Ca' Foscari University Venice  
Department of Molecular Sciences and Nanosystems  
Via Torino 155 - 30172 Venezia (VE)  
sito web: <https://www.unive.it/pag/28233>

### CONTACTS

Prof. Maurizio SELVA  
+39 0412348687

### DETAILED INFORMATION

**Staff:** 16 Full Professors  
22 Associate Professors  
16 Researchers  
13 Structured Technicians  
11 Administrative Technicians  
1 General Services  
**Registered students:** 486 (Academic year 2022/2023)  
**Post Lauream Training:** 22 enrolled in doctorates in Chemistry  
31 enrolled in doctorates in Bio and Nanomaterials  
18 Research fellows  
8 fellows

**Patents:** 21 Patent Summary

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### R&D ACTIVITIES DETAIL

#### Cultural heritage

Development of heterogeneous catalysts and formulation of materials for applications in cultural heritage



**Federica Menegazzo** (+39 0412348551)  
[fmenegaz@unive.it](mailto:fmenegaz@unive.it)

#### Micellar catalysis

Catalysis (micellar, supramolecular, homogeneous and heterogeneous), green chemistry, hydrogen peroxide activation, synthesis of APIs in water



**Alessandro Scarso** (+39 0412348569)  
[alessca@unive.it](mailto:alessca@unive.it)

#### Nanomaterial characterisation

Synthesis and structural characterization (by way of TEM, SEM, XRD) of nanomaterials (Perovskites, Quantum dots and Carbon Dots)



**Patrizia Canton** (+39 0412346790)  
[cantonpa@unive.it](mailto:cantonpa@unive.it)

#### Sustainable polymers

Development of sustainable high-performance polymeric and nanostructured materials from renewable resources for biomedical and environmental applications



**Matteo Gigli** (+39 0412348655)  
[matteo.gigli@unive.it](mailto:matteo.gigli@unive.it)

#### Glass

Study of the environment - glass surface interaction



**Elti Cattaruzza** (Elti Cattaruzza)  
[cattaruz@unive.it](mailto:cattaruz@unive.it)

<b>Metal drugs</b>	Synthesis of organometallic compounds of transition metals to be used as anticancer agents	      	<b>Fabiano Visentin</b> (+39 0412348571) <i>fvise@unive.it</i>
<b>Ionic liquids</b>	Ionic liquids, carbon dots, waste valorization, green chemistry, green solvents	      	<b>Alvise Perosa</b> (+39 0412348958) <i>alvise@unive.it</i>
<b>Fine chemicals</b>	Preparation of new active catalysts in aqueous environment and their use for the synthesis of fine chemicals	      	<b>Stefano Paganelli</b> (+39 0412348592) <i>spag@unive.it</i>
<b>Organic synthesis</b>	Organic synthesis for pharmaceutical intermediates and supramolecular chemistry	      	<b>Fabrizio Fabris</b> (+39 0412348908) <i>farisfa@unive.it</i>
<b>Sustainable chemistry</b>	Organic synthesis, green chemistry, upgrading of platform chemicals	      	<b>Giulia Fiorani</b> (+39 0412348486) <i>giulia.fiorani@unive.it</i>
<b>Green synthesis</b>	Green organic syntheses, dimethylcarbonate, polymeric biofilms, valorization of agro-food waste	      	<b>Maurizio Selva</b> (+39 0412348679) <i>selva@unive.it</i>
<b>Nanocomposites</b>	Biopolymer-based nanocomposites for biomedical and environmental applications	      	<b>Massimo Sgarzi</b> (+39 0412348566) <i>massimo.sgarzi@unive.it</i>
<b>Catalysts</b>	Synthesis and characterization of new catalytic systems for eco-sustainable industrial reactions	      	<b>Lucio Ronchin</b> (+39 0412348626) <i>ronchin@unive.it</i>
<b>Sustainable processes</b>	Development of sustainable processes and formulation of materials for industrial applications (catalytic processes, nutraceutical pharmaceutical cosmetics)	      	<b>Michela Signoretto</b> (+39 0412348650) <i>miky@unive.it</i>
<b>Infrared spectroscopy</b>	Study of infrared spectra of gaseous compounds	      	<b>Paolo Stoppa</b> (+39 0412348513) <i>stoppa@unive.it</i>
<b>Biopharmaceuticals</b>	Development and production of peptides and proteins for pharmaceutical and biotechnological applications	      	<b>Alessandro Angelini</b> (+39 0412348600) <i>alessandro.angelini@unive.it</i>
<b>Smart polymers</b>	Eco-sustainable synthesis of polymers for innovative, "high performance" and "smart" materials	      	<b>Andrea Vavasori</b> (+39 0412348577) <i>vavasori@unive.it</i>
<b>Lignocellulosic materials</b>	Valorization of lignocellulosic waste materials, lignin and tannins: structural analysis and product and materials development	      	<b>Claudia Crestini</b> (+39 0413248546) <i>claudia.crestini@unive.it</i>
<b>Spectroscopy</b>	Spectroscopic Techniques and Computational Modeling of Molecular, Supramolecular and Periodic Systems	      	<b>Andrea Pietropolli Charmet</b> (+39 0412348541) <i>jacpnike@unive.it</i>
<b>Biomedical applications</b>	Synthesis and characterization of materials for biomedical applications	      	<b>Pietro Riello</b> (+39 0412348518) <i>riello@unive.it</i>
<b>Nanomaterials</b>	Development of 0-3-D nanomaterials for environmental and energy-related applications. Innovative added-value materials from valorization of agro-industrial	      	<b>Elisa Moretti</b> (+39 0412346745) <i>elisa.moretti@unive.it</i>

## Luminescent complexes

Synthesis and characterization of transition metal and lanthanide luminescent complexes for advanced technology



Marco Bortoluzzi (+39 0412348651)  
markos@unive.it

## Sustainable materials

Upcycling of agro-industrial, fossil based plastic waste for the production of materials with high added value for the manufacturing industry



Valentina Beghetto (+39 0412348928)  
beghetto@unive.it

## Waste valorisation

Development of materials and Hi-Tech solutions for the productions of energy and chemicals from the upgrade of wastes



Elena Ghedini (+39 0412348552)  
gelena@unive.it

## OTHER R&D ORGANIZATIONS

### Center for Scientific Instrumentation Services of the University (CSA)

The CSA is the Center for the acquisition, management and enhancement of the Ca' Foscari scientific equipment. Among its objectives, the Center has that of competing, also in collaboration with public and private partnerships, for the acquisition of funds specifically dedicated to highly complex, innovative and multidisciplinary equipment. Furthermore, it designs and manages technological platforms available to internal and external users of the university, capable of integrating different skills and producing highly qualified research and services in favor of the territory

**Contacts:** Claudia Crestini - claudia.crestini@unive.it

**Web site:** <https://www.unive.it/pag/27859/>

## COLLABORATIONS WITH COMPANIES

- Bio4Dreams
- Biofuture Medicine
- Braskem
- Cheers2life S.r.l.
- Clariant S.p.A.
- Crossing S.r.l.
- ENI Versalis S.p.A.
- Eurovo - Evobiotix
- Fidia Farmaceutici S.p.A.
- Nuova Ompi S.r.l.
- Rete Ribes Nest
- Rigoni di Asiago
- SG Stevanato Group
- Unifarco S.p.A.
- UniSve
- Ve Nice S.r.l.
- Veneto Green Cluster

## PUBBLICAZIONI

- S.Pluda, Y.Mazzocato, A. Angelini (2021), "**Peptide-based inhibitors of ADAM and ADAMTS metalloproteinases**", *Frontiers in Molecular Biosciences*. 8, 703715
- G. Pintori, E. Cattaruzza, "**XPS/ESCA on glass surfaces: a useful tool for ancient and modern materials**", *Opt. Mater. X* 13 (2022) 100108 (40pp)
- G. Pintori, S. Panighello, O. Pinato, E. Cattaruzza, "**Insights on surface analysis techniques to study glass primary packaging**", *Int. J. Appl. Glass Sci.* 14 (2023) 468–479
- "**Agri-Food Wastes for Bioplastics: European Prospective on Possible Applications in Their Second Life for a Circular Economy**", Crossing S.r.l.
- "**Plastics today: Key challenges and EU strategies towards carbon neutrality: A review**", CrossingS.r.l.

## MORE INFO

- Partner searches for joint PhDs in Sustainable Chemistry
- Partner research for joint PhDs in Science and Technology of Bio and Nanomaterials
- Partner searches for national and international cooperative projects



## GENERAL INFORMATION

**Università degli Studi del Piemonte Orientale**  
**Department for the Sustainable Development and Ecological Transition (DISSTE)**

Piazza S. Eusebio 5 - 13100 Vercelli (VC)  
sito web: <https://www.disste.uniupo.it/en>

## CONTACTS

Prof.ssa Roberta LOMBARDI  
+39 0131283887

## DETAILED INFORMATION

**Staff:** 12 Full Professors

20 Associate Professors

14 Researchers

3 Structured Technicians

15 Administrative Technicians

5 General Services

**Registered students:** 275 (AY 2022/2023)

**Post Lauream Training:** 20 enrolled in doctoral programs in Chemistry & Biology

11 Research fellows

9 fellows

**Patents:** 12

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Energy materials

Hierarchical porous catalytic supports for green chemistry



**Enrica Gianotti** (+39 0131360251)  
*enrica.gianotti@uniupo.it*

### Polymer recycle

Development and application of methods for the characterization of polymeric materials of various nature (post-consumer HDPE, polyurethanes) subjected to recycling and/or valorisation processes



**Eleonora Conterosito**  
*eleonora.conterosito@uniupo.it*

### Materials

Extraction of critical raw materials (i.e. Rare Earth Elements) from waste from Electrical and Electronic Waste (RAEE) and photonic devices



**Flavia Artizzu** (+39 0131360252)  
*flavia.artizzu@uniupo.it*

### Waste recovery

Analytical methods for the evaluation of the composition of agrifood waste towards recovery and valorisation



**Maurizio Aceto** (+39 0131360265)  
*maurizio.aceto@uniupo.it*

### Circular economy

Recovery of raw materials from cells and batteries, valorisation of materials from the disposal of exhausted photovoltaics, physical and chemical processes with low environmental impact for the separation and extraction of ions and compounds of interest through the use of bio-based complexing agents



**Elisabetta Gabano** (+39 0131360263)  
*elisabetta.gabano@uniupo.it*

## Circular economy

Materials recovery from cereal waste. Strategies for the reuse and revalue of biogenic mineral materials. Strategies for the reuse of concrete demolition waste (CDW). Materials for the recovery and separation of pollutants (heavy metals, pesticides, drugs) from waste streams. Synthesis of functional (nano)materials with low energetic and environmental impact. Determination of plastic contaminants in organic waste and biomasses



**Enrico Boccaleri** (+39 0131360264)  
*enrico.boccaleri@uniupo.it*

## Energy materials

Processes and materials for the preparation of membranes for gas separation (N<sub>2</sub> / CO<sub>2</sub> / CH<sub>4</sub>). Processes and materials for energy production with low environmental impact. Study of metal alloy surfaces for biomedical applications. Materials and processes for gas storage (CH<sub>4</sub>, H<sub>2</sub> and CO<sub>2</sub>)



**Giorgio Gatti**  
*giorgio.gatti@uniupo.it*

## Sustainable polymers

Second life processes for PlasmIX (PHOENIX). Green processes and materials for the chemical valorisation of plastic waste



**Valentina Gianotti** (+39 0131360271)  
*valentina.gianotti@uniupo.it*

## Reversible polymers

Development of reversible polymer networks for industrial applications



**Chiara Ivaldi**  
*chiara.ivaldi@uniupo.it*

## OTHER R&D ORGANIZATIONS

### UPO4Sustainability

Interdepartmental Centre UPO4Sustainability: Environment, Economy, Society and Education  
**Contacts:** Enrico Boccaleri (+39 0131360264) - [enrico.boccaleri@uniupo.it](mailto:enrico.boccaleri@uniupo.it)

## COLLABORATIONS WITH COMPANIES

- 3P
- CNVV
- Metlac
- RaeeMan
- Sermag
- Tecno CM
- UVEX Cagi



## GENERAL INFORMATION

**Università degli Studi del Piemonte Orientale**  
**Department of Pharmaceutical Sciences (DSF)**

Largo Donegani 2/3 – 28100 Novara (NO)  
 sito web: <http://www.dsf.uniupo.it/en>

## CONTACTS

Prof. Armando GENAZZANI  
 +39 0321375827

## DETAILED INFORMATION

**Staff:** 11 Full Professors  
 23 Associate Professors  
 17 Researchers  
 8 Structured Technicians  
 14 Administrative Technicians

**Registered students:** 1,316 (Academic year 2023/2024)

**Post Lauream Training:** 34 enrolled in Doctorate in "Drug Innovation"

18 enrolled in II level Master in Regulatory affairs and market access in the pharmaceutical and biotechnology fields

15 Research fellows

6 Fellows

**Patents:** 6 <https://s.uniupo.it/zxtqk>

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Up-Cycled Ingredients

Isolation and valorisation of prebiotic oligosaccharides from food industry byproducts



**Matteo Bordiga** (+39 0321375873)  
[matteo.bordiga@uniupo.it](mailto:matteo.bordiga@uniupo.it)

### Recycling

Development of pharmaceutical and cosmetic products using sericin recovered from byproducts of silk textile processing



**Elia Bari** (+39 0321375725)  
[elia.bari@uniupo.it](mailto:elia.bari@uniupo.it)

### Chelators

Chelating agents and complexes. Contrast agents. Fine chemicals and APIs from renewable sources. Development of green chemical processes



**Giovanni Battista Giovenzana** (+39 0321375846)  
[giovannibattista.giovenzana@uniupo.it](mailto:giovannibattista.giovenzana@uniupo.it)

### Green chemistry

Plant-derived added-value products for pharmaceutical, nutritional, cosmetic and agricultural use



**Diego Caprioglio** (+39 0321375843)  
[diego.caprioglio@uniupo.it](mailto:diego.caprioglio@uniupo.it)

### Recycling

Pharmaceutical development of milk exosomes, isolated from byproducts of the dairy industry, as drug delivery systems



**Maria Luisa Torre** (+39 0321375728)  
[marialuisa.torre@uniupo.it](mailto:marialuisa.torre@uniupo.it)

### Renewable materials

Synthesis of new bioactive compounds from secondary metabolites deriving from industrial wastes



**Alberto Minassi** (+39 0321375843)  
[alberto.minassi@uniupo.it](mailto:alberto.minassi@uniupo.it)

### Multi-component reactions

Multi-component reactions (MCRs) and micellar catalysis for the synthesis of fine chemicals and Active Pharmaceutical Ingredients (APIs)



**Gian Cesare Tron** (+39 0321375857)  
[giancesare.tron@uniupo.it](mailto:giancesare.tron@uniupo.it)

<b>Pharmaceutical technology</b>	Advanced technology in the production of modified-release drug dosage forms	    	<b>Franco Pattarino</b> (+39 0321375863) <i>franco.pattarino@uniupo.it</i>
<b>Natural products</b>	Isolation and characterization of natural products from plant for pharmaceutical, nutritional, agricultural and cosmetic applications	    	<b>Federica Pollastro</b> (+39 0321375744) <i>federica.pollastro@uniupo.it</i>
<b>Up-Cycled Ingredients</b>	Formulation of food ingredients rich in fibres from plant materials and food byproducts	    	<b>Jean Daniel Coïsson</b> (+39 0321375773) <i>jeandaniel.coïsson@uniupo.it</i>
<b>Up-Cycled Ingredients</b>	Isolation, characterisation and formulation of pigments and dyes from agri-food byproducts and alternative sources	    	<b>Marco Arlorio</b> (+39 0321375772) <i>marco.arlorio@uniupo.it</i>
<b>Up-Cycled Ingredients</b>	Production and characterization of innovative food ingredients using enzymatic processes and concentration systems	    	<b>Fabiano Travaglia</b> (+39 0321375876) <i>fabiano.travaglia@uniupo.it</i>
<b>Sustainable technologies</b>	Spray drying in the cosmetic field as a sustainable and time-saving process to produce powdered materials starting from liquid feedstocks	    	<b>Lorella Giovannelli</b> (+39 0321375865) <i>lorella.giovannelli@uniupo.it</i>
<b>Sustainable processes</b>	Synthesis of bioactive molecules with low-impact chemo-enzymatic methods. Synthesis of high added value chemicals from natural sources	    	<b>Luigi Panza</b> (+39 0321375845) <i>luigi.panza@uniupo.it</i>
<b>Green formulations</b>	Formulation development and production of microparticle systems for pharmaceutical and nutraceutical application using sustainable excipients and technologies	    	<b>Lorena Segale</b> (+39 0321375862) <i>lorena.segale@uniupo.it</i>
<b>Up-Cycled Ingredients</b>	Extraction and formulation of polyphenols with antioxidant properties from agri-food byproducts	    	<b>Monica Locatelli</b> (+39 0321375774) <i>monica.locatelli@uniupo.it</i>
<b>Materials chemistry</b>	Luminescent and/or multifunctional (nano)materials for sensing, diagnosis and theranostic. Heterogeneous catalysis	    	<b>Ivana Miletto</b> (+39 0321375747) <i>ivana.miletto@uniupo.it</i>
<b>Drug discovery</b>	Accelerated drug discovery and development relying on click chemistry and multicomponent reactions	    	<b>Tracey Piralì</b> (+39 0321375853) <i>tracey.pirali@uniupo.it</i>

## OTHER R&D ORGANIZATIONS

### UPO4Sustainability

Interdepartmental Center

#### Contacts:

Director: Enrico Boccaleri.

Contact person for the Department:

Giovanni Battista Giovenzana (+39 0321375846) - [giovannibattista.giovenzana@uniupo.it](mailto:giovannibattista.giovenzana@uniupo.it)

**Web site:** <https://www.uniupo.it/it/ricerca/centri-di-ricerca-e-infrastrutture/centri-interdipartimentali/centro-interdipartimentale-upo4sustainability-environment-economy-society-and-education>

## COLLABORATIONS WITH COMPANIES

- Adipogen
- Bracco S.p.A.
- CAGE Chemical S.r.l.
- Canvasalus S.r.l.
- Costantino S.p.A.
- Ice Pharma S.p.A.
- Extrasynthese
- Linnea
- Mil Mil 76 S.p.A.
- Millbo S.r.l.
- Novamont S.p.A.
- Novi Elah Dufour S.p.A.
- Paglieri S.p.A.
- Procemsa S.p.A.
- Procos S.p.A.
- Roelmi HPC S.r.l.
- Skye Bioscience
- Zschimmer & Schwarz S.p.A.

## PUBBLICAZIONI

- Blandino, M., Locatelli, M., Gazzola, A., Coisson, J.D., Giacosa, S., Travaglia, F., Bordiga, M., Reyneri, A., Rolle, L., Arlorio, M., 2015, "**Hull-less barley pearling fractions: Nutritional properties and their effect on the functional and technological quality in bread-making**", J. Cereal Sci. 65, 48–56.
- Brunelli, F., Aprile, S., Russo, C., Giustiniano, M., Tron, G.C., 2022, "**In-water synthesis of isocyanides under micellar conditions**", Green Chem. 24, 7022–7028.
- Jaouhari, Y., Travaglia, F., Giovannelli, L., Picco, A., Oz, E., Oz, F., Bordiga, M., 2023, "**From Industrial Food Waste to Bioactive Ingredients: A Review on the Sustainable Management and Transformation of Plant-Derived Food Waste**", Foods 12, 2183.
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- Orlandi, G., Faragò, S., Menato, S., Sorlini, M., Butti, F., Mocchi, M., Donelli, I., Catenacci, L., Sorrenti, M.L., Croce, S., Segale, L., Torre, M.L., Perteghella, S., 2020, "**Eco-sustainable silk sericin from by-product of textile industry can be employed for cosmetic, dermatology and drug delivery**", J. Chem. Technol. Biotechnol. 95, 2549–2560.
- Salamone, S., Waltl, L., Pompignan, A., Grassi, G., Chianese, G., Koeberle, A., Pollastro, F., 2022, "**Phytochemical Characterization of Cannabis sativa L. Chemotype V Reveals Three New Dihydrophenanthrenoids That Favorably Reprogram Lipid Mediator Biosynthesis in Macrophages**", Plants 11, 2130.
- Travagin, F., Lattuada, L., Giovenzana, G.B., 2021, "**AAZTA: The rise of mesocyclic chelating agents for metal coordination in medicine**", Coord. Chem. Rev. 438, 213908.



## GENERAL INFORMATION

**Università degli Studi del Piemonte Orientale**  
**Department of Science and Technological Innovation**

Viale T. Michel 11 – 15121 Alessandria (AL)

sito web: <http://www.disit.uniupo.it>

## CONTACTS

Prof. Leonardo MARCHESE

+39 0131360393

## DETAILED INFORMATION

**Staff:** 17 Full Professors

32 Associate Professors

19 Researchers

2 Technologists

12 Structured Technicians

31 Administrative Technicians

**Registered students:** 3,451 (Academic year 2022/2023)

**Post Lauream Training:** 29 enrolled in doctoral programs in Chemistry & Biology

11 Research fellows

**Patents:** 27 <https://www.knowledge-share.eu/proprietario/universita-del-piemonte-orientale/>

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Materials</b>	Materials for the recovery of pollutants. Solids and processes for the oxidative decomposition of toxic molecules	     	<b>Chiara Bisio</b> <a href="mailto:chiara.bisio@uniupo.it">chiara.bisio@uniupo.it</a>
<b>Innovative cements</b>	Design and development of new cement systems produced with sustainable process and with reduced carbon footprint	     	<b>Geo Paul</b> <a href="mailto:geo.paul@uniupo.it">geo.paul@uniupo.it</a>
<b>Organic chemistry</b>	Synthesis of polydentate chelators for the stable complexation of metal ions of interest for MRI and nuclear medicine (PET/SPECT/ $\alpha$ -therapy) applications	     	<b>Lorenzo Tei</b> <a href="mailto:lorenzo.tei@uniupo.it">lorenzo.tei@uniupo.it</a>
<b>Self-assembling systems</b>	Investigation of self-assembling systems	     	<b>Katia Sparnacci</b> <a href="mailto:katia.sparnacci@uniupo.it">katia.sparnacci@uniupo.it</a>
<b>Metabolomics</b>	NMR applied to the metabolomic studies	     	<b>Daniela Lalli</b> <a href="mailto:daniela.lalli@uniupo.it">daniela.lalli@uniupo.it</a>
<b>Medical diagnostics</b>	Design of new paramagnetic metal chelates and nanosystems and potential MRI and theranostic probes	     	<b>Mauro Botta</b> <a href="mailto:mauro.botta@uniupo.it">mauro.botta@uniupo.it</a>
<b>New drugs</b>	Synthesis and chemical-biological characterization of prodrugs with antiproliferative activity	     	<b>Mauro Ravera</b> <a href="mailto:mauro.ravera@uniupo.it">mauro.ravera@uniupo.it</a>
<b>Computational chemistry</b>	Development and application of computational techniques applied to materials chemistry	     	<b>Maurizio Cossi</b> <a href="mailto:maurizio.cossi@uniupo.it">maurizio.cossi@uniupo.it</a>

<b>Metals recovery</b>	Green processes and materials for the recovery of metals from aqueous solutions	    	<b>Fabio Carniato</b> <i>fabio.carniato@uniupo.it</i>
<b>Sustainable materials</b>	Processes and materials for gas adsorption. Innovative coatings for magnesium-based light alloys	    	<b>Marco Milanesio</b> <i>marco.milanesio@uniupo.it</i>
<b>Innovative polymers</b>	Development of polymers and copolymers for microelectronics and their characterization	    	<b>Michele Laus</b> <i>michele.laus@uniupo.it</i>
<b>Gas storage</b>	Processes and materials for energy production with low environmental impact. Materials and processes for gas storage (CH <sub>4</sub> , H <sub>2</sub> and CO <sub>2</sub> )	    	<b>Leonardo Marchese</b> <i>leonardo.marchese@uniupo.it</i>

## OTHER R&D ORGANIZATIONS

<b>CUSA</b>	Interdepartmental Center for research and training on asbestos and health impact issues: university centers for asbestos studies <b>Contacts:</b> <a href="mailto:cusa@uniupo.it">cusa@uniupo.it</a>
<b>Nano-SisTEMI</b>	Interdisciplinary Center for Nanosciences and Technological Development of Innovative Materials (nano-Systems) <b>Contacts:</b> Leonardo Marchese - <a href="mailto:leonardo.marchese@uniupo.it">leonardo.marchese@uniupo.it</a>
<b>PRISMA</b>	Magnetic Resonance Platform dedicated to Nuclear Magnetic Resonance (NMR) techniques <b>Contacts:</b> Mauro Botta - <a href="mailto:mauro.botta@uniupo.it">mauro.botta@uniupo.it</a> <b>Web site:</b> <a href="https://www.prisma.uniupo.it/">https://www.prisma.uniupo.it/</a>
<b>UPO4Sustainability</b>	Interdepartmental Centre UPO4Sustainability: Environment, Economy, Society and Education <b>Contacts:</b> Enrico Boccaleri (+39 0131360264) - <a href="mailto:enrico.boccaleri@uniupo.it">enrico.boccaleri@uniupo.it</a>

## COLLABORATIONS WITH COMPANIES

- Basalti Orvieto S.r.l.
- Bracco Imaging S.p.A.
- CDG s.r.l.
- Galstaff Multiresine S.p.A.
- GAMBIT S.r.l.
- Gurit Italy s.r.l.
- Rubicon Biotechnology
- Società Serica Trudel S.P.A
- Solvay S.p.A.
- Stelar S.r.l.
- Wamgroup S.p.A.
- Wintershall Dea AG

## PUBBLICAZIONI

- Chem. Sci., 2021, 12, 11138–11145
- Journal of Physical Chemistry C, 2021, 125, 9261–9272
- European Polymer Journal, 2023, 192, 112058
- Toxics, 2022, 10, 103



## GENERAL INFORMATION

Università degli Studi della Basilicata

Department of Sciences

Viale dell'Ateneo Lucano 10 – 85100 Potenza (PZ)

sito web: <http://scienze.unibas.it/site/home.html>

## CONTACTS

Prof. Roberto TEGHIL

+ 39 0971205513 - 5768

## DETAILED INFORMATION

**Staff:** 10 Full Professors

32 Associate Professors

26 Researchers

15 Structured Technicians

7 Administrative Technicians

**Registered students:** 483 (Academic year 2022/2023)

**Post Lauream Training:** 38 enrolled in doctoral programs in Sciences

**Patents:** - <https://ricerca.unibas.it/site/home/trasferimento-tecnologico/articolo23010530.html>

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

<b>Catalysis</b>	Design, synthesis of noble metal complexes for sustainable catalysis applications						<b>Annalisa Mariconda</b> (+39 0971205932) <a href="mailto:annalisa.mariconda@unibas.it">annalisa.mariconda@unibas.it</a>
<b>Photocatalysis</b>	Theoretical and computational study of charge localization and charge transfer in innovative materials for third-generation photovoltaics and photocatalytic applications						<b>Francesco Ambrosio</b> <a href="mailto:francesco.ambrosio@unibas.it">francesco.ambrosio@unibas.it</a>
<b>Electrochemical sensors</b>	Development and characterization of innovative electrochemical sensors for the detection of compounds of biological and food interest						<b>Rosanna Ciriello</b> (+39 0971205944) <a href="mailto:rosanna.ciriello@unibas.it">rosanna.ciriello@unibas.it</a>
<b>Self-repairing materials</b>	Design and synthesis of copolymers in the development of self-healing composite materials						<b>Annalisa Mariconda</b> (+39 0971205932) <a href="mailto:annalisa.mariconda@unibas.it">annalisa.mariconda@unibas.it</a>
<b>Eco-friendly materials</b>	Design and synthesis of microfibrus electrospun innovative materials inspired by nature						<b>Brigida Bochicchio</b> (+39 0971205481) <a href="mailto:brigida.bochicchio@unibas.it">brigida.bochicchio@unibas.it</a>
<b>Mass spectrometry</b>	Development of analytical methods for the determination of metabolites in food and environmental samples by LC-UV and high-resolution mass spectrometry						<b>Giuliana Bianco</b> (+39 0971205451) <a href="mailto:giuliana.bianco@unibas.it">giuliana.bianco@unibas.it</a>
<b>Chiral molecules</b>	Spectroscopic and computational methodologies for the stereochemical analysis of chiral molecules and stereoselective synthesis of drugs and biopesticides						<b>Stefano Superchi</b> (+39 0971206098) <a href="mailto:stefano.superchi@unibas.it">stefano.superchi@unibas.it</a>

## Biomaterials

Design development and characterization of biomimetic scaffolds from (poly)peptides and derivatives for biomedical applications



Antonietta Pepe (+39 0971205486)  
antonietta.pepe@unibas.it

## Organic photovoltaics

Synthesis and characterization of new molecular systems to be used in the fields of optoelectronics, organic photovoltaics and in the environmental field



Sandra Belviso (+39 0971205937)  
sandra.belviso@unibas.it

## COLLABORATIONS WITH COMPANIES

- ALMACABIO S.r.l.
- BIOINNOVA s.r.l.s.
- Dompé farmaceutici S.p.A.
- Eni S.p.A.
- GIVAD S.r.l.
- Lucart S.p.A.
- SAIPEM S.p.A.
- SHELL Italia
- TOTAL ENERGIES Italia

## PUBBLICAZIONI

- Onzo A, Acquavia MA, Pascale R, Iannece P, Gaeta C, Lelario F, Ciriello R, Tesoro C, Bianco G, Di Capua A. **Untargeted metabolomic analysis by ultra-high-resolution mass spectrometry for the profiling of new Italian wine varieties**. Anal Bioanal Chem. 2022 Nov;414(27):7805-7812. doi: 10.1007/s00216-022-04314-x. Epub 2022 Sep 19. PMID: 36121471.
- M.-B. Coltelli, L. Panariello, A. Vannozzi, V. Gigante, A. Gagliardini, P. Morganti, P. Cinelli, A. Lazzeri, A. De Bonise, P. Falabella, **Chitin and Its Derivatives: Nanostructured Materials from Different Marine and Terrestrial Sources**, Chemical Engineering Transactions. 93 (2022) 295-300. doi:10.3303/CET2293050.
- Radice RP, Fiorentino R, De Luca M, Limongi AR, Viviano E, Bermano G, Martelli G. **An innovative protocol to select the best growth phase for astaxanthin biosynthesis in *H. pluvialis***. Biotechnol Rep (Amst). 2021 Jun 18;31:e00655. doi: 10.1016/j.btre.2021.e00655. PMID: 34258244; PMCID: PMC8253952.
- Tesoro C, Ciriello R, Lelario F, Di Capua A, Pascale R, Bianco G, Dell'Agli M, Piazza S, Guerrieri A, Scrano L, Bufo SA, Acquavia MA. **Development and Validation of a Reversed-Phase HPLC Method with UV Detection for the Determination of L-Dopa in *Vicia faba* L. Broad Beans**. Molecules. 2022 Nov 2;27(21):7468. doi: 10.3390/molecules27217468. PMID: 36364292; PMCID: PMC9654252.
- Lela L, Russo D, De Biasio F, Gorgoglione D, Ostuni A, Ponticelli M, Milella L. ***Solanum aethiopicum* L. from the Basilicata Region Prevents Lipid Absorption, Fat Accumulation, Oxidative Stress, and Inflammation in OA-Treated HepG2 and Caco-2 Cell Lines**. Plants (Basel). 2023 Aug 3;12(15):2859. doi: 10.3390/plants12152859. PMID: 37571013; PMCID: PMC10421219.

## MORE INFO

### Joint PhDs:

- Bando XXXVIII ciclo

ALLEGATO 1/c Corso di Dottorato di ricerca: SCIENZE XXXVIII CICLO – a.a. 2022-2023

<https://portale.unibas.it/site/home/didattica/dottorati-di-ricerca/articolo10238.html>

- Bando dottorati XXXIX ciclo

ALLEGATO 1/c Corso di Dottorato di ricerca: SCIENZE XXXIX CICLO – a.a. 2023-2024

<https://portale.unibas.it/site/home/didattica/dottorati-di-ricerca/articolo11228.html>



## GENERAL INFORMATION

### Università degli Studi dell'Aquila

### Department of Industrial and Information Engineering and Economics (DIIE)

Piazzale Ernesto Pontieri 1 - 67100 Montelucio di Roio (AQ)

sito web: <http://diie.univaq.it/>

## CONTACTS

Prof. Walter D'AMBROGIO

+39 0862434838 (Didactic secretariat)

## DETAILED INFORMATION

**Staff:** 45 Full Professors

33 Associate Professors

41 Researchers

17 Structured Technicians

11 Administrative Technicians

**Registered students:** 5,264 (Academic year 2022/2023)

**Post Lauream Training:** 50 enrolled in Doctorate in Industrial and Information Engineering and Economics

**Patents:** 61

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Chemical plants

Study and experimentation of processes for the treatment of industrial and civil wastewater aimed at the removal and/or degradation of pollutants, the recovery of by-products and the saving and reuse of water, with a view to a circular economy. Analysis of chemical industrial processes using dedicated software (Aspen Plus, SuperPro Designer) and design of chemical equipment. Analysis of economic, environmental sustainability and safety aspects of chemical industrial processes. study and modeling of accident scenarios (pollutant dispersion, fire and explosion) and risk analysis of chemical industrial plants



**Marina Prisciandaro** (+39 0862434241)  
[marina.prisciandaro@univaq.it](mailto:marina.prisciandaro@univaq.it)

### CRM

Recovery of Rare Earths, precious and base metals from WEEE, spent batteries, industrial wastes, permanent magnets, solar panels and industrial tailing with circular economy approach by integrated hydrometallurgical operations



**Francesco Vegliò** (+39 0862434223)  
[francesco.veglio@univaq.it](mailto:francesco.veglio@univaq.it)

### Nanoparticles

Development of innovative, sustainable, scalable and energy-efficient synthesis methods for the production of nanoparticles of metal oxides and hydroxides. Chemical-physical and microstructural characterization of the nanoparticles. Application of nanoparticles in construction, biomedical and environmental remediation



**Giuliana Taglieri** (+39 0862434234)  
[giuliana.taglieri@univaq.it](mailto:giuliana.taglieri@univaq.it)

## Sustainability

Recovery of tungsten, vanadium and titanium oxide from spent DeNOx catalysts, used for stationary applications like power plants, in which the carrier is made up of TiO<sub>2</sub>, that represents the majority of the material, and thus has to be converted into valuable materials like photocatalysts or pigments for ceramics and paints. Processes for efficient treatment of produced water (PW), through: adsorption of metals by synthetic zeolites produced by spent FCCCs, characterized by a low concentration of the two rare earth elements (cerium and lanthanum); integrated biological processes to remove organic compounds, for example microalgae that represent the last frontier for the degradation of the organic matter contained in wastewater



**Francesco Ferella** (+39 0862434238)  
*francesco.ferella@univaq.it*

## Gasification

Biomass gasification for the production of a rich hydrogen gas



**Andrea Di Carlo** (+39 0862434245)  
*andrea.dicarlo1@univaq.it*

## Hydrothermal processes

Hydrothermal processes of agroindustrial waste valorization. Optimization of hydrothermal carbonization (HTC) reactors integrated with biorefineries. Separation and recovery of high value-added products from HTC process waters. Bioconversion processes and engineering of biochemical reactions



**Alberto Gallifuoco** (+39 0862434208)  
*alberto.gallifuoco@univaq.it*

## Wastewater treatment

Urban and industrial wastewater treatment. Integrated processes for reducing water consumption and development of Zero Liquid Discharge



**Nicolò Maria Ippolito** (+39 0862434239)  
*nicolomaria.ippolito@univaq.it*

## Green engineering

Catalysis, Fluidization, CO<sub>2</sub>-capture, Chemical looping, Biomass thermochemical conversion, green fuels (syngas, H<sub>2</sub>, CH<sub>4</sub>, greendiesel)



**Katia Gallucci** (+39 0862434213)  
*katia.gallucci@univaq.it*

## COLLABORATIONS WITH COMPANIES

List of collaborations

## PUBBLICAZIONI

- <https://doi.org/10.1016/j.rser.2019.02.029>
- <https://doi.org/10.3390/su11010113>
- <https://doi.org/10.1016/j.biortech.2021.126514>
- <https://doi.org/10.1016/j.ijhydene.2023.03.439>
- <https://doi.org/10.1016/j.renene.2019.10.121>
- <https://doi.org/10.1016/j.jece.2019.103171>
- <https://doi.org/10.3390/nano13172458>



**DSFC**  
Dipartimento  
di Scienze Fisiche  
e Chimiche

SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

**Università degli Studi dell'Aquila**  
**Department of Physical and Chemical Sciences**

Via Vetoio (Coppito 1) - 67100 Coppito (AQ)

sito web: <https://dsfc.univaq.it/en/>

## CONTACTS

Prof. Luca LOZZI

+39 0862433030

## DETAILED INFORMATION

**Staff:** 16 Full Professors

30 Associate Professors

20 Researchers

11 Structured Technicians

6 Administrative Technicians

**Registered students:** 376 (Academic year 2022/2023)

**Post Lauream Training:** 40 enrolled in Doctoral programs

15 Research fellows

2 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Trattamento acque

Synthesis and characterization of adsorbent materials for the treatment of water contaminated with organic xenobiotics and heavy metals



**Fabrizio Ruggieri** (+39 0862433782)  
*fabrizio.ruggieri@univaq.it*

### Mass spectrometry

Mass spectrometric based analysis of complex matrices



**Samantha Reale** (+39 0862433776)  
*samantha.reale@univaq.it*

### Zeoliti

Synthesis and characterization of zeolitic catalysts for green chemistry processes



**Alfredo Aloise** (+39 0862433702)  
*alfredo.aloise@univaq.it*

### Electrosynthesis

Development of new synthetic methods using non-metallic catalysis and electrocatalysis to produce biopharmacologically interesting heterocycles



**Laura Palombi** (+39 0862433007)  
*laura.palombi@univaq.it*

### Nanotubes

Growth and characterisation of organic and inorganic nanomaterials (nanotubes, nanofibers, nanoparticles) for sensors and photocatalysis



**Luca Lozzi** (+39 0862433030)  
*luca.lozzi@univaq.it*

<b>Ceramics</b>	Relaxometry, diffusometry and NMR spectroscopy for the chemical-physical characterization of cellulosic and ceramic materials, high porosity stones and mortars	    	<b>Cinzia Casieri</b> (+39 0862433052) <i>cinzia.casieri@aquila.infn.it</i>
<b>Process innovation</b>	Innovation and chemistry applied to industrial processes, organic synthesis, and asymmetric catalysis	    	<b>Armando Carlone</b> (+39 0862433036) <i>armando.carlone@univaq.it</i>
<b>Trattamento acque</b>	Development of magneto-liposomal formulations for treatment of waste water	    	<b>Luisa Giansanti</b> (+39 0862433028) <i>luisa.giansanti@univaq.it</i>
<b>Catalysis with gold</b>	Development of alternative methodologies of organic synthesis	    	<b>Antonio Arcadi</b> (+39 0862433774) <i>antonio.arcadi@univaq.it</i>
<b>Inorganic catalysis</b>	Heterogeneization of active homogeneous catalysts or biocatalysts, on organic/inorganic hybrid matrices and their use in reactions for the production of high-added value products	    	<b>Marcello Crucianelli</b> (+39 3386545864) <i>marcello.crucianelli@univaq.it</i>
<b>Artificial photosynthesis</b>	Study of the catalytic mechanisms of metal oxides for artificial photosynthesis through computational techniques	    	<b>Leonardo Guidoni</b> (+39 3386546554) <i>leonardo.guidoni@univaq.it</i>
<b>Organometallic catalysts</b>	Synthesis, characterization and study of the catalytic performances of innovative organometallic complexes	    	<b>Andrea Di Giuseppe</b> (+39 0862433312) <i>andrea.digiuseppe@univaq.it</i>
<b>Green chemistry</b>	Synthesis and design of fine chemicals according to the principles of green chemistry	    	<b>Leucio Rossi</b> (+39 0862434246) <i>leucio.rossi@univaq.it</i>
<b>Computational chemistry</b>	Quantum-classical simulations: applications to biological systems	    	<b>Isabella Daidone</b> (+39 0862433754) <i>isabella.daidone@univaq.it</i>
<b>Chemimetry</b>	Development of chemometric methods for the analysis of complex matrices	    	<b>Alessandra Biancolillo</b> (+39 0862433004) <i>alessandra.biancolillo@univaq.it</i>
<b>Inorganic materials</b>	Syntheses, structural and spectroscopic characterization of inorganic and hybrid materials for heterogeneous catalysis	    	<b>Andrea Lazzarini</b> (+39 0862433757) <i>andrea.lazzarini@univaq.it</i>
<b>Computational chemistry</b>	Application of electronic structure calculations for the study of reactivity of inorganic and organic systems	    	<b>Massimiliano Aschi</b> (+39 0862433775) <i>massimiliano.aschi@univaq.it</i>
<b>CO2 reuse</b>	Asymmetric Catalysis with small organic molecules, Activation of Carbon Dioxide for the synthesis of fine chemicals, C-H activation via transition metal catalysis	    	<b>Fabio Pesciaioli</b> <i>fabio.pesciaioli@univaq.it</i>
<b>Food analysis</b>	Characterisation and traceability of foods by instrumental analytical methods and chemometrics	    	<b>Angelo Antonio D'Archivio</b> (+39 0862433777) <i>angeloantonio.darchivio@univaq.it</i>
<b>Sistemi nanostrutturati</b>	New nanostructured systems for applications in the field of bioconversions, food packaging and Cultural Heritage	    	<b>Nicoletta Spreti</b> (+39 0862433760) <i>nicoletta.spreti@univaq.it</i>



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## OTHER R&D ORGANIZATIONS

### Microscopy Centre

Laboratory with optical and electronic microscopies and FTIR spectroscopy and microscopy

**Contacts:** Maria Giammatteo (+39 0862434061) - maria.giammatteo@univaq.it

**Web site:** <https://microscopie.univaq.it/index.php?id=2775&L=1>

## COLLABORATIONS WITH COMPANIES

- Dipharma Francis S.r.l.
- Dompè Farmaceutici S.p.A.
- Fater S.p.A.
- Hortus Novus S.r.l.
- Indena S.p.A.
- LFoundry S.r.l.
- Versalis S.p.A.

## PUBBLICAZIONI

- V. Nori, F. Della Penna, E. Cocco, S. Mantegazza, G. Razzetti, G. Quattrocchi, F. Pesciaoli, A. Carlone, "A Sustainable and Catalytic Synthesis of Dibenzosuberone", ChemCatChem, 2023, e202300642. (in collaborazione con Dipharma Francis).
- P. Nepal, S. Kalapugama, M. Shevlin, J. R. Naber, L.-C. Campeau, C. Pezzetta, A. Carlone, C. J. Cobley, S. H. Bergens, "Polycationic Rh–JosiPhos Polymers Supported on Phosphotungstic Acid/Al<sub>2</sub>O<sub>3</sub> by Multiple Electrostatic Attractions", ACS Catal., 2022, 12, 2034–2044. (in collaborazione con Merck e Dr. Reddy's).
- A. Carlone, C. J. Cobley, L. Bernardi, P. McCormack, T. Warr, S. Oruganti, "Asymmetric organocatalysis and continuous chemistry for an efficient and cost competitive process to pregabalin", Org. Process Res. Dev., 2021, 25, 12, 2795–2805 (in collaborazione con Dr. Reddy's).

## MORE INFO

Five doctoral scholarships co-financed with companies are in place



## GENERAL INFORMATION

Università degli Studi dell'Insubria

Department of Theoretical and Applied Sciences (DiSTA)

Via J.H. Dunant 3 - 21100 Varese (VA)

sito web: <https://www.uninsubria.it/siti-tematici-o-federati/siti-dei-dipartimenti/dipartimento-di-scienze-teoriche-e-applicate-dista>

## CONTACTS

Prof. Mauro FERRARI

+39 0332421393

## DETAILED INFORMATION

**Staff:** 13 Full Professors

19 Associate Professors

16 Researchers

3 Structured Technicians

9 Administrative Technicians

**Registered students:** 1.569 (Academic year 2021/2022)

**Post Lauream Training:** 19 enrolled in doctoral programs in Computer Science and the Mathematics of Computation

8 Research fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Sensors

New analytical instrumentation and new materials for the environmental analysis and sensor design



**Carlo Dossi** (+39 0312386235)  
[carlo.dossi@uninsubria.it](mailto:carlo.dossi@uninsubria.it)

### Chemimetry

In silico alternatives to animal testing and computational methods for chemistry and the environment



**Ester Papa** (+39 0332421552)  
[ester.papa@uninsubria.it](mailto:ester.papa@uninsubria.it)

## PUBBLICAZIONI

- Gibertini E., Liberale F., Dossi C. et al., "**Algae-derived hard carbon anodes for Na-ion batteries**", J Appl Electrochem 51, 1665–1673 (2021)
- Dossi C., Monticelli D., et al., "**Exploiting Chemistry to Improve Performance of Screen-Printed**", Bismuth Film Electrodes (SP-BiFE), Biosensors 6(3),38 (2016)
- Chirico N., Sangion A., Gramatica P., Casartelli I., Papa E., "**QSARINS-Chem standalone version: A new platform-independent software to profile chemicals for physico-chemical properties, fate, and toxicity**", Journal of Computational Chemistry, 2021, 42(20), pp. 1452–1460
- Banjare P., Singh J., Papa E., Roy P.P., "**Aquatic toxicity prediction of diverse pesticides on two algal species using QSTR modeling approach**", Environmental Science and Pollution Research, 2023, 30(4), pp. 10599–1061



## GENERAL INFORMATION

**Università degli Studi dell'Insubria**  
**Department of Biotechnology and Life Sciences (DBSV)**  
Via J.H. Dunant 3 - 21100 Varese (VA)  
sito web: <http://www.uninsubria.it>

## CONTACTS

Prof. Luigi VALDATTA  
+39 0332421392

## DETAILED INFORMATION

**Staff:** 17 Full Professors  
33 Associate Professors  
20 Researchers  
17 Structured Technicians  
11 Administrative Technicians  
**Registered students:** 1,144 (Academic year 2022/2023)  
**Post Lauream Training:** 28 enrolled in Doctorate in Life Sciences and Biotechnology  
28 Research fellows  
18 Fellows  
**Patents:** 1

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Protein engineering

Plastic degradation (PET) by enzymatic treatment using engineered enzymes: bioplastics from proteins recovered from insect larvae grown on wastes



**Gianluca Molla** (+39 0332412414)  
[gianluca.molla@uninsubria.it](mailto:gianluca.molla@uninsubria.it)

### Lignin

Lignin degradation by enzymatic treatment; system biocatalysis of molecules from lignin depolymerization



**Elena Rosini** (+39 0332421518)  
[elena.rosini@uninsubria.it](mailto:elena.rosini@uninsubria.it)

### Recombinant proteins

Production of recombinant proteins for biocatalysis and other applications (vaccines)



**Luciano Piubelli** (+39 0332421308)  
[luciano.piubelli@uninsubria.it](mailto:luciano.piubelli@uninsubria.it)

### Chitin

Identification, production, and characterisation of chitinases and chitin deacetylases for chitin transformation/valorisation and as biopesticides



**Francesca Berini** (+39 0332421332)  
[f.berini@uninsubria.it](mailto:f.berini@uninsubria.it)

### Microbial fermentations

Production of antibiotics and other bioactive molecules from fermentation of microbial strains



**Flavia Marinelli** (+39 0332421546)  
[flavia.marinelli@uninsubria.it](mailto:flavia.marinelli@uninsubria.it)

### Biocatalysis

Chemoenzymatic processes for the valorization of lignin: toolbox of ligninolytic enzymes



**Loredano Pollegioni** (+39 0332421506)  
[loredano.pollegioni@uninsubria.it](mailto:loredano.pollegioni@uninsubria.it)

### Sustainable polymers

Identification and catalytic transformation of bio-based building-blocks, industrial wastes and carbon dioxide for the synthesis of polymers and high added-value products



**Francesco Della Monica** (+39 0332421310)  
[f.dellamonica@uninsubria.it](mailto:f.dellamonica@uninsubria.it)



## COLLABORATIONS WITH COMPANIES

- BioC-CheM Solutions S.r.l.
- Gnosis by Lesaffre
- Hyperion Pharms S.r.l.
- Isagro S.p.A.
- IWT S.r.l.
- Prometeon Tire Group S.r.l.
- Techniplast S.p.A.
- Vibram S.p.a.

## PUBBLICAZIONI

- Yushchuk O., Vior N.M., Andreo-Vidal A., Berini F., Rückert C., Busche T., Binda E., Kalinowski J., Truman AW, Marinelli F., "**Genomic-led discovery of a novel glycopeptide antibiotic by *Nonomuraea coxensis***", DSM 45129, ACS Chem Biol. 2021.16(5):915-928
- Berini F., Casartelli M., Montali A., Reguzzoni M., Tettamanti G., Marinelli F., "**Metagenome-sourced microbial chitinases as potential insecticide proteins**", Front Microbiol. 2019. 10:1358
- Santoro O., Malacarne M.C., Sarcione F., Scapinello L., Pragliola S., Caruso E., Orlandi V.T., Izzo L., "**Inherently antimicrobial P(MMA-ran-DMAEMA) copolymers sensitive to photodynamic therapy: a double bactericidal effect**", Int J Mol Sci. 2023. 24:4340
- Maquilón C., Brandolese A., Alter C., Hövelmann C.H., Della Monica F., Kleij A.W., "**Renewable beta-element based cyclic carbonates for the preparation of oligo(hydroxyurethane)s**", ChemSusChem 2022. 15:e2022011
- Pirillo V., Orlando M., Battaglia C., Pollegioni L., Molla G., "**Efficient polyethylene terephthalate degradation at moderate temperature: a protein engineering study of LC-cutinase highlights the key role of residue 243**", FEBS Journal, 2023. 290(12):3185-3202
- Molinari F., Pollegioni L., Rosini E., "**Whole-cell bioconversion of renewable biomasses-related aromatics to cis,cis-muconic acid**", ACS Sustain Chem Eng. 2023. 11(6):2476-2485
- Ballestri M., Marras E., Caruso E., Bolognese F., Malacarne M.C., Martella E., Tubertini E., Gariboldi M.B., Varchi G., "**Free and poly-methyl-methacrylate-bounded BODIPYs: Photodynamic and antimigratory effects in 2D and 3D cancer models**", Cancers, 2023. 15 (92):1-21



DIPARTIMENTO  
DI CHIMICA



## GENERAL INFORMATION

Università degli Studi di Bari Aldo Moro

Department of Chemistry

Via Edoardo Orabona 4 - 70126 Bari (BA)

sito web: [http://https://www.uniba.it/en?set\\_language=en](http://https://www.uniba.it/en?set_language=en)

## CONTACTS

Prof. Gerardo PALAZZO

+39 0805442028

Prof.ssa Lucia D'Accolti (Delegate 3rd mission) - +39 3954442068

## DETAILED INFORMATION

**Staff:** 14 Full Professors

25 Associate Professors

23 Researchers

2 Structured Technicians

16 Administrative Technicians

**Registered students:** 400 (Academic year 2023/2024)

**Post Lauream Training:** 40 enrolled in Doctorates in Chemical and Molecular Sciences

14 Research fellows

**Patents:** 6 More information

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Biofuels</b>	Valorization of steel slag in the development of catalytic systems for biofuels							<b>Michele Casiello</b> (+39 3200883359) <i>michele.casiello@uniba.it</i>
<b>Bioplastics</b>	Innovative materials from wastes							<b>Lucia D'Accolti</b> (+39 0805442068) <i>lucia.daccolti@uniba.it</i>
<b>Nanosystems</b>	Preparation and characterization of lipid and/or polymer-based nanosystems for biomedical and environmental applications							<b>Lucia Catucci</b> (+39 0805442055) <i>lucia.catucci@uniba.it</i>
<b>Organic chemistry</b>	Study and development of innovative and sustainable synthetic methodologies in ionic solvents of natural origin							<b>Antonio Salomone</b> <i>antonio.salomone@uniba.it</i>
<b>Lipidomics</b>	Characterization of lipid molecules in biological or food matrices by mass spectrometry							<b>Ilario Losito</b> (+39 0805442506) <i>ilario.losito@uniba.it</i>
<b>Hybrid materials</b>	Preparation of hybrid organic and biomimetic materials, based on microalgae, for environmental bioremediation and tissue engineering							<b>Danilo Vona</b> <i>danilo.vona@uniba.it</i>
<b>Renewable energies</b>	Development of catalysts for water splitting, fuel cells, batteries and solar cells							<b>Antonella Milella</b> (+39 3803617260) <i>antonella.milella@uniba.it</i>

<b>Proteomics</b>	Study of proteins in biological, food and industrially relevant matrices by mass spectrometry	    	<b>Cosima Damiana Calvano</b> (+39 0805442018) <i>cosimadamiana.calvano@uniba.it</i>
<b>Materials</b>	Design and characterization of perovskite based solar cells	    	<b>Andrea Listorti</b> (+39 0805442009) <i>andrea.listorti@uniba.it</i>
<b>Hydrogels</b>	Hydrogels derived from biopolymers used for drug delivery	    	<b>Cosma Pinalysa</b> (+39 0805443443) <i>pinalysa.cosma@uniba.it</i>
<b>NIR processes</b>	Synthesis and characterization of NIR absorbing organic dyes	    	<b>Maria Annunziata Capozzi</b> (+39 0805442076) <i>maria.capozzi@uniba.it</i>
<b>Materials</b>	Synthesis and advanced analytical characterization of (nano)materials for applications in food, health, and cultural heritage	    	<b>Rosaria Anna Picca</b> (+39 0805442115) <i>rosaria.picca@uniba.it</i>
<b>Biomaterials</b>	Use of biocompatible thermoresponsive matrices, functionalized for the controlled release of drugs in proximity to the organ/tissue in pathological conditions	    	<b>Emiliano Altamura</b> (+39 3200612884) <i>emiliano.altamura@uniba.it</i>
<b>Decarbonization</b>	Development of processes and catalytic systems for photoreduction of CO <sub>2</sub>	    	<b>Lucia D'Accolti</b> (+39 0805442068) <i>lucia.daccolti@uniba.it</i>
<b>Biopolymers</b>	Dissolution of biopolymers in natural solvents and formation of fibers (formulation and mechanical and structural characterization)	    	<b>Luigi Gentile</b> (+39 0805442033) <i>luigi.gentile@uniba.it</i>
<b>Carbon recycle</b>	Development of innovative processes for carbon recycling to energy products	    	<b>Angela Dibenedetto</b> (+39 0805443606) <i>angela.dibenedetto@uniba.it</i>
<b>Circular economy</b>	New strategies of Biofuel and lubricant fluid production from organic urban wastes	    	<b>Pietro Cotugno</b> <i>pietro.cotugno@uniba.it</i>
<b>Bioreactors</b>	Construction of compartmentalized lipid systems engineered with membrane and/or hydrophilic enzymes as micrometric bioreactors for the synthesis of biomolecules	    	<b>Fabio Mavelli</b> (+39 3395616402) <i>fabio.mavelli@uniba.it</i>
<b>Protective coatings</b>	Hydrophobic, anti-corrosion, barrier coatings for food packaging	    	<b>Francesco Fracassi</b> (+39 3477595161) <i>francesco.fracassi@uniba.it</i>
<b>Nanoantimicrobials</b>	Development of antimicrobial nanomaterials through eco-compatible processes and their industrial applications	    	<b>Nicola Cioffi</b> (+39 0805442020) <i>nicola.cioffi@uniba.it</i>
<b>Biomaterials</b>	Synthesis of synthetic nanocrystalline hydroxyapatite-based biomaterials for the local delivery of antitumor drugs	    	<b>Nicola Margiotta</b> (+39 0805442759) <i>nicola.margiotta@uniba.it</i>
<b>Biomass</b>	Development of innovative processes for the valorization of residual biomass	    	<b>Francesco Nocito</b> (+39 0805442086) <i>francesco.nocito@uniba.it</i>
<b>Fuel gel</b>	Formulation of gel systems for combustion	    	<b>Luigi Gentile</b> (+39 0805442033) <i>luigi.gentile@uniba.it</i>

<b>LCA</b>	Studies are underway to calculate the environmental impact of the life cycle of products such as, for example, protective facial masks and community masks, obtained by assembling different types of non-woven fabrics and evaluating different sanitization techniques, to develop the best strategies for reducing of the environmental burden	    	<b>Pasquale Giungato</b> <i>pasquale.giungato@uniba.it</i>
<b>Water remediation</b>	Removal of pollutants from water by using natural materials. Recycling of these materials by desorption or photocatalytic processes	    	<b>Cosma Pinalysa</b> (+39 0805443443)
<b>Bio-hybrid materials</b>	Development, through sustainable synthetic strategies, of organic and bio-hybrid materials for electronics, optoelectronics, photonics and biomedicine	    	<b>Gianluca Maria Farinola</b> <i>gianlucamaria.farinola@uniba.it</i>
<b>Carbon recovery</b>	Chemical utilization of carbon dioxide. CO2 and carbonic acid diesters as succedaneous of phosgene. Chemical recycling of waste plastics	    	<b>Eugenio Quaranta</b> (+39 0805442093) <i>eugenio.quaranta@uniba.it</i>
<b>Circular economy</b>	Chitosan and alginate to develop functional patches/masks in cosmetics and biomedicine	    	<b>Jennifer Gubitosa</b> (+39 0805443443) <i>jennifer.gubitosa@uniba.it</i>
<b>Green formulations</b>	Sustainable process for homecare and healthcare	    	<b>Gerardo Palazzo</b> (+39 0805442028) <i>gerardo.palazzo@uniba.it</i>
<b>Artificial cells</b>	Semi-synthetic approach to the implementation of artificial cells for health application and bioremediation	    	<b>Fabio Mavelli</b> (+39 3395616402) <i>fabio.mavelli@uniba.it</i>
<b>Artificial photosynthesis</b>	Synthetic biology approach for the reconstitution of systems capable of transducing light energy into chemical energy	    	<b>Emiliano Altamura</b> (+39 3200612884) <i>emiliano.altamura@uniba.it</i>
<b>Mass spectrometry</b>	Development of methods based on mass spectrometry for the analysis of biomolecules, bioactive compounds, food allergens	    	<b>Tommaso Cataldi</b> (+39 0805442015) <i>tommaso.cataldi@uniba.it</i>
<b>Agro-food waste</b>	Use of food wastes as multifunctional materials	    	<b>Vito Rizzi</b>
<b>Green chemistry</b>	Synthesis of molecular multifunctional materials based on inert free radicals. Valorization of lignin derived from agri-food wastes	    	<b>Davide Blasi</b> <i>davide.blasi@uniba.it</i>
<b>Organic chemistry</b>	Development of new eco-sustainable methods in organic synthesis	    	<b>Antonio Monopoli</b> <i>antonio.monopoli@uniba.it</i>
<b>Top chemicals</b>	Valorization of waste materials for the production of chemical derivatives with high added value	    	<b>Angelo Nacci</b> (+39 0805442499) <i>angelo.nacci@uniba.it</i>
<b>Water remediation</b>	Development of catalysts for the reduction of organic pollutants in water	    	<b>Antonella Milella</b> (+39 3803617260) <i>antonella.milella@uniba.it</i>
<b>Biomaterials</b>	Bioactive coatings, antibacterial and/or non-fouling surfaces, drug release systems, cell activation, sterilization	    	<b>Pietro Favia</b> (+39 3403668024) <i>pietro.favia@uniba.it</i>

<b>Plasmas</b>	Surface treatments to improve the adhesion and nanostructuring of materials	 	   	<b>Francesco Fracassi</b> (+39 3477595161) <i>francesco.fracassi@uniba.it</i>
<b>Advanced materials</b>	Design and manufacture of inorganic and hybrid nanomaterials with size-dependent properties enabling original functions or improving the performance of systems and devices for environmental, biomedical and energy applications	 	   	<b>Maria Lucia Curri</b> (+39 3475330660) <i>marialucia.curri@uniba.it</i>
<b>Sustainability</b>	Development of a sustainable process for the production of PLA and lactic acid-based materials	 	   	<b>Maria Annunziata Capozzi</b> (+39 0805442076) <i>maria.capozzi@uniba.it</i>
<b>Circular economy</b>	Synthesis and characterization of green synthesized gold nanoparticles. Applications in nanomedicine	 	   	<b>Vito Rizzi</b> (+39 0805443443) <i>vito.rizzi@uniba.it</i>
<b>Cosmetic</b>	Development and physico-chemical characterization of potential cosmetic ingredients	 	   	<b>Jennifer Gubitosa</b> (+39 0805443443) <i>jennifer.gubitosa@uniba.it</i>
<b>Active release</b>	Release of active agents (drugs, RNA, phenols) from supramolecular structured systems (vesicular phases/LNPs/polymeric systems)	 	   	<b>Luigi Gentile</b> (+39 0805442033) <i>luigi.gentile@uniba.it</i>
<b>Packaging</b>	Development and characterization of food packaging systems biopolymers-based	 	   	<b>Jennifer Gubitosa</b> (+39 0805443443) <i>jennifer.gubitosa@uniba.it</i>
<b>Organic chemistry</b>	Organometallic synthesis of functional molecular materials	 	   	<b>Angela Punzi</b> <i>angela.punzi@uniba.it</i>
<b>Sostanze naturali</b>	Extraction and purification of natural substances as building blocks for the synthesis of biopolymers	 	   	<b>Vincenzo De Leo</b> (+39 0805442055) <i>vincenzo.deleo@uniba.it</i>
<b>Circular economy</b>	Valorization of industrial catalytic wastes in organic synthesis	 	   	<b>Roberta Ragni</b> <i>roberta.ragni@uniba.it</i>
<b>Sustainability</b>	Biomass degradation by white-rot fungi to produce organic molecules for industrial and environmental applications	 	   	<b>Maria Annunziata Capozzi</b> (+39 0805442076) <i>maria.capozzi@uniba.it</i>
<b>Materials</b>	Design and study of systems for the conversion of light energy into high value-added chemical species containing metal halide perovskites	 	   	<b>Andrea Listorti</b> (+39 0805442009) <i>andrea.listorti@uniba.it</i>
<b>Immunotherapy</b>	Activation of biological liquids for anti-cancer applications	 	   	<b>Pietro Favia</b> (+39 3403668024) <i>pietro.favia@uniba.it</i>
<b>Bioactive molecules</b>	Synthesis and structural characterization of sulfinyl compounds and chiral aminobenzylphthalols	 	   	<b>Maria Annunziata Capozzi</b> (+39 0805442076) <i>maria.capozzi@uniba.it</i>
<b>Sustainable agriculture</b>	Active coatings of seeds and substrates for agriculture	 	   	<b>Pietro Favia</b> (+39 3403668024) <i>pietro.favia@uniba.it</i>

## OTHER R&D ORGANIZATIONS

### SMART Inter-department Research Centre

Development of analytical methods based on advanced mass spectrometry techniques for application in research or third-party analyses

**Contacts:** Ilario Losito (+39 0805442406) - [ilario.losito@uniba.it](mailto:ilario.losito@uniba.it)

**Web site:** <https://www.uniba.it/it/ricerca/centri-interdipartimentali/smart>

### Interdepartmental Center on Environmental Methodologies and Technologies - METEA

The Center includes several departments of Bari University with the aim to develop new methodologies and technologies for environmental protection

**Contacts:** Eugenio Quaranta - [secretariat.metea@uniba.it](mailto:secretariat.metea@uniba.it)

### Interuniversity Consortium on Chemical Reactivity and Catalysis - CIRCC

The CIRCC includes 17 Universities with the aim to develop new chemical reactions, new catalytic systems, and their possible industrial application

**Contacts:** Angela Dibenedetto (+39 0805442429) - [angela.dibenedetto@uniba.it](mailto:angela.dibenedetto@uniba.it); [circc@uniba.it](mailto:circc@uniba.it)

**Web site:** <https://www.circc.it/en/home>

## COLLABORATIONS WITH COMPANIES

### Agreements

## PUBBLICAZIONI

- J. of In. B. 2021, 215, 111334 (DOI: 10.1016/j.jinorgbio.2020.111334).
- J. Mater. Chem. B, 2020, 8, 2792 (DOI: 10.1039/d0tb00390e).
- J. Mater. Chem. A, 2016,4, 17163-17170.
- Journal of Chromatography A Volume 1639, 22 February 2021, 461920, <https://doi.org/10.1016/j.chroma.2021.461920>.
- **"Seel slag as low-cost catalyst for artificial photosynthesis to convert CO<sub>2</sub> and water into hydrogen and methanol"**, Sci Rep 12, 11378 (2022).
- Molecules 2017, 22(2), 333; (DOI: 10.3390/molecules22020333).
- (2022) Cell Hypertrophy: A "Biophysical Roadblock" to Reversing Kidney Injury. Front. Cell Dev. Biol. 10:854998 (DOI: 10.3389/fcell.2022.854998).



GENERAL INFORMATION

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Department of Civil, Environmental, Architectural Engineering and Mathematics (DICATAM)
Via Branze 43 - 25123 Brescia (BS)
sito web: https://www.unibs.it/en/university/organisation/departments/dicatam

CONTACTS

Prof. Giorgio BERTANZA
+39 0303711201

DETAILED INFORMATION

Staff: 19 Full Professors
39 Associate Professors
25 Researchers
8 Structured Technicians
11 Administrative Technicians
Registered students: 1,200 (Academic year 2022/2023)
Post Lauream Training: 58 enrolled in doctoral programs in Civil and Environmental Engineering, International cooperation and Mathematics
28 Research fellows
19 fellows
Patents: -

DATASHEET ICONS: PRODUCTS, PROPRIETARY SEARCH, PROCESSES, THIRD PARTY RESEARCH, SERVICES, TECHNOLOGIES

R&D ACTIVITIES DETAIL

Table with 4 columns: Activity Name, Description, Activity Icons, and Contact Person. Rows include CCS, Bioeconomy, Electroactive polymers, Batteries, LCA, and Biodiversity.

<b>Circular economy</b>	Catalytic treatment of emissions from stationary and mobile sources	    	<b>Nancy Artioli</b> (+39 3403207518) <i>nancy.artioli@unibs.it</i>
<b>Ecological transition</b>	Systemic and innovative approach to study herbaceous and tree crops through multidisciplinary studies and applying Agriculture 4.0 technologies and precision farming	    	<b>Isabella Ghiglieno</b> <i>isabella.ghiglieno@unibs.it</i>
<b>Nutrients</b>	Stripping of nitrogen from digestate of livestock manure: optimization of process and energy performance	    	<b>Alessandro Abbà</b> (+39 0303711303) <i>alessandro.abbà@unibs.it</i>
<b>Circular economy</b>	Quantitative evaluation of nitrogen excretion, GHG and ammonia emissions in livestock sector	    	<b>Valentina Caprarulo</b> <i>valentina.caprarulo@unibs.it</i>
<b>Remediation</b>	Development of innovative processes for the treatment of contaminated land	    	<b>Mentore Vaccari</b> (+39 0303711300) <i>mentore.vaccari@unibs.it</i>
<b>Industrial symbiosis</b>	Modelling material flows and performance indicators	    	<b>Marta Domini</b> (+39 0303711301) <i>marta.domini@unibs.it</i>
<b>Circular economy</b>	Release of pollutants from recycled materials used for environmental applications and in the construction sector	    	<b>Sabrina Sorlini</b> (+39 0303711299) <i>sabrina.sorlini@unibs.it</i>
<b>Circular economy</b>	Use of agricultural waste for environmental reclamation activities	    	<b>Mentore Vaccari</b> (+39 0303711300) <i>mentore.vaccari@unibs.it</i>
<b>Hydrogen</b>	Production of green H <sub>2</sub> from seawater through an innovative high-temperature electrolyzer with integration into the power-to-methanol process (PROMETH2eus project)	    	<b>Nancy Artioli</b> (+39 3403207518) <i>nancy.artioli@unibs.it</i>
<b>Sustainability</b>	Evaluation of fertility in agricultural, urban and forest soils in response to agricultural practices and contamination	    	<b>Laura Giagnoni</b> <i>laura.giagnoni@unibs.it</i>
<b>Biodiversity</b>	Evaluation of biodiversity in response to sustainable management of agrosystems	    	<b>Sumer Alali</b> <i>sumer.alali@unibs.it</i>
<b>Sustainability</b>	An innovative bioassay based approach to assess environmental sustainability of liquid, solid and gaseous emissions	    	<b>Giorgio Bertanza</b> (+39 0303711201) <i>giorgio.bertanza@unibs.it</i>

## OTHER R&D ORGANIZATIONS

### ARH - Agrofood Research Hub

Agrofood Research Hub is a multidisciplinary research group that works to promote sustainable production in agriculture, environmental health and socio-economic enhancement of the agri-food sector. The aim of the laboratory is to support actors in various capacities operating in the field of agricultural production and agro-food processing in the path towards the ecological transition, developing projects that promote innovation and quality, for the benefit of society, business and territory. Agrofood Research Hub consists of 7 hubs that provide expertise on: Resources and data management protocols; Land use, production, weather-climatology, biological parameters; Models and systems to support decisions; Online tool; Instruments for scientific research; Methodologies and equipment for chemical, physical and microbiological analysis of environmental matrices (soil, water, air), plants and animals

**Contacts:** [agrofood@unibs.it](mailto:agrofood@unibs.it)

**Web site:** <https://agrofood-en.unibs.it/>

## CEEP - Catalysis for Energy and Environmental Protection

The CEEP lab - Catalysis for Energy and Environmental Protection - laboratory is engaged in the development of catalytic processes for sustainable energy production and post-treatment technologies. Research projects focus on environmental catalysis for emissions control in the transportation sector and the development of multifunctional catalysts for Gas-To-Liquid technologies. These technologies involve the capture and valorization of CO<sub>2</sub> from waste streams and the production of green hydrogen for conversion into high-value products such as methanol, DME, and biofuels. These areas of interest represent the main mission of the research group for the sustainable production of essential basic chemicals from zero-impact raw materials, e-fuels, and renewable energies

**Contacts:** nancy.artioli@unibs.it

**Web site:** <https://www.unibs.it/en/dicatum-%20laboratories-and-observatories>

## B+ LabNet

The B + LabNet Laboratory is an operation room capable of coordinating and integrating the research activities carried out within the Laboratory and by the different groups in the different Departments of the University. The characterizing theme includes aspects related to the management, use and protection of the environment as a precious resource, both for the direct effect on the health of the population and ecosystems, and for the wealth and well-being that it can produce. The Laboratory also offers analytical skills for the evaluation of ecotoxicity of contaminated environmental matrices (water, soil, waste, air)

**Contacts:** blabnet@unibs.it

**Web site:** <https://blab.unibs.it/>

## Laboratory of Sanitary-Environmental Engineering

The Laboratory of Sanitary and Environmental Engineering offers technical and scientific support to the experimental research activities carried out in the following fields: degree thesis, third party contracts with companies, and research projects funded both by the University and by national and international competitive tenders. The laboratory is also used for teaching activities. The laboratory carries out the characterization of contaminated liquid and solid matrices, with the execution of basic chemical and microbiological analyses. The samples to be examined are prepared (e.g. eluates) for subsequent more specific analyses (e.g. toxicological tests) carried out in other laboratories. In addition, in this laboratory several processes are tested for the treatment/reuse/recovery of wastewater, drinking water, waste (solid and liquid) and soils. Processes and technologies are studied both at the small- and pilot-scale in the laboratory, but also through the support of experimental activities in pilot plants on field

**Contacts:** ingsan@unibs.it

**Web site:** <https://www.unibs.it/it/laboratorio-ingegneria-sanitaria>

## COLLABORATIONS WITH COMPANIES

Collaborations with numerous companies and associations are ongoing

## PUBBLICAZIONI

- Leronna, A., Bardella, L., (2021), "**Modeling actuation and sensing in ionic polymer metal composites by electrochemo-poromechanics**", Journal of the Mechanics and Physics of Solids 148, 104292 (<https://doi.org/10.1016/j.jmps.2021.104292>)
- Maddaloni, M., Marchionni, M., Abbà, A., Mascia, M., Tola, V., Carpanese, M.P., Bertanza, G., Artioli, N., (2023), "**Exploring the Viability of Utilizing Treated Wastewater as a Sustainable Water Resource for Green Hydrogen Generation Using Solid Oxide Electrolysis Cells (SOECs)**", Water 15, 2569, <https://doi.org/10.3390/w15142569>
- Abbà, A., Domini, M., Baldi, M., Collivignarelli, M.C., Bertanza, G. (2023), "**Investigation of the main parameters influencing the kinetics of an ammonia stripping plant treating swine digestate**", Sustainability, 15(13), 10494, <https://doi.org/10.3390/su151310494>
- Diotti, A., Plizzari, G., Sorlini, S. (2021), "**Leaching behaviour of construction and demolition wastes and recycled aggregates: Statistical analysis applied to the release of contaminants**", Applied Sciences, 11(14), 6265, <https://doi.org/10.3390/app11146265>
- F. Duarte Castro, E. Mehner, L. Cutaia, M. Vaccari, "**Life cycle assessment of an innovative lithium-ion battery recycling route: A feasibility study**", Journal of Cleaner Production, 36825, 2022, 133130, <https://doi.org/10.1016/j.jclepro.2022.133130>
- T. G. Ambaye, A. Chebbi, F. Formicola, A. Rosatelli, S. Prasad, F.H. Gomez, S. Scaffoni, A. Franzetti, M. Vaccari, "**Ex-situ bioremediation of petroleum hydrocarbon contaminated soil using mixed stimulants: Response and dynamics of bacterial community and phytotoxicity**", Journal of Environmental Chemical Engineering 2022, 10(6), 108814; <https://doi.org/10.1016/j.jece.2022.108814>
- Panteghini, A., Bardella, L., (2023), "**Electrochemo-poromechanics of ionic polymer metal composites: Towards the accurate finite element modelling of actuation and sensing**", Journal of Elasticity 153, 299-358, <https://doi.org/10.1007/s10659-023-09990-z>



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## GENERAL INFORMATION

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## CONTACTS

Prof. Fabio BARONIO  
+39 0303715590

## DETAILED INFORMATION

**Staff:** 26 Full Professors  
23 Associate Professors  
22 Researchers  
8 Structured Technicians  
9 Administrative Technicians  
**Registered students:** 899 (Academic year 2020/2021)  
**Post Lauream Training:** 21 enrolled in doctoral programs  
**Patents:** 8

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## GENERAL INFORMATION

Università degli studi di Cagliari

Department of Chemical and Geological Sciences

SS 554 - 09042 Monserrato (CA)

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## CONTACTS

Prof. Antonio FUNEDDA

+39 0706757767

## DETAILED INFORMATION

**Staff:** 13 Full Professors

30 Associate Professors

23 Researchers

2 Technologists

11 Structured Technicians

7 Administrative Technicians

**Registered students:** 141 (Academic year 2022/2023)

**Post Lauream Training:**

11 students enrolled in doctoral programs in Chemical Science and Technology (XXXVIII cycle)

13 students enrolled in doctoral programs in Earth and Environmental Science and Technology (XXXVIII cycle)

3 Research fellows

13 fellows

**Patents:** 7 3 approved

4 pending

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Chemimetry

Chemometrics analysis



**Tiziana Pivetta** (+39 0706754473)  
[tpivetta@unica.it](mailto:tpivetta@unica.it)

### Nanostructured materials

Development of: functionalized nanoparticles for drug delivery; functional adsorbents for pollutants removal from waters; heterogeneous biocatalysts for biofuels production and pollutants removal



**Andrea Salis** (+39 0706754362)  
[andrea.salis@unica.it](mailto:andrea.salis@unica.it)

### Remediation

Development of innovative soft materials for meta ions, anions and emerging pollutants remediation



**Claudia Caltagirone** (+39 0706754452)  
[ccaltagirone@unica.it](mailto:ccaltagirone@unica.it)

### Remediation

Bioremediation on polluted soils



**Tiziana Pivetta** (+39 0706754473)  
[tpivetta@unica.it](mailto:tpivetta@unica.it)

### Optoelectronics

Photoconducting and NLO inorganic molecular materials



**Massimiliano Arca** (+39 0706754483)  
[marca@unica.it](mailto:marca@unica.it)

<b>MOF</b>	Metal-Organic Frameworks (MOFs) based Materials for: the detection of environmental pollutants and for CO <sub>2</sub> capture and separation from industrial sources (natural gas, etc.); the development of luminescent ratiometric thermometers, potentially employed for biological sensing within the physiological temperature range (293-313 K), as they are highly sensitive to tumor cells	    	<b>Maria Laura Mercuri</b> (+39 0706754474) <i>mercuri@unica.it</i>
<b>Carbocycles</b>	Development of new synthetic methods based on transformation of strained organic compounds. Design and preparation of highly functionalized carbo- and heterocycle and aminoacid-inspired molecular scaffolds of biological and therapeutic interest	    	<b>Angelo Frongia</b> (+39 0706754406) <i>afrongia@unica.it</i>
<b>Circular economy</b>	Development, synthesis and characterization of nanophasic materials and MOF, for the delivery of drugs and bioactive molecules	    	<b>Guido Ennas</b> (+39 0706754364) <i>ennas@unica.it</i>
<b>Biopolymers</b>	Valorization of industrial agricultural waste to obtain functional materials of a polymeric nature	    	<b>Francesco Secci</b> (+39 0706754408) <i>fsecci@unica.it</i>
<b>Struttura molecolare</b>	Combination of spectroscopic and computational methods for structural studies in solution	    	<b>M. Andrea Scorciapino</b> (+39 0706753921) <i>scorciapino@unica.it</i>
<b>Metabolomics</b>	Metabolomic characterization of biofluids in clinical settings and food products in the agrofood industry using NMR spectroscopy	    	<b>Flaminia Cesare Marincola</b> (+39 0706754389) <i>flaminia@unica.it</i>
<b>Pollution</b>	Pollution on water and soils	    	<b>Tiziana Pivetta</b> (+39 0706754473) <i>tpivetta@unica.it</i>
<b>Sorbent materials</b>	Design of atomistic/molecular models for computational studies of sorbent materials of gas and liquid mixtures	    	<b>M. Andrea Scorciapino</b> (+39 0706753921) <i>scorciapino@unica.it</i>
<b>Modelling</b>	Theory and modelling of biomolecules, buffers and electrolytes. Theory of electrode-electrolyte interactions in supercapacitors, batteries and sensors. Mineral recovery by salt-water froth flotation. Modelling rare earth and heavy metal adsorption. Modelling destabilization of ice/water films	    	<b>Drew Parsons</b> (+39 3382907741) <i>drew.parsons@unica.it</i>
<b>Process intensification</b>	Development of new environmentally friendly synthetic strategies based on the use of organic catalysts; Process intensification in batch and continuous flow photochemical transformations	    	<b>Francesco Secci</b> (+39 0706754408) <i>fsecci@unica.it</i>
<b>Trasporto in membrana</b>	Combination of spectroscopic and computational methods to study transport processes through biologic membranes	    	<b>M. Andrea Scorciapino</b> (+39 0706753921) <i>scorciapino@unica.it</i>
<b>Remediation</b>	Functionalized graphene oxide-based materials for removal of dyes and organic and inorganic pollutants from wastewater	    	<b>M. Carla Aragoni</b> (+39 0706754491) <i>aragoni@unica.it</i>
<b>Cultural heritage</b>	Organic and inorganic consolidants for the conservation and restoration Cultural Heritage stone artifacts	    	<b>Anna Pintus</b> (+39 0706754384) <i>apintus@unica.it</i>

**Photochemistry** Development of new photoinduced processes and mechanistic investigations relating to photoinduced transformations    **Alberto Luridiana** (+39 0706754408) [alberto.luridiana@unica.it](mailto:alberto.luridiana@unica.it)

**Computational chemistry** Computational studies for the development of catalysts for CO<sub>2</sub> electroproduction. Modeling structure and optical properties of carbon nanodots. Studies of the structural and dynamic properties of nucleic acids and interactions with binders with stabilizing/destabilizing effects. Modeling the confinement effect on DNA-ion interactions. Characterization of the structural, dynamic, and thermodynamic properties of solvent mixtures (organics, ionic liquids, eutectic mixtures). Optimization of vectors for genetic material development    **Francesca Mocci** (+39 0706754390) [fmocci@unica.it](mailto:fmocci@unica.it)

**Polymers** Development of monomers and polymers from renewable resources. 3D printing. Functional polymers for sensing applications    **Annalisa Chiappone** (+39 3347531838) [annalisa.chiappone@unica.it](mailto:annalisa.chiappone@unica.it)

**Optoelectronics** Design, synthesis, and characterization of new molecular materials for applications in the field of optoelectronics and biomedical science    **Giuseppe Sforazzini** (+39 0706754416) [giuseppe.sforazzini@unica.it](mailto:giuseppe.sforazzini@unica.it)

**Antitumours** Metal complexes with antitumoral activity    **Tiziana Pivetta** (+39 0706754473) [tpivetta@unica.it](mailto:tpivetta@unica.it)

## OTHER R&D ORGANIZATIONS

### Computational Chemistry Laboratory

Computational Chemistry Laboratory with 48-core dedicated server IBMx3755 (Gaussian, GaussView, ADF, Q-Chem, Spartan, GROMACS, Molden) and 12 independent client workstations

**Contacts:** Massimiliano Arca (+39 0706754483) - [marca@unica.it](mailto:marca@unica.it)

**Web site:** [https://www.unica.it/unica/en/ateneo\\_s07\\_ss01\\_sss08\\_01.page?contentId=DAT266402](https://www.unica.it/unica/en/ateneo_s07_ss01_sss08_01.page?contentId=DAT266402)

### Interdepartmental Nuclear Magnetic Resonance (NMR) Spectroscopy Laboratory

The laboratory hosts UNITY INOVA 500 MHz NB High-Resolution NMR spectrometer (Agilent) dedicated exclusively to metabolomics analysis equipped with a 5 mm 1H - 19F direct probe for liquid samples, and a high-band (1H) channel with temperature control from +150 to - 150 °C and a 50 position autosampler

**Contacts:** Flaminia Cesare Marincola (+39 0706754389) - [flaminia@unica.it](mailto:flaminia@unica.it)

## COLLABORATIONS WITH COMPANIES

- Chiesi Farmaceutici S.p.A.
- Depas S.r.l.
- Ecoserdiana S.p.A.
- Fluorsid S.p.A.
- Fonti San Leonardo de Siete Fuentes S.p.A.
- Istituto Centrale di Restauro (ICR), Ministero della Cultura
- Istituto di Scienze del Patrimonio Culturale, CNR
- Istituto superiore per la Ricerca e l'Ambiente (ISPRA)
- Portovesme S.r.l.
- Sardegna Ricerche
- Sartec S.r.l.
- Soprintendenza Archivistica della Sardegna
- Sotacarbo S.p.A.

## PUBBLICAZIONI

- Fausto Secci, Valentina Mamei, Elisabetta Rombi, Sarah Lai, Marco Sanna Angotzi, Patrícia A Russo, Nicola Pinna, Mauro Mureddu, Carla Cannas, "**On the role of the nature and density of acid sites on mesostructured aluminosilicates dehydration catalysts for dimethyl ether production from CO<sub>2</sub>**", *Journal of Environmental Chemical Engineering*, 2023, 11, 3, 110018 - <https://doi.org/10.1016/j.jece.2023.110018> (Mauro Mureddu e Sarah Lai per Sotacarbo S.p.A.)
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- Anna Pintus, Lucia Ambrosio, M. Carla Aragoni, Maddalena Binda, Simon J. Coles, Michael B. Hursthouse, F. Isaia, V. Lippolis, Giammarco Meloni, Dario A. N. Natali, James B. Orton, Enrico Podda, Marco Sampietro, Massimiliano Arca, "**Photoconducting Devices with Response in the Visible–Near-Infrared Region Based on Neutral Ni Complexes of Aryl-1,2-dithiolene Ligands**", *Inorg. Chem.*, 59, 6410–6421 (2020). DOI: 10.1021/acs.inorgchem.0c00491
- Anna Pintus, Cristian Pilloni, Gabriele Pippia, Enrico Podda, M. Carla Aragoni, Vito Lippolis, Panagiotis Aloukos, Dionysios Potamianos, Nikolaos Chazapis, Stelios Couris, George C. Anyfantis, Alexandra M. Z. Slawin, J. Derek Woollins, Massimiliano Arca, *Dalton Trans.*, "**A new class of third-order nonlinear optical materials: pulse-duration dependant saturable/reverse-saturable absorption and nonlinear refraction in platinum(II) diimine-dithiolate complexes**", 52, 9423–9432 (2023). DOI: 10.1039/d3dt00931a
- Laura Maiore, M. Carla Aragoni, Gianfranco Carcangiu, Ombretta Cocco, Francesco Isaia, Vito Lippolis, Paola Meloni, Arianna Murru, Enrica Tuveri, Massimiliano Arca, "**Synthesis, characterization and DFT-modeling of novel agents for the protection and restoration of historical calcareous stone substrates**", *J. Coll. Int. Sci.*, 448, 320-330 (2015). DOI: 10.1016/j.jcis.2015.01.092.
- Flaminia Cesare Marincola; Sara Corbu, Milena Lussu, Antonio Noto, Angelica Dessì, Stefania Longo, Elisa Civardi, Francesca Garofoli, Beatrice Greci, Elisa Mongini, Andrea Budelli, Alessia Grinzato, Francesca Fasano, Vassilios Fanos, and Mauro Stronati, "**Impact of Early Postnatal Nutrition on the NMR Urinary Metabolic Profile of Infant**", *J. Prot. Res.* 15, 3712–3723 (2016) (Mauro Stronati per Heinz Spa) DOI: 10.1021/acs.jproteome.6b00537
- Giacomo Picci, Sara Farotto, Jessica Milia, Claudia Caltagirone, Vito Lippolis, Maria Carla Aragoni, Corrado Di Natale, Roberto Paolesse, and Larisa Lvova, "**Potentiometric Sensing of Nonsteroidal Painkillers by Acyclic Squaramide Ionophores**", *ACS Sens.* 8, 8, 3225–3239 (2023) DOI: 10.1021/acssensors.3c00981"



## GENERAL INFORMATION

**Università degli Studi di Cagliari**

**Department of Life and Environmental Sciences**

Cittadella Universitaria – 09042 Monserrato(CA)

site web: [https://www.unica.it/unica/it/dip\\_scienzevitaamb.page](https://www.unica.it/unica/it/dip_scienzevitaamb.page)

## CONTACTS

Prof. Enzo TRAMONTANO

+39 0706758046

## DETAILED INFORMATION

**Staff:** 18 Full Professors

33 Associate Professors

32 Researchers

1 Technologist

13 Structured Technicians

6 Administrative Technicians

4 General Services

**Registered students:** 2,352 (Academic year 2022/2023)

**Post Lauream Training:** 19 enrolled in Doctorates Programs in Life, Environmental and Drug Sciences

12 Research fellows

18 fellows

**Patents:** 30 More information

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Pharmaceutical chemistry

Fundamental research in medicinal chemistry. Design, synthesis and studies on enzyme inhibitors and receptor agonist/antagonist endowed with heterocyclic scaffolds



**Valentina Onnis** (+39 0706758632)  
*vonnis@unica.it*

### Analytical chemistry

Study of the complex formation equilibria between metal ions and ligands of biomedical and environmental interest. Design, synthesis and characterization of new ligands to be used as chelating agents for scavenging toxic metal ions from human body or environmental compartments. Characterization of biomasses as sorbents of toxic metal ions or organic pollutants in the treatment of wastewaters



**Valeria M. Nurchi** (+39 0706754476)  
*nurchi@unica.it*

### Organic chemistry

Organic chemistry directed towards the in silico design and synthesis of heterocyclic molecules of pharmaceutical interest with potential antiviral activity, opioid antagonists, MAO



**Giovanna Lucia Delogu** (+39 0706758566)  
*delogug@unica.it*

### Nutraceuticals

Extraction and characterization of biomolecules with antioxidant activity and development of functional foods for the health sector



**Carlo I. G. Tuberoso** (+39 07067586644)  
*tuberoso@unica.it*

### Pharmaceutical technology

Fundamental research in pharmaceuticals, biopharmaceuticals and pharmaceutical technology: design, preparation, characterization and development of innovative drug delivery systems



**Chiara Sinico** (+39 0706758555)  
*sinico@unica.it*



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## OTHER R&D ORGANIZATIONS

### Biomedical

Research group in Biological Chemistry and Microbiology

**Contacts:** Tiziana Cabras - tcabras@unica.it

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### Botany

Research group in Botany

**Contacts:** Giuseppe Fenu - gfenun@unica.it

**Web site:** [https://www.unica.it/unica/it/dip\\_scienzevitaamb\\_74.page](https://www.unica.it/unica/it/dip_scienzevitaamb_74.page)

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### Neuroscience and Antropology

Research group in Neuroscience and Antropology

**Contacts:** Elisabetta Marini - emarini@unica.it

**Web site:** [https://www.unica.it/unica/it/dip\\_scienzevitaamb\\_75.page](https://www.unica.it/unica/it/dip_scienzevitaamb_75.page)

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### Section of Animal Biology and Ecology

Research group in Animal Biology and sea ecology

**Contacts:** Danila Cuccu - cuccu@unica.it

**Web site:** [https://www.unica.it/unica/it/dip\\_scienzevitaamb\\_72.page](https://www.unica.it/unica/it/dip_scienzevitaamb_72.page)

## COLLABORATIONS WITH COMPANIES

List of collaborations

## PUBBLICAZIONI

- <https://doi.org/10.3390/antiox12061209>
- <https://doi.org/10.3390/antiox12010080>



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## GENERAL INFORMATION

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**Department of Mechanical and Chemical Engineering Department**  
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sito web: [https://www.unica.it/unica/en/dip\\_ingmeccanica.page](https://www.unica.it/unica/en/dip_ingmeccanica.page)

## CONTACTS

Prof. Antonio BALDI  
+39 0706755707

## DETAILED INFORMATION

**Staff:** 13 Full Professors

16 Associate Professors

15 Researchers

4 Structured Technicians

6 Administrative Technicians

**Registered students:** 850 (Academic year 2019/2020)

**Post Lauream Training:** 19 enrolled in Doctorates in Industrial Engineering, Engineering and Environmental Sciences and Sciences and Technologies Innovation  
2 Research fellows

**Patents:** 12

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## OTHER R&D ORGANIZATIONS

**CINSA – Interdepartmental Centre  
of Engineering and Environmental  
Sciences**

**Contacts:** Giacomo Cao (+39 0706755058) - [giacomo.cao@dimcm.unica.it](mailto:giacomo.cao@dimcm.unica.it)

**Web site:** [https://www.unica.it/unica/it/ateneo\\_s03\\_ss07.page?contentId=STR19464](https://www.unica.it/unica/it/ateneo_s03_ss07.page?contentId=STR19464)



## GENERAL INFORMATION

Università degli Studi di Camerino

School of Pharmacy - Department of Chemistry Interdisciplinary Project (CHIP)

Via Madonna delle carceri - 62032 Camerino (MC)

sito web: <https://farmaco.unicam.it/>

## CONTACTS

Prof. Gianni SAGRATINI

+39 0737402238

## DETAILED INFORMATION

**Staff:** 14 Full Professors

28 Associate Professors

13 Researchers

11 Structured Technicians

4 Administrative Technicians

**Registered students:** 1,600 (Academic year 2023/2024)

**Post Lauream Training:** 73 enrolled in doctoral programs in Chemical and Pharmaceutical Sciences and Biotechnology: Pharmaceutical, Nutraceutical and Food Sciences

57 enrolled in II level Master in Manager of Pharmaceutical Departments

24 enrolled in II level Master in Aesthetic medicine and therapy

17 enrolled in II level Master in Complementary and integrated Therapies

13 enrolled in II level Master in Industrial Drug Regulation

53 enrolled in II level Master in Galenic Preparations

206 enrolled in II level Master in Aesthetic Medicine and Therapeutics (Athens Class and Rome Class)

7 enrolled in Advanced course Aesthetic Medicine Assistant

17 enrolled in Advanced course Molecular aspects of nutrition: from nutrigenomics to functional nutrition

20 Research fellows

8 Fellows

**Patents:** 14

## DATASHEET ICONS

 PRODUCTS

 PROCESSES

 SERVICES

 TECHNOLOGIES

 PROPRIETARY SEARCH

 THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Botany

Green extraction, functional components and industrial applications of botanicals and waste materials from the agro-food sector



**Filippo Maggi** (+39 0737404506)  
[filippo.maggi@unicam.it](mailto:filippo.maggi@unicam.it)

### Neuroprotective agents

Synthesis of nucleosides and heterocycles as ligands of adenosine receptors and neuroprotective and antiparkinsonian agents



**Rosaria Volpini** (+39 0737402278)  
[rosaria.volpini@unicam.it](mailto:rosaria.volpini@unicam.it)

<b>Food analysis</b>	Development and optimization of analytical methods for the quantification of bioactive compounds and/or contaminants in food	    	<b>Giovanni Caprioli</b> (+39 0737402312) <i>giovanni.caprioli@unicam.it</i>
<b>Nutraceuticals</b>	Valorization of bioactive compounds obtained from agri-food wastes for the formulation of nutraceutical supplements and functional foods	    	<b>Sauro Vittori</b> (+39 0737402266) <i>sauro.vittori@unicam.it</i>
<b>Food science</b>	Food quality and safety for human health and development of new foods with functional properties through the optimization of the production process	    	<b>Gianni Sagratini</b> (+39 0737402238) <i>gianni.sagratini@unicam.it</i>
<b>Antitumours</b>	Synthesis and development of organometallic complexes based on ruthenium, osmium, rhodium, and iridium with anticancer properties	    	<b>Riccardo Pettinari</b> (+39 0737402338) <i>riccardo.pettinari@unicam.it</i>
<b>Muscarinic receptors</b>	Design, synthesis, and biological evaluation of new muscarinic receptor agonists/antagonists therapeutically useful for the treatment of peripheral and central nervous system diseases	    	<b>Alessandro Piergentili</b> (+39 0737402235) <i>alessandro.piergentili@unicam.it</i>
<b>PROTAC</b>	Design, synthesis, and biological evaluation of new PROTACs bearing properly modified selective alpha1-adrenergic receptor ligands, potentially useful for the treatment of prostate cancer	    	<b>Wilma Quaglia</b> (+39 0737402237) <i>wilma.quaglia@unicam.it</i>
<b>Antitumours</b>	Synthesis and biological evaluation of new compounds interacting with nucleic acids as new potential antitumor drugs	    	<b>Gabriella Marucci</b> (+39 0737402223) <i>gabriella.marucci@unicam.it</i>
<b>Dopamine receptors</b>	Design, synthesis, and biological evaluation of novel agonists/antagonists selectively targeting dopamine receptor subtypes and potentially useful as novel pharmacological tools for the treatment of glioblastoma	    	<b>Fabio Del Bello</b> (+39 0737402265) <i>fabio.delbello@unicam.it</i>
<b>Natural products</b>	Rational design, synthesis, and characterization of new ligands with metal coordinating properties and extraction and purification of naturally occurring compounds from medicinal plants, for tackling Neglected Tropical Diseases (NTD)	    	<b>Riccardo Petrelli</b> (+39 0737402239) <i>riccardo.petrelli@unicam.it</i>
<b>Smart polymers</b>	Synthesis of new excipients and advanced formulations for pharmaceutical, biomedical and cosmetic applications	    	<b>Roberta Censi</b> (+39 0737402231) <i>roberta.censi@unicam.it</i>
<b>Surfactants</b>	Synthesis, chemical-physical characterization and toxicological evaluation of biodegradable amphiphilic molecules to be used as conventional surfactants and for the preparation of pharmaceutical carriers such as liposomes and mixed vesicles, micro and nano emulsions, micelles	    	<b>Diego Romano Perinelli</b> (+39 0737402289) <i>diego.perinelli@unicam.it</i>
<b>DESs</b>	Realization and characterization of new Deep Eutectic Solvents (DESs) as environmentally sustainable and environmentally friendly liquids	    	<b>Matteo Tiecco</b> (+39 0737402350) <i>matteo.tiecco@unicam.it</i>

<b>Galenic</b>	Study of the traditional galenic preparations set up into the pharmacy, applying the scientific approach of the pharmaceutical industry. Improvement of the traditional galenic preparations both from a formulative and a preparative point of view	    	<b>Giovanni Filippo Palmieri</b> (+39 0737402233) <i>gianfilippo.palmieri@unicam.it</i>
<b>Enzymatic modulators</b>	Synthesis and biological evaluation of heterocyclic compounds modulating enzymes with kinase activity as potential analgesics	    	<b>Michela Buccioni</b> (+39 0737402205) <i>michela.buccioni@unicam.it</i>
<b>Anti-inflammatory agents</b>	Synthesis of nucleotides and heterocycles as modulators of purinergic P2X receptors and anti-inflammatory agents	    	<b>Catia Lambertucci</b> (+39 0737402252) <i>catia.lambertucci@unicam.it</i>
<b>Compounds</b>	Evaluation of medicines manipulation (splitting, crushing, dispersing into a liquid or gel) identifying eventually risks related with specific features of the drug, the dosage form or excipients. Identification of alternative manipulation paths to match all the patient necessity	    	<b>Giulia Bonacucina</b> (+39 0737402289) <i>giulia.bonacucina@unicam.it</i>
<b>Free radicals</b>	Synthesis and study of new molecules that due to their chemical structure are capable of scavenging free radicals and due to this can have application in various formulations	    	<b>Elisabetta Torregiani</b> (+39 0737402249) <i>elisabetta.torregiani@unicam.it</i>
<b>Metallic complexes</b>	Synthesis and characterization of novel coordination compounds based on N-, O, and S-donor ligands biologically and pharmacologically active	    	<b>Claudio Pettinari</b> (+39 0737402234) <i>claudio.pettinari@unicam.it</i>
<b>NanoRNA</b>	Design, synthesis and characterization of dinucleotide-based compounds able to inhibit REXO2, an exoribonuclease overexpressed in many cancer cells	    	<b>Loredana Cappellacci</b> (+39 0737402228) <i>loredana.cappellacci@unicam.it</i>
<b>MOF</b>	Design and characterization of metal-organic frameworks (MOFs) for storage and conversion of gas and energy	    	<b>Alessia Tombesi</b> (+39 0737402234) <i>alessia.tombesi@unicam.it</i>
<b>NMDA receptors</b>	Design, synthesis, and biological evaluation of new noncompetitive NMDA receptor antagonists and sigma1 receptor ligands for the treatment of disorders in which they are involved	    	<b>Gianfabio Giorgioni</b> (+39 0737402368) <i>gianfabio.giorgioni@unicam.it</i>
<b>Computational chemistry</b>	Design of compounds as modulators of purinergic membrane receptors and enzymes with computational chemistry tools	    	<b>Diego Dal Ben</b> (+39 0737402236) <i>diego.dalben@unicam.it</i>
<b>Tablets</b>	Characterization of the functionality, mechanical and rheological properties of materials intended for solid oral dosage formulations. The materials are studied using instrumented rotary tablet machine, tensile tester, DMA, DSC and all standard procedures used for the solid oral dosage forms	    	<b>Marco Cespi</b> (+39 0737402285) <i>marco.cespi@unicam.it</i>
<b>Sustainable recovery</b>	Sustainable recovery of bioactive compounds and nutraceuticals from agri-food wastes sector	    	<b>Cinzia Mannozi</b> (+39 0737402350) <i>cinzia.mannozi@unicam.it</i>

## OTHER R&D ORGANIZATIONS

## HPLC-MS and GC-MS Facilities

The mission of the HPLC-MS and GC-MS facilities is to provide centralized access to HPLC-MS and GC-MS resources for researchers at the University of Camerino

**Contacts:** Massimo Ricciutelli - massimo.ricciutelli@unicam.it

**Web site:** <https://strumentazioni.unicam.it/laboratorio/laboratorio-hplc-ms>

## Nuclear Magnetic Resonance (NMR) Facility

The role of NMR Facility is to provide support for performing advanced NMR experiments

**Contacts:** Giovanni Rafaiani (+39 0737402208) - giovanni.rafaiani@unicam.it

**Web site:** <https://strumentazioni.unicam.it/laboratorio/laboratorio-di-risonanza-magnetica-nucleare>

## COLLABORATIONS WITH COMPANIES

- DFE Pharma
- Evotec SE
- Fileni S.p.A.
- Indena S.p.A.
- Janssen-Pharmaceutical S.p.A.
- Nuova Simonelli S.p.A.
- Puli Ecol Recuperi S.r.l.
- Redantea S.r.l.
- Sabelli S.p.A.
- Società Agricola Borgo Paglianello S.r.l.
- Società Agricola Monte Monaco S.r.l.

## PUBBLICAZIONI

- Perinelli, D.R.; Cespi, M.; Rendina, F.; Bonacucina, G.; Palmieri, G.F., "Effect of the concentration process on unloaded and doxorubicin loaded liposomal dispersions", *International Journal of Pharmaceutics* 2019, 560, 385–393.
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- Alessandroni, L.; Caprioli, G.; Faiella, F.; Fiorini, D.; Galli, R.; Huang, X.; Marinelli, G.; Nzekoue, F.; Ricciutelli, M.; Scortichini, S.; Silvi, S.; Tramontano, A.; Turati, D.; Sagratini, G., "A shelf-life study for the evaluation of a new biopackaging to preserve the quality of organic chicken meat", *Food Chemistry*, 2022, 371, 131134
- Santanatoglia, A.; Caprioli, G.; Cespi, M.; Ciarlantini, D.; Cognigni, L.; Fioretti, L.; Maggi, F.; Mustafa, M.A.; Nzekoue, F.; Vittori, S., "A comprehensive comparative study among the newly developed Pure Brew method and classical ones for filter coffee production", *LWT*, 2023, 175, 114471
- Del Bello, F.; Bonifazi, A.; Giorgioni, G.; Cifani, C.; Micioni Di Bonaventura, M.V.; Petrelli, R.; Piergentili, A.; Fontana, S.; Mammoli, V.; Yano, H.; Matucci, R.; Vistoli, G.; Quaglia, W., "1-[3-(4-Butylpiperidin-1-yl)propyl]-1,2,3,4-tetrahydroquinolin-2-one (77-LH-28-1) as a model for the rational design of a novel class of brain penetrant ligands with high affinity and selectivity for dopamine D4 receptor", *J. Med. Chem.* 2018, 61, 3712–25
- Fagioli, L.; Pavoni, L.; Logrippo, S.; Pelucchini, C.; Rampoldi, L.; Cespi, M.; Bonacucina, G.; Casettari, L., "Linear viscoelastic properties of selected polysaccharide gums as function of concentration, pH, and temperature", *Journal of Food Science* 2019, 84, 65–72
- Huang, X.; Nzekoue, F.K.; Renzi, S.; Alesi, A.; Coman, M.M.; Pucciarelli, S.; Sagratini, G.; Silvi, S., "Influence of modified governing liquid on shelf-life parameters of high-moisture mozzarella cheese", *Food Research International*, 2022, 159, 111627



## GENERAL INFORMATION

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## CONTACTS

Prof. David VITALI  
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Manager of Department of Chemistry:  
Prof. Carlo SANTINI  
+39 0737402293

## DETAILED INFORMATION

**Staff:** 5 Full Professors  
11 Associate Professors  
6 Researchers  
11 Structured Technicians  
3 Administrative Technicians  
**Registered students:** 201 (Academic year 2022/2023)  
**Post Lauream Training:** 26 enrolled in doctoral programs in Chemistry  
3 Research fellows  
6 fellows  
**Patents:** 4

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Green chemistry

Synthesis and derivation of heterocyclic systems by unconventional technologies (one-pot, flow chemistry, solid heterogeneous systems)



**Alessandro Palmieri** (+39 0737402262)  
[alessandro.palmieri@unicam.it](mailto:alessandro.palmieri@unicam.it)

### Antimicrobial materials

Synthesis and characterization of hybrid organic-inorganic antimicrobial composite materials and metal complexes with anticancer properties



**Fabio Marchetti** (+39 0737402217)  
[fabio.marchetti@unicam.it](mailto:fabio.marchetti@unicam.it)

### Circular economy

Study and analysis of components having health, sensory and nutritional importance and development of methods for their analysis in foods and in by-products deriving from their production



**Dennis Fiorini** (+39 0737402254)  
[dennis.fiorini@unicam.it](mailto:dennis.fiorini@unicam.it)

<b>Batteries</b>	Synthesis and structural, morphological, electrochemical characterization of materials for electrochemical energy storage and conversion devices: Li-ion batteries, Na-ion batteries, fuel cells	    	<b>Francesco Nobili</b> (+39 0737402216) <i>francesco.nobili@unicam.it</i>
<b>Phytochemistry</b>	Isolation and characterization of bioactive compounds from traditional medicinal plants	    	<b>Luciano Barboni</b> (+39 0737402240/91) <i>luciano.barboni@unicam.it</i>
<b>Pollution reduction</b>	Characterization of natural compounds with environmental applications, adsorbent and plasmonic nanomaterials for the removal, detection and determination of pollutants, carbon capture as chlatrate hydrates	    	<b>Marco Zannotti</b> (+39 0737402272) <i>marco.zannotti@unicam.it</i>
<b>MOF</b>	Synthesis and characterization of coordination compounds and MOF (metal-organic framework) with potential applications in gas adsorption and catalysis	    	<b>Corrado Di Nicola</b> (+39 0737402234) <i>corrado.dinicola@unicam.it</i>
<b>Metal drugs</b>	Design, synthesis and characterization of chelating ligands and related water-soluble complexes with transition metal ions for the development of metal-based drugs and radiopharmaceuticals	    	<b>Maura Pellei</b> (+39 0737402213) <i>maura.pellei@unicam.it</i>
<b>Water analysis</b>	Analytical methods for elementary analysis and speciation analysis in order to characterize environmental and food matrices in origin, nature, quality and evolution over time. Chemical characterization of aqueous systems: mineral and thermal waters	    	<b>Stefano Ferraro</b> (+39 0737402271) <i>stefano.ferraro@unicam.it</i>
<b>Materials</b>	Development of innovative compatibilizer, additives, synthetic methodologies for high quality polymeric formulations, nanoparticles and NPs grafting. Synthesis of biopolymers starting from commercially available biomolecules or using bio-monomers coming from wastes in order to make bio based polymers. Development of new methods for recycling of polymers trough a "green" depolymerization process	    	<b>Serena Gabrielli</b> (+39 0737402219/11) <i>serena.gabrielli@unicam.it</i>
<b>Synthetic methodologies</b>	Development of Lewis acids catalysed synthetic methodologies for the stereoselective synthesis of small molecules or of their precursors	    	<b>Cristina Cimarelli</b> (+39 0737402268) <i>cristina.cimarelli@unicam.it</i>
<b>Recovery</b>	Synthesis and electrochemical characterization of Prussian Blue analogues for applications as sensors, in electrocatalysis and in energy storage. Archaeometric diagnostics. Characterization of industrial wastewater and use of geopolymers for the inertization process	    	<b>Mario Berrettoni</b> (+39 0737402210) <i>mario.berrettoni@unicam.it</i>
<b>Sustainable synthesis</b>	Synthesis of carbocyclic and heterocyclic compounds starting from acyclic precursors. Functionalization and derivatization of heterocyclic systems by combining catalysis and process sustainability	    	<b>Gabriele Lupidi</b> (+39 0737402215) <i>gabriele.lupidi@unicam.it</i>
<b>Chemimetry</b>	Multivariate analysis of chemical data for the authentication of food products	    	<b>Paolo Conti</b> (+39 0737402259) <i>paolo.conti@unicam.it</i>
<b>Chemistry for life</b>	The development of environmentally responsible methods for obtaining small molecules in the treatment of human disease and improve properties polymer composites	    	<b>Enrico Marcantoni</b> (+39 0737402255) <i>enrico.marcantoni@unicam.it</i>

<b>Nitrogen derivatives</b>	Synthesis and functionalization of nitrogen containing heterocycles by reaction of azomethine systems	     	<b>Marino Petrini</b> (+39 0737402253) <i>marino.petrini@unicam.it</i>
<b>Luminescent materials</b>	Synthesis of new materials based on coinage metals for optoelectronics, energy storage, industrial catalysis and for applications in cancer therapy	     	<b>Rossana Galassi</b> (+39 0737402243) <i>rossana.galassi@unicam.it</i>
<b>Pollution reduction</b>	Nanomaterials for photocatalytic treatments and energy production, application and characterization of natural dyes, environmental monitoring and remediation, carbon capture as chlatrate hydrates	     	<b>Rita Giovannetti</b> (+39 0737402272) <i>rita.giovannetti@unicam.it</i>
<b>Coordination compounds</b>	Synthesis and characterization of metal complexes with potential catalytic and pharmacological properties. Study of functionalized inorganic additives for industrial applications	     	<b>Carlo Santini</b> (+39 0737402293) <i>carlo.santini@unicam.it</i>
<b>Batteries</b>	Investigation of the physico-chemical mechanisms and processes, with focus on the surface region, driving energy storage and conversion, photocatalysis and heterogeneous catalysis	     	<b>Miguel Ángel Muñoz Márquez</b> (+39 0737402311) <i>miguel.munoz@unicam.it</i>
<b>Luminescent materials</b>	Synthesis of luminescent materials containing gold for technological applications	     	<b>Alfredo Burini</b> (+39 0737402221) <i>alfredo.burini@unicam.it</i>
<b>Circular economy</b>	Synthesis and electrochemical characterization of Prussian Blue analogues for applications as sensors, in electrocatalysis and in energy storage. Diagnostics of metallic materials of archaeometric interest. Analysis of air composition for health purposes in environments of natural interest	     	<b>Silvia Zamponi</b> (+39 0737402210) <i>silvia.zamponi@unicam.it</i>

## OTHER R&D ORGANIZATIONS

### Technical scientific area and large equipment

Centre for structural survey equipment (NMR, MS) and advanced analytical technologies (HPLC, HPLC-MS)  
**Contacts:** Giovanni Rifaiani (+39 0737402208) - [giovanni.rafaiani@unicam.it](mailto:giovanni.rafaiani@unicam.it)  
**Web site:** <https://sst.unicam.it>

### Laboratory for microscopy

SEM and MicroRaman Laboratory for Structural Material Surveys  
**Contacts:** Marco Minicucci (+39 0737402554) - [marco.minicucci@unicam.it](mailto:marco.minicucci@unicam.it)  
**Web site:** <https://sst.unicam.it>

### Macro-sector services for teaching, internationalization and post-graduate

Technical management of educational managers, Student secretarial office, Student services office and international mobility, coordination of administrative-accounting management teaching and management projects for teaching  
**Contacts:** Andrea Braschi (+39 0737402005) - [direzione.generale@unicam.it](mailto:direzione.generale@unicam.it)  
**Web site:** <https://sst.unicam.it>

## COLLABORATIONS WITH COMPANIES

- Associati Fisiomed srl
- Chimec SpA
- Delta SpA
- Dipharma Francis srl
- Dompé Farmaceutici SpA
- Ecotech System srl
- Elantas Europe srl
- Elica SpA
- Fainplast srl
- Fileni SpA
- Fintel srl
- Indena SpA
- Irides srl (spin-off di Unicam)
- LOCCIONI srl
- MIDAC SpA
- Orim SpA
- Synbiotec srl

## PUBBLICAZIONI

- L. Alessandrini, et al. **A shelf-life study for the evaluation of a new biopackaging to preserve the quality of organic chicken meat.** Food Chemistry 2022, 371, 131134, DOI: 10.1016/j.foodchem.2021.131134.
- B. Bassetti, et al. **A Practical and Efficient Conversion of Luteolin into Luteoloside.** Synthesis-Stuttgart 2021, 53 (21), 4075-4078, DOI: 10.1055/a-1531-2385.
- I. Maule, et al. **Thermal Stability Evaluation of Nitroalkanes with Differential Scanning Calorimetry.** Organic Process Research & Development 2021, 25 (4), 781-788, DOI: 10.1021/acs.oprd.0c00433.
- C. Salvesi, et al. **Six-Month Synbio((R)) Administration Affects Nutritional and Inflammatory Parameters of Older Adults Included in the PROBIOSENIOR Project.** Microorganisms 2023, 11 (3), 801, DOI: 10.3390/microorganisms11030801
- C. Salvesi, et al. **Impact of a probiotic diet on well-being of healthy senior: THE PROBIOSENIOR PROJECT.** Journal of Applied Microbiology 2022, 133 (5), 2941-2953, DOI: 10.1111/jam.15747.
- S. Scortichini, et al. **Development and application of a solid-phase microextraction gas chromatography mass spectrometry method for analysing volatile organic compounds produced during cooking.** Journal of Mass Spectrometry 2020, 55 (11), e4534, DOI: 10.1002/jms.4534.
- M. Zannotti, et al. **Hydrocarbon degradation strategy and pyoverdine production using the salt tolerant Antarctic bacterium Marinomonas sp. ef1.** Rsc Advances 2023, 13 (28), 19276-19285, DOI: 10.1039/d3ra02536e.



## GENERAL INFORMATION

Università degli Studi di Catania  
Department of Civil Engineering and Architecture  
Via Santa Sofia 64 - 95125 Catania (CT)  
sito web: <http://www.dicar.unict.it/>

## CONTACTS

Prof. Ing. Matteo IGNACCOLO  
+39 0957382507

## DETAILED INFORMATION

**Staff:** 31 Full Professors  
60 Associate Professors  
29 Researchers  
3 Structured Technicians  
18 Administrative Technicians

**Registered students:** 1,200 (Academic year 2022/2023)

**Post Lauream Training:** 30 enrolled in Doctorates in assessment and mitigation of urban and territorial risks  
15 enrolled in II level Master in Environmental remediation of polluted areas for ecological transition  
14 Research fellows  
10 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### SEM

Analisi spettroscopiche SEM, FT-IR



**Alberta Latteri** (+39 0957382752)  
[alatter@unict.it](mailto:alatter@unict.it)

### Thermal properties

Synthesis and characterization of toughened thermoset blends. Process technology of polymeric fibre-reinforced composites. Comparative kinetic study of the thermal degradation of model polymers. Comparative kinetic study of the thermal degradation of nanocomposites. Synthesis and characterization of aromatic copolymers. Thermal characterization of films used on food packaging application. Physico-Chemical characterization of organic molecules. Synthesis and characterization of POSS nanoparticles



**Ignazio Blanco** (+39 0957382819)  
[iblanco@unict.it](mailto:iblanco@unict.it)

### Rheology

Study and measurement of thermodynamic and transport properties of polymeric and filled materials (e.g., specific heat, thermal conductivity, viscoelastic properties of polymers, and rheological properties)



**Antonella Patti**  
[antonella.patti@unict.it](mailto:antonella.patti@unict.it)

### 3D printing

Static and dynamic mechanical testing of materials, polymeric and non-polymeric, and composite materials. Additive manufacturing, available technologies: Fortud FDM 400mc, Object Eden260 Connex 1, LCD Precision, Ultimaker S5, Zortrax M200. Development of bioepoxy resins recyclable for eco-composite materials. Innovative materials for additive manufacturing: filaments from natural polymers; resin blends for LCD processes; innovative manufacturing processes. LCA analysis of composite materials. Development of nanofibers with surfaces decorated with nanostructures for photocatalysis



Gianluca Cicala (+39 0957382760)  
gcicala@unict.it

### Polymers

Realization of biopolymer matrix nanocomposites, capable of optimizing the mechanical-electrical conversion of low-frequency movements, developed by selecting materials for matrix, filler, and electrodes based on their green nature



Antonino Pollicino (+39 0957382797)  
apollicino@unict.it

## COLLABORATIONS WITH COMPANIES

- Advanced Composite Systems
- NTET Group

## PUBBLICAZIONI

- **"Modeling of a Bacterial Cellulose-based Composite in Bending Configuration"**, 2022 IEEE Sensors Applications Symposium, SAS 2022 - Proceedings, 2022.
- **"A Comparative Investigation of Deformation Transducers Based on Bacterial Cellulose and Different Ionic Liquids"**. Conference Record - IEEE Instrumentation and Measurement Technology Conference.
- **"Composition-controlled chemical bath deposition of Fe-doped NiO microflowers for boosting oxygen evolution reaction"**. International Journal of Hydrogen Energy, 2023, 48(48), pp. 18291–18300.
- **"Chemical Recycling of Fully Recyclable Bio-Epoxy Matrices and Reuse Strategies: A Cradle-to-Cradle Approach"**. Polymers, 2023, 15(13), 2809.
- **"A Regression Approach to Model Refractive Index Measurements of Novel 3D Printable Photocurable Resins for Micro-Optofluidic Applications"**. Polymers, 2023, 15(12), 2690.
- **"Predicting the Printability of Poly(Lactide) Acid Filaments in Fused Deposition Modeling (FDM) Technology: Rheological Measurements and Experimental Evidence"**. ChemEngineering, 2023, 7(1), 1.
- **"Design and manufacturing of a surface plasmon resonance sensor based on inkjet 3D printing for simultaneous measurements of refractive index and temperature"**. International Journal of Advanced Manufacturing Technology, 2023, 124(7-8), pp. 2261–2278.



## Dipartimento di Scienze Chimiche, Farmaceutiche ed Agrarie



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### GENERAL INFORMATION

Università degli Studi di Ferrara  
Department of Chemical, Pharmaceutical and Agricultural Sciences  
Via Luigi Borsari 46 - 44121 Ferrara (FE)  
sito web: <http://scf.unife.it/it>

### CONTACTS

Prof. Alberto CAVAZZINI  
+39 0532455331

Eleonora Bigoni - Responsabile Amministrativo (+39 0532293548)

### DETAILED INFORMATION

**Staff:** 10 Full Professors

27 Associate Professors

47 Researchers

12 Structured Technicians

**Registered students:** 1,021 (Academic year 2020/2021)

**Post Lauream Training:** 60 enrolled in Doctorate in Chemical Sciences

9 Research fellows

4 fellows

**Patents:** 8

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## GENERAL INFORMATION

**Università degli Studi di Ferrara**  
**Department of Engineering**  
 Via Giuseppe Saragat 1 - 44122 Ferrara (FE)  
 sito web: [https://de.unife.it/en?set\\_language=en](https://de.unife.it/en?set_language=en)

## CONTACTS

Prof. Marco FRANCHINI  
 +39 0532974930

## DETAILED INFORMATION

**Staff:** 18 Full Professors  
 32 Associate Professors  
 13 Researchers  
 4 Structured Technicians  
 6 Administrative Technicians  
 1 General Services

**Registered students:** 1,901 (Academic year 2022/2023)  
**Post Lauream Training:** 33 enrolled in doctoral of Engineering Science  
 19 Research fellows  
 19 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Circular economy

Study and optimization of microstructural and mechanical properties of secondary aluminium alloys



**Gian Luca Garagnani** (+39 0532974811)  
*grrglc@unife.it*

### SoC

Assessment of the efficiency in the removal of contaminants of emerging concern from water by means of innovative technologies



**Paola Verlicchi** (+39 0532974938)  
*paola.verlicchi@unife.it*

### Additive manufacturing

Study and optimization of process parameters of additive manufacturing of metallic alloys and influence on mechanical and microstructural properties



**Mattia Merlin** (+39 0532974831)  
*mattia.merlin@unife.it*

### Climate change

Climate change impacts on drinking water treatments



**Vittoria Grillini** (+39 0532974927)  
*vittoria.grillini@unife.it*

### Tribologia

Study of the tribological behaviour of coatings and surface treatments of metallic alloys



**Annalisa Fortini** (+39 0532974914)  
*annalisa.fortini@unife.it*

## COLLABORATIONS WITH COMPANIES

- Ali S.p.A. - Carpigiani
- Ansatech S.p.A.
- C.A.D.F. S.p.A.
- Centoform S.r.l.
- CNH Italia
- Dna Algo S.r.l.
- Ferrari S.p.A.
- Fonderie Mario Mazzucconi S.p.A.
- Iaselab S.r.l.
- IMV S.p.A.
- Lamberti S.p.A.
- Maserati S.p.A.
- Materiacustica S.r.l.
- Mechvib Engineering S.r.l.
- Nuovo Pignone Tecnologie S.r.l.
- Peen Service (Gruppo Norblast) S.r.l.
- Phononic Vibes S.r.l.
- Sidel S.p.A.
- Spal S.r.l.
- Unicom Group
- ZF Automotive Italia Srl - ZF Group S.p.A.

## PUBBLICAZIONI

- Gutiérrez, M., P. Verlicchi, and D. Mutavdžić Pavlović. "Study of the Influence of the Wastewater Matrix in the Adsorption of Three Pharmaceuticals by Powdered Activated Carbon" *Molecules* (MDPI), vol. 28, no. 5, 2023, 28052098 doi:10.3390/molecules28052098.
- "Drinking water from surface and ground water: production costs and influence of the climate change", (Proceeding di un convegno internazionale) lavoro presentato in collaborazione con HERA.
- "Improvement in the pharmaceutical removal from hospital wastewater in a full-scale hybrid PAC-MBR", (Proceedings di un convegno internazionale), Lavoro presentato in collaborazione con HERA.
- Vulpio, A., Oliani, S., Suman, A., Zanini, N.; Saccenti, P. "A Mechanistic Model for the Predictive Maintenance of Heavy-Duty Centrifugal Fans Operating With Dust-Laden Flows", *Journal of Engineering for Gas Turbines and Power*, 2023, 145(1), 011007.
- Suman, A., Vulpio, A., Pinelli, M., D'Amico, L., "Microtomography of Soil and Soot Deposits: Analysis of Three-Dimensional Structures and Surface Morphology", *Journal of Engineering for Gas Turbines and Power*, 2022, 144(10), 101010.
- Suman, A., Vulpio, A., Casari, N., di Lillo, F., D'Amico, L., "Analysis of soil and soot deposits by X-ray computed microtomography", *Powder Technology*, 2021, 394, pp. 608–621.
- Casari, N., Fortini, A., Pinelli, M., Vulpio, A., Zanini, N., "Measurement approaches for the analysis of soil layer by microparticle adhesion", *Measurement: Journal of the International Measurement Confederation*, 2022, 187, 110185.



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**DICEA**  
DIPARTIMENTO  
DI INGEGNERIA CIVILE  
E AMBIENTALE



## GENERAL INFORMATION

Università degli Studi di Firenze  
Department of Civil and Environmental Engineering (DICEA)

Via Santa Marta 3 - 50139 Firenze (FI)

sito web: <https://www.dicea.unifi.it/>

## CONTACTS

Prof. Claudio LUBELLO

+39 0552758811

## DETAILED INFORMATION

**Staff:** 9 Full Professors

23 Associate Professors

19 Researchers

6 Structured Technicians

10 Administrative Technicians

**Registered students:** 900 (Academic year 2021/2022)

**Post Lauream Training:** 50 enrolled in the International doctoral program in Civil and Environmental Engineering

20 Research fellows

17 fellows

**Patents:** 2

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Circular economy

Biological processes based on granular biomass for the recovery of nutrients from wastewater



**Tommaso Lotti** (+39 3288973191)  
*tommaso.lotti@unifi.it*

### Trattamento acque

Reduction and recovery of resources from sludge



**Riccardo Gori** (+39 3394609634)  
*riccardo.gori@unifi.it*

### Bioeconomy

Modelling and control of microbial ecosystems for the production of polymers in wastewater treatment



**Giulio Munz** (+39 335590746)  
*giulio.munz@unifi.it*

### Trattamento acque

Monitoring of microplastics in wastewater treatment



**Riccardo Gori** (+39 3394609634)  
*riccardo.gori@unifi.it*

### Sulphur

Treatment and recovery of matter and energy in sulphur rich gaseous and liquid streams



**Giulio Munz** (+39 3355907476)  
*giulio.munz@unifi.it*

### Trattamento acque

Biopolymers recovery from excess sludge deriving from biological wastewater treatment



**Tommaso Lotti** (+39 3288973192)  
*tommaso.lotti@unifi.it*



## OTHER R&D ORGANIZATIONS

### Cer2co

Tanning Waste Research Center. Joint University-Enterprise Laboratory  
**Contacts:** Giulio Munz (+39 3355907476) - giulio.munz@unifi.it

### UNALAB

Joint public private laboratory of Sanitary and Environmental Engineering  
**Contacts:** Claudio Lubello (+39 335337420) - claudio.lubello@unifi.it

## COLLABORATIONS WITH COMPANIES

- Alia servizi Ambientali
- Consorzio cuoiodepur S.p.A.
- Gida S.p.A.
- Itaprogetti Engineering S.p.A.
- Publiacqua S.p.A.

## PUBBLICAZIONI

- Lotti, T., Kleerebezem, R., Lubello, C., van Loosdrecht, M.C.M., "**Physiological and kinetic characterization of a suspended cell anammox culture**", (2014) *Water Research*, 60, pp. 1-14
- Ruggero, F., Gori, R., Lubello, C., "**Methodologies to assess biodegradation of bioplastics during aerobic composting and anaerobic digestion: A review**", (2019) *Waste Management and Research*, 37 (10), pp. 959-975
- Lotti, T., Carretti, E., Berti, D., Martina, M.R., Lubello, C., Malpei, F., "**Extraction, recovery and characterization of structural extracellular polymeric substances from anammox granular sludge**" (2019) *Journal of Environmental Management*, 236, pp. 649-656
- Mannucci, A., Munz, G., Mori, G., Lubello, C. "**Anaerobic treatment of vegetable tannery wastewaters: A review**" (2010) *Desalination*, 264 (1-2), pp. 1-8
- Ruggero, F., Onderwater, R.C.A., Carretti, E., Roosa, S., Benali, S., Raquez, J.-M., Gori, R., Lubello, C., Wattiez, R. "**Degradation of Film and Rigid Bioplastics During the Thermophilic Phase and the Maturation Phase of Simulated Composting**" (2021) *Journal of Polymers and the Environment*, 29 (9), pp. 3015-3028
- Polizzi, C., Alatríste-Mondragón, F., Munz, G. "**The role of organic load and ammonia inhibition in anaerobic digestion of tannery fleshin**" (2018) *Water Resources and Industry*, 19, pp. 25-34
- Polizzi, C., Gabriel, D., Munz, G. "**Successful sulphide-driven partial denitrification: Efficiency, stability and resilience in SRT-controlled conditions**" (2022) *Chemosphere*, 295, art. no. 133936



## GENERAL INFORMATION

**Università degli Studi di Genova**  
**Department of Chemistry and Industrial Chemistry**

Via Dodecaneso 31 - 16146 Genova (GE)

sito web: <http://chimica.unige.it/>

## CONTACTS

Prof. Luca BANFI

+39 0103536113

## DETAILED INFORMATION

**Staff:** 12 Full Professors

19 Associate Professors

21 Researchers

15 Structured Technicians

7 Administrative Technicians

**Registered students:** 427 (Academic year 2022/2023)

**Post Lauream Training:** 90 enrolled in doctoral programs in Science and Technology of Chemistry and Materials

10 Research fellows

12 fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Remediation

Traditional and emerging membrane processes for the treatment of wastewaters



**Antonio Comite**  
[antonio.comite@unige.it](mailto:antonio.comite@unige.it)

### Plant security

Smart systems for monitoring performance/quality and for failure identification in chemical plants



**Alberto Servida**  
[servida@unige.it](mailto:servida@unige.it)

### Circular economy

Sustainable processes for the synthesis of metal nanoparticles and for the recovery of precious metals from electronic industry waste



**Andrea Reverberi**  
[andrea.reverberi@unige.it](mailto:andrea.reverberi@unige.it)

### Green chemistry

New green processes using photocatalysis and air as oxidant



**Andrea Basso**  
[andrea.basso@unige.it](mailto:andrea.basso@unige.it)

### Bioeconomy

Pretreatment and conversion for the valorization of lignocellulosic biomass and of biomass derived from depuration processes



**Antonio Comite**  
[antonio.comite@unige.it](mailto:antonio.comite@unige.it)

### Renewable energies

Fuel cells



**Paola Costamagna**  
[paola.costamagna@unige.it](mailto:paola.costamagna@unige.it)

### Remediation

Use of synthetic minerals for recovery of pollutants from wastewater



**Anna Maria Cardinale**  
[cardinal@chimica.unige.it](mailto:cardinal@chimica.unige.it)

<b>Remediation</b>	Development of materials and processes for wastewater treatment and abatement of emerging pollutants by photocatalysis. Development of materials and processes for the synthesis of membranes for antibacterial applications by photocatalysis	    	<b>Maurizio Ferretti</b> <i>ferretti@chimica.unige.it</i>
<b>Circular economy</b>	Recovery and reuse of permanent magnets from inverter engines of washing machines	    	<b>Davide Peddis</b> <i>davide.peddis@unige.it</i>
<b>Bioeconomy</b>	Synthesis of high added value substances from renewable sources, also using biocatalysis and multicomponent reactions	    	<b>Luca Banfi</b> <i>banfi@chimica.unige.it</i>
<b>Renewable energies</b>	Synthesis of new nanostructured materials for applications in photoluminescent devices and solar concentrators	    	<b>Federico Locardi</b> <i>federico.locardi@unige.it</i>
<b>Pollutants monitoring</b>	Monitoring of emerging contaminants in water through innovative approaches	    	<b>Emanuele Magi</b> <i>emanuele.magi@unige.it</i>
<b>Renewable energies</b>	CO <sub>2</sub> entrapment processes and processes for production and/or separation of hydrogen	    	<b>Camilla Costa</b> <i>camilla.costa@unige.it</i>

## COLLABORATIONS WITH COMPANIES

- AEP Polymers
- AmSpec
- Angelini
- ASG Superconductors
- AST
- Attilio Carmagnani
- BIOINDUSTRIA
- Clariant
- COCIV
- Danieli TELEROBOTS
- Eco2Energy
- Eurofins
- FACI
- FAMGA
- Ferrania
- FINCANTIERI
- Fratelli Parodi
- GEEG
- Gemmate Technologies
- H2Energy
- IREN
- IREOS
- IRETI
- Istituto Italiano della Saldatura
- ITACAT
- ItalianaCoke
- Lamberti
- MECTRON
- MICAMO
- NuovaPignone
- PhaseMotion
- Pirelli
- PROGER
- Receng
- Refuel
- RINA
- SILOR
- SIMAM
- Sutter Industries
- TECHNOGENE
- Themis

## PUBBLICAZIONI

- Alberti, S., Comite, A., Pagliero, M., Magi, E., Codda, G., Sossai, D., Caratto, V. and Ferretti, M., "**Performance Comparison among KN95-Certified Face Masks by Classical Techniques and Innovative Test**", Applied Sciences-Basel 2022, 12.
- Caputo, S., Kovtun, A., Bruno, F., Ravera, E., Lambruschini, C., Melucci, M. and Moni, L., "**Study and application of graphene oxide in the synthesis of 2,3-disubstituted quinolines via a Povarov multicomponent reaction and subsequent oxidation**", Rsc Advances 2022, 12, 15834-15847.
- Damonte, G., Maddalena, L., Fina, A., Cavallo, D., Muller, A. J., Caputo, M. R., Mariani, A. and Monticelli, O., "**On novel hydrogels based on poly(2-hydroxyethyl acrylate) and polycaprolactone with improved mechanical properties prepared by frontal polymerization**", European Polymer Journal 2022, 171.
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- MacKeown, H., Benedetti, B., Di Carro, M. and Magi, E., "**The study of polar emerging contaminants in seawater by passive sampling: A review**", Chemosphere 2022, 299.
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## MORE INFO

Ph.D. programmes in collaboration with companies. European projects in collaboration with companies. Participation to national or regional research projects in collaboration with companies.



# UNIVERSITÀ DEGLI STUDI DI GENOVA

## GENERAL INFORMATION

**Università degli Studi di Genova**  
**Department of Civil, Chemical and Environmental Engineering (DICCA)**  
Via Montallegro 1 - 16145 Genova (GE)  
sito web: <http://dicca.unige.it/en/>

## CONTACTS

Prof. Alessandro BOTTARO  
+39 0103352540

## DETAILED INFORMATION

**Staff:** 24 Full Professors  
35 Associate Professors  
33 Researchers  
30 Structured and Administrative Technicians

**Registered students:** 160 (Academic year 2022/2023)

**Post Lauream Training:** 13 enrolled in doctoral programs in Dottorato in Chemical, Materials and Processes Engineering  
25 Research fellows  
7 fellows

**Patents:** 11 10 with 100% entitled to UNIGE; 1 in co-entitlement (33% UNIGE)

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Environmental biotechnology

Use of microalgae and cyanobacteria for CO<sub>2</sub> capture



**Attilio Converti** (+39 0103352593)  
[converti@unige.it](mailto:converti@unige.it)

### Valorizzazione biomasse

Energy valorisation of biomass and waste in a circular economy strategy, simulation of thermochemical plants



**Cristina Moliner** (+39 0103352912)  
[cristina.moliner@unige.it](mailto:cristina.moliner@unige.it)

### Active packaging

Biomaterial production for active food packaging applications



**Patrizia Perego** (+39 0103352916)  
[p.perego@unige.it](mailto:p.perego@unige.it)

### Biofuels

Anaerobic digestion of agro-industrial residues for a zero-waste approach



**Attilio Converti** (+39 0103352593)  
[converti@unige.it](mailto:converti@unige.it)

### SOFC-SOEC

Fabrication and characterization of innovative solid oxide cells for the generation/conversion of green hydrogen



**Antonio Barbucci** (+39 3292104511)  
[barbucci@unige.it](mailto:barbucci@unige.it)

### Water

Electrochemical treatments for wastewater and removal of organic pollutants from groundwater



**Marco Panizza** (+39 0103356032)  
[marco.panizza@unige.it](mailto:marco.panizza@unige.it)

<b>Hydrogen</b>	Study of the hydrogen supply chain as an energy vector and fuel cells at high temperature and innovative electrolyzers	      	<b>Barbara Bosio</b> (+39 3408844029) <i>barbara.bosio@unige.it</i>
<b>Waste valorisation</b>	Agro-food waste valorization via extraction and microencapsulation of high added value compounds	      	<b>Patrizia Perego</b> (+39 0103352916) <i>p.perego@unige.it</i>
<b>Biofuels</b>	Medium-low temperature pyrolysis for the production of chemicals and biofuels	      	<b>Alessandro Alberto Casazza</b> (+39 0103352584) <i>alessandro.casazza@unige.it</i>
<b>Corrosion</b>	Study of electrochemical corrosion and corrosion protection	      	<b>Marina Delucchi</b> (+39 3493675493) <i>marina.delucchi@unige.it</i>
<b>Polymeric nanoparticles</b>	Nanoparticles production for target drug delivery	      	<b>Roberta Campardelli</b> (+39 0103352914) <i>roberta.campardelli@unige.it</i>
<b>Polyhydroxyalkanoates</b>	Processes for biopolymers production through microorganisms from agri food wastes	      	<b>Margherita Pettinato</b> (+39 0103352913) <i>margherita.pettinato@unige.it</i>
<b>Chemical bioengineering</b>	Fabrication of electrospun prostheses for small diameters vessel regeneration	      	<b>Pier Francesco Ferrari</b> (+39 0103352913) <i>pier.francesco.ferrari@unige.it</i>
<b>Environmental biotechnology</b>	Urban and Industrial wastewater treatment by microorganisms	      	<b>Alessandro Alberto Casazza</b> (+39 0103352584) <i>alessandro.casazza@unige.it</i>
<b>Electrolysers</b>	New electrocatalysts for Anion Exchange Membrane and Alkaline Water Electrolyzers at industrial scale	      	<b>Ombretta Paladino</b> (+39 3292104457) <i>paladino@unige.it</i>
<b>Batteries</b>	Electrochemical procedures for the analysis of SOH during fast charging on Li-ion batteries	      	<b>M. Paola Carpanese</b> (+39 3392142480) <i>carpanese@unige.it</i>
<b>Sospensioni granulari</b>	Characterisation of the mechanical properties of particulate flows (fluid + solid particles) either in laminar or turbulent flow conditions	      	<b>Marco Mazzuoli</b> (+39 3387142904) <i>marco.mazzuoli@unige.it</i>
<b>Green steel</b>	Simulation of steel processes and model validation	      	<b>Elisabetta Arato</b> (+39 3467439478) <i>elisabetta.arato@unige.it</i>
<b>simulazione di processo</b>	Feasibility studies of traditional and innovative chemical processes, multiscale simulation of chemical processes using home-made and commercial software and validation of models	      	<b>Elisabetta Arato</b> (+39 3467439478) <i>elisabetta.arato@unige.it</i>
<b>Wastewater</b>	Plasmonic nano-photocatalysts for effective treatment of wastewater effluents	      	<b>Ombretta Paladino</b> (+39 3292104457) <i>paladino@unige.it</i>
<b>Emulsions</b>	Encapsulation of bioactive compounds in emulsions	      	<b>Roberta Campardelli</b> (+39 0103352914) <i>roberta.campardelli@unige.it</i>
<b>Microplastics</b>	Transport processes of microplastics, marine debris and pathogens associated with waves, currents and sediments	      	<b>Marco Mazzuoli</b> (+39 3387142904) <i>marco.mazzuoli@unige.it</i>

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## OTHER R&D ORGANIZATIONS

### **TICASS – Tecnologie Innovative per il Controllo Ambientale e lo Sviluppo Sostenibile**

TICASS is a non-profit consortium established in 2010 and is the Managing Body of the Ligurian regional Research and Innovation Hub "Energy, Environment, Sustainable Development" which has about 100 associates among SMEs, large companies and research centers

**Contacts:** Elisabetta Arato - [elisabetta.arato@ticass.it](mailto:elisabetta.arato@ticass.it)

**Web site:** <https://www.ticass.it/>

## COLLABORATIONS WITH COMPANIES

- ABB
- Ecospray
- IcePharma
- Infineum
- Paul Wurth

## PUBBLICAZIONI

- **"Process analysis of a molten carbonate fuel cell on-board application to reduce vessel CO<sub>2</sub> emissions"** - DOI: 10.1016/j.cep.2023.109415
- **"Experimental and Modeling Investigation of CO<sub>3</sub>=/OH- Equilibrium Effects on Molten Carbonate Fuel Cell Performance in Carbon Capture Applications"** - DOI: 10.3389/fenrg.2021.669761
- **"Preliminary tests for the thermo-chemical conversion of biomass in a spouted bed pilot plant"** - DOI: 10.1002/cjce.23223
- **"Reduction of nitrates in waste water through the valorization of rice straw: LIFE LIBERNITRATE project"** - DOI: 10.3390/su10093007
- **"Direct numerical simulations of ripples in an oscillatory flow"** - DOI: 10.1017/jfm.2018.1005
- **"Zein electrospun fibers purification and vanillin impregnation in a one-step supercritical process to produce safe active packaging"** - DOI: 10.1016/j.foodhyd.2021.107082
- **"Innovations in smart packaging concepts for food: An extensive review"** - DOI: 10.3390/foods9111628



## Università degli Studi di Messina

Dipartimento di Scienze Chimiche, Biologiche, Farmaceutiche ed Ambientali

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### GENERAL INFORMATION

Università degli Studi di Messina

Department of Chemical, Biological, Pharmaceutical and Environmental Science

Viale F. Stagno d'Alcontres 31 – 98166 Messina (ME)

sito web: <http://www.unime.it/dipartimenti/chibiofaram>

### CONTACTS

Prof. Sebastiano CAMPAGNA

+39 0906765709

Starting from Academic year A.A. 2020/21, the Department has activated a three-year course of studies in Sustainability and Environmental Innovation. The course complements the existing course of studies in Chemistry, providing a less specialized but more interdisciplinary preparation in the fields of interest for environmental issues

### DETAILED INFORMATION

**Staff:** 31 Full Professors

68 Associate Professors

50 Researchers

18 Structured Technicians

13 Administrative Technicians

8 General Services

**Registered students:** 2,700 (Academic year 2019/2020)

**Post Lauream Training:** 58 enrolled in Doctorates in Chemical sciences, Biology, industrial chemistry

27 Research fellows and fellows

**Patents:** 3

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### OTHER R&D ORGANIZATIONS

**CASPE (Laboratory of Catalysis for Sustainable Energy Production)- Reference center for INSTM**

Centre for the study of functional materials and analytical technologies for sustainable processes  
**Contacts:** Siglinda Perathoner (+39 0906765609 - +39 3478768833) - [perathon@unime.it](mailto:perathon@unime.it)

**Interuniversity Research Center for artificial Photosynthesis (SOLARCHEM)**

Interuniversity center including Messina, Bologna and Ferrara Universities  
**Contacts:** Sebastiano Campagna (+39 0906765709) - [campagna@unime.it](mailto:campagna@unime.it)

**Laboratory for supramolecular photochemistry and ultrafast spectroscopy**

**Contacts:** Fausto Puntoriero (+39 0906765727) - [fpuntoriero@unime.it](mailto:fpuntoriero@unime.it)  
**Web site:** <https://gruppodifotochimica.wixsite.com/photochemistry>



# Università degli Studi di Messina

## DIPARTIMENTO DI INGEGNERIA



### GENERAL INFORMATION

Università degli Studi di Messina  
Department of Engineering

Contrada di Dio - 98166 Messina (ME)

sito web: <https://www.unime.it/it/dipartimenti/ingegneria>

### CONTACTS

Prof. Eugenio GUGLIELMINO

+39 0906765911

### DETAILED INFORMATION

**Staff:** 32 Full Professors

39 Associate Professors

30 Researchers

11 Structured Technicians

12 Administrative Technicians

3 General Services

**Registered students:** 500 (Academic year 2022/2023)

**Post Lauream Training:** 21 enrolled in Doctorates in Chemistry and Materials Engineering and Constructions, Cyber Physical Systems, Civil, Environmental and Safety Engineering, Industrial Engineering, Engineering

11 Research fellows

12 Fellows

**Patents:** 13

### DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

### R&D ACTIVITIES DETAIL

#### Stoccaggio termochimico

Design, synthesis and characterization of nanostructured materials for applications in heterogeneous catalysis for the synthesis of chemicals and environmental applications and for the storage and reuse of thermal energy. Currently, the research activity is focused on the design and synthesis of more effective materials for the storage of thermal energy at low and medium temperatures, in the form of chemical energy



**Candida Milone** (+39 0906765911)  
[candida.milone@unime.it](mailto:candida.milone@unime.it)

#### Heterogeneous catalysis

Development of catalysts and catalytic processes based on oxides of transition and earth metals, as an alternative to the supported noble metals, for processes of environmental depollution in liquid and gaseous phase through total oxidation reactions. Development of catalysts based on metal oxides for selective oxidation processes with oxygen for green chemistry technologies and for preferential oxidation of CO in hydrogen streams (PROX)



**Francesco Arena** (+39 0906765494)  
[francesco.arena@unime.it](mailto:francesco.arena@unime.it)

#### Environmental pollutants

Development of innovative chemical sensors based on new nanomaterials for the monitoring of water and environmental pollutants



**Consuelo Celesti** (+39 0906765264)  
[ccelesti@unime.it](mailto:ccelesti@unime.it)

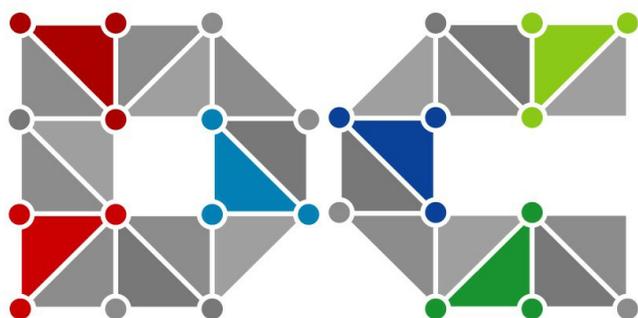
<b>Nanomaterials</b>	Development of advanced synthetic methodologies for the organic functionalization of graphene-based nanomaterials for applications in biomedical, sensors and environmental fields. Development of natural and synthetic polymeric biomaterials for applications in tissue engineering	     	<b>Daniela Iannazzo</b> (+39 0906765569) <i>diannazzo@unime.it</i>
<b>Risk analysis</b>	Assessments supporting the technological development of products and processes based on safety analysis and estimations of impacts on health and the environment	     	<b>Maria Francesca Milazzo</b> (+39 09096765595) <i>mfmilazzo@unime.it</i>
<b>Biomass</b>	Innovative technologies for the conversion and valorization of biomasses deriving from the citrus industry processing waste. The aim of the research activity is to study the transformation of residues, resulting from the citrus processing industry, by Hydrothermal Carbonization Process (HTC) into a high value-added biofuel (biochar)	     	<b>Claudia Espro</b> (+39 0906765264) <i>espro@unime.it</i>
<b>Chemical sensors</b>	Development of sensors and biosensors with electrochemical, acoustic, conductometric detection for applications in the pharmaceutical, food, environmental, industrial and biomedical sectors. Creation and testing of prototypes for the monitoring of (bio) markers in physiological fluids (exhaled, blood, urine)	     	<b>Giovanni Neri</b> (+39 0906765297) <i>gneri@unime.it</i>

## OTHER R&D ORGANIZATIONS

<b>Civil and Building Engineering Labs</b>	<b>Contacts:</b> Serena Repici (administrative secretary) - <a href="mailto:serena.repici@unime.it">serena.repici@unime.it</a> <b>Web site:</b> <a href="https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-civile-edile-0">https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-civile-edile-0</a>
<b>ICT and Electronic Engineering Labs</b>	<b>Contacts:</b> Serena Repici (administrative secretary) - <a href="mailto:serena.repici@unime.it">serena.repici@unime.it</a> <b>Web site:</b> <a href="https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-elettronica-informatica-0">https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-elettronica-informatica-0</a>
<b>Industrial Engineering Labs</b>	<b>Contacts:</b> Serena Repici (administrative secretary) - <a href="mailto:serena.repici@unime.it">serena.repici@unime.it</a> <b>Web site:</b> <a href="https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-elettronica-informatica-0">https://www.unime.it/it/dipartimenti/ingegneria/laboratorio-ingegneria/laboratori-dellarea-elettronica-informatica-0</a>

## PUBBLICAZIONI

- Materials, 2023, 16(13),4818
- Applied Sciences, 2023, 13(13),7843
- Applied Catalysis B: Environmental, 2022, 300,120715
- Nanomaterials, 2023, 13(16),2380
- ChemElectroChem, 2023, 10(13),e202300004
- Molecular Catalysis, 2023 544,113182
- Materials, 2022, 15(22),8208



SUSCHEM<sup>IT</sup>



# DIPCHI

DIPARTIMENTO DI CHIMICA

## GENERAL INFORMATION

Università degli Studi di Milano  
 Department of Chemistry  
 Via Golgi 19 - 20133 Milano (MI)  
 sito web: <https://eng.chimica.unimi.it/ecm/home>

## CONTACTS

Prof. Luigi LAY  
 +39 0250314269

## DETAILED INFORMATION

**Staff:** 21 Full Professors  
 41 Associate Professors  
 27 Researchers  
 25 Structured Technicians  
 12 Administrative Technicians  
 1 General Service  
**Registered students:** 853 (Academic year 2022/2023)  
**Post Lauream Training:** 40 enrolled in doctoral program in Chemistry  
 34 enrolled in doctoral program in Industrial Chemistry  
 20 enrolled in II level Master in Process chemistry applied to Active Pharmaceutical Ingredients  
 8 Research fellows  
 10 fellows  
**Patents:** 27 <https://www.unimi.it/en/third-mission/innovation-research-and-business/patents-and-technologies>

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Semiconductors

Benzimidazole compounds for "n" doping type semiconductors, additives for solar cells and fluorophores for luminescent devices



**Gabriele Di Carlo** (+39 0250314397)  
[gabriele.dicarlo@unimi.it](mailto:gabriele.dicarlo@unimi.it)

### Sistemi cargo-delivery

Wireless chiral electropump systems for drug delivery and analyte separation



**Serena Arnaboldi** (+39 0250314216)  
[serena.arnaboldi@unimi.it](mailto:serena.arnaboldi@unimi.it)

### Vaccini glicoconiugati

Design and synthesis of pathogen-associated oligosaccharides with potential immunological activity



**Luigi Lay** (+39 0250314062)  
[luigi.lay@unimi.it](mailto:luigi.lay@unimi.it)

### Solar cells

Coordination compounds for application in solar cells



**Alessia Colombo** (+39 0250314414)  
[alessia.colombo@unimi.it](mailto:alessia.colombo@unimi.it)

<b>Non-invasive analysis</b>	Development and application of new analytical methodologies for the micro-invasive, non-invasive and in-situ analyses of materials of artistic and archaeological interest	    	<b>Vittoria Guglielmi</b> (+39 0250314426) <i>vittoria.guglielmi@unimi.it</i>
<b>Nanoparticles</b>	Preparation and characterization of organic-inorganic hybrid nanocomposites for diagnostic and therapeutic purposes	    	<b>Daniela Maggioni</b> (+39 0250314350) <i>daniela.maggioni@unimi.it</i>
<b>Sensors</b>	Innovative nanomaterials for sensoristic applications in medical and environmental fields	    	<b>Eleonora Pargoletti</b> (+39 0250314210) <i>eleonora.pargoletti@unimi.it</i>
<b>Drug design</b>	Computational modeling of peptidomimetics and glycomimetics	    	<b>Laura Belvisi</b> (+39 0250314086) <i>laura.belvisi@unimi.it</i>
<b>Antimicrobial resistance</b>	Design and synthesis of bioactive compounds (e.g., antibacterial, antiviral, antitumoral)	    	<b>Sara Sattin</b> (+39 0250314096) <i>sara.sattin@unimi.it</i>
<b>Sensors</b>	Development of new electroanalytical techniques; study and synthesis and characterization of nanostructured hybrid material for modified electrodes (for sensorial purposes) to be used in the determination, even in traces, of emerging pollutants in environmental matrices	    	<b>Luigi Falciola</b> (+39 0250314057) <i>luigi.falciola@unimi.it</i>
<b>Carbon oxide</b>	"Phosgene free" synthetic methods, with possible industrial relevance, of isocyanates, carbamates and ureas from nitroarenes or amines	    	<b>Francesco Ferretti</b> (+39 0250314368) <i>francesco.ferretti@unimi.it</i>
<b>Drug design</b>	Computational studies of bioactive molecules and characterization of the interactions with biological targets	    	<b>Monica Civera</b> (+39 0250314082) <i>monica.civera@unimi.it</i>
<b>Adsorbent materials</b>	Development of sustainable adsorbive photocatalytic materials for aqueous and gaseous matrices remediation	    	<b>Ermelinda Falletta</b> (+39 0250314410) <i>ermelinda.falletta@unimi.it</i>
<b>Carbon capture</b>	Synthesis and characterization of Metal-Organic Frameworks (MOFs) for energy/environmental application	    	<b>Lucia Carlucci</b> (+39 0250314445) <i>lucia.carlucci@unimi.it</i>
<b>LCA</b>	Conversion of ceramic plants to be powered by hydrogen. Study of the impact on the quality of the products. LCA studies	    	<b>Claudia Bianchi</b> (+39 0250314253) <i>claudia.bianchi@unimi.it</i>
<b>Sintesi biocatalizzate</b>	Biocatalysis with isolated enzymes. Synthesis of flavor enhancers and nutraceuticals of natural origin. Biocatalyzed degradation of natural and non-natural polymers	    	<b>Carlo Morelli</b> (+39 0250314099) <i>carlo.morelli@unimi.it</i>
<b>Environmental monitoring</b>	Environmental chemical analyzes applied to the study of atmospheric pollution, water and ashes from the combustion of solid urban waste	    	<b>Paola Fermo</b> (+39 0250314246) <i>paola.fermo@unimi.it</i>
<b>Products</b>	High-value chemicals (biodegradable surfactants, protein hydrolysate) from agro-food wastes and by-products	    	<b>Giovanna Speranza</b> (+39 0250314097) <i>giovanna.speranza@unimi.it</i>

<b>Flow chemistry</b>	Flow chemistry: catalytic reactors and micro(meso) flow reactors for the synthesis of pharmaceutical intermediates	    	<b>Alessandra Puglisi</b> (+39 0250314189) <i>alessandra.puglisi@unimi.it</i>
<b>Heterogeneous catalysis</b>	Development and optimization of heterogeneous catalysts for green chemistry (valorization of biomass) and for processes of environmental chemistry (water and air)	    	<b>Antonella Gervasini</b> (+39 0250314254) <i>antonella.gervasini@unimi.it</i>
<b>Waste water</b>	Valorization of waste water from agri-food sector: nutrients recovery and water remediation	    	<b>Ermelinda Falletta</b> (+39 0250314410) <i>ermelinda.falletta@unimi.it</i>
<b>Ionic liquids</b>	Innovative media (environmentally friendly and/or for safe processing): ionic liquids and deep eutectic solvents, including chiral ones	    	<b>Patrizia Romana Mussini</b> (+39 0250314211) <i>patrizia.mussini@unimi.it</i>
<b>CO2 reduction</b>	Synthesis of polynuclear metal complexes for OLED devices, bulk heterojunction or DSSC solar cells, and as catalysts for electrochemical CO2 reduction	    	<b>Monica Panigati</b> (+39 0250314352) <i>monica.panigati@unimi.it</i>
<b>Electroactive materials</b>	Electrochemical and electroanalytical techniques applied to the characterization and preparation of electroactive molecules and materials	    	<b>Patrizia Romana Mussini</b> (+39 0250314211) <i>patrizia.mussini@unimi.it</i>
<b>Flame retardants</b>	Synthesis of bio-inspired polymeric flame retardants for cellulosic fabrics and polyurethane foams	    	<b>Jenny Alongi</b> (+39 0250314108) <i>jenny.alongi@unimi.it</i>
<b>Luminescence</b>	Coordination compounds for application in biomedicine and in luminescent devices	    	<b>Claudia Dragonetti</b> (+39 0250314425) <i>claudia.dragonetti@unimi.it</i>
<b>Polymer degradation</b>	Hydrolytic, thermal and photochemical degradation of polymeric materials	    	<b>Elisabetta Ranucci</b> (+39 0250314132) <i>elisabetta.ranucci@unimi.it</i>
<b>Nitrogen heterocycles</b>	Synthesis of nitrogen heterocyclic compounds and allylic amines through activation of C-H bonds by nitroarenes, catalyzed by transition metal complexes	    	<b>Fabio Ragaini</b> (+39 0250314373) <i>fabio.ragaini@unimi.it</i>
<b>Ecosustainable materials</b>	Design of nanostructured materials for the production of energy and fine chemicals from biomass	    	<b>Alberto Villa</b> (+39 0250314361) <i>alberto.villa@unimi.it</i>
<b>Renewable fuels</b>	Synthesis and study of electro- and photo-catalysts for the production of hydrocarbons and hydrogen from CO2 reduction and water splitting	    	<b>Ivan Grigioni</b> (+39 0250314247) <i>ivan.grigioni@unimi.it</i>
<b>Optoelectronics</b>	Organic and hybrid inorganic-materials for optoelectronics	    	<b>Elena Cariati</b> (+39 0250314370) <i>elena.cariati@unimi.it</i>
<b>Flow chemistry</b>	Synthesis of chiral API or intermediates of pharmaceutical interest by using ad hoc designed 3D-printed micro(meso) reactors and biodegradable, nature-derived alternative solvents	    	<b>Maurizio Benaglia</b> (+39 0250314171) <i>maurizio.benaglia@unimi.it</i>
<b>Trasferimento idrogeno</b>	Visible light-promoted methodologies for hydrogen transfer reactions and formation of C-C and C-heteroatom bonds	    	<b>Luca Pignataro</b> (+39 0250314090) <i>luca.pignataro@unimi.it</i>

<b>Anti-tumour drugs</b>	Design and synthesis of new drug release systems; design and synthesis of small-molecule ligands for clinically relevant protein targets	    	<b>Alberto Dal Corso</b> (+39 0250314076) <i>alberto.dalcorso@unimi.it</i>
<b>Natural products</b>	Isolation and characterization of natural products	    	<b>Daniele Passarella</b> (+39 0250314081) <i>daniele.passarella@unimi.it</i>
<b>Preventive diagnostics</b>	Software and web platform development for spectroscopic molecular characterization and early diagnosis of Parkinson's disease	    	<b>Michele Ceotto</b> (+39 0250314258) <i>michele.ceotto@unimi.it</i>
<b>Hydrazine</b>	Synthesis, reactivity and applications of hydrazinic containing compounds	    	<b>Dario Perdicchia</b> (+39 0250314155) <i>dario.perdicchia@unimi.it</i>
<b>Industrial chemistry</b>	Experimental and simulation study of separation processes of industrial interest through distillation, absorption, adsorption. Synthesis, characterization and experimental tests of catalysts for gas-solid (Fischer-Tropsch, methanol) or solid-liquid (hydrogenations and oxidations) reactions. Use of process simulation software for optimization and development of technologies. Availability of a virtual immersive room for visits and missions inside chemical plants	    	<b>Carlo Pirola</b> (+39 0250314283) <i>carlo.pirola@unimi.it</i>
<b>Pharmaceutical products</b>	X-ray powder and single crystal diffraction on solid pharmaceutical forms; polymorphs and solvates. Synthesis and characterization of porous materials (metal-organic frameworks, MOFs) for gas adsorption and separation	    	<b>Valentina Colombo</b> (+39 0250314450) <i>valentina.colombo@unimi.it</i>
<b>Photoelectrocatalysis</b>	Development and characterization of efficient and sensitive photocatalysts for solar energy conversion and environmental applications	    	<b>Maria Vittoria Dozzi</b> (+39 0250314298) <i>maria vittoria.dozzi@unimi.it</i>
<b>Sintesi stereoselettiva</b>	Design and synthesis of new Bronsted acids and chiral Lewis bases as organic catalysts to promote stereoselective reactions	    	<b>Sergio Rossi</b> (+39 0250314166) <i>sergio.rossi@unimi.it</i>
<b>Organic synthesis</b>	Design and synthesis of bioactive molecules and materials	    	<b>Alessandra Silvani</b> (+39 0250314080) <i>alessandra.silvani@unimi.it</i>
<b>Adsorbent materials</b>	Organic or organometallic adsorbent materials (MOFs, COFs) and their composites for applications in CO <sub>2</sub> capture (flue gas, DAC), separation of gases and VOCs, removal of fluorinated pollutants (PFAS) from water sources	    	<b>Valentina Colombo</b> (+39 0250314450) <i>valentina.colombo@unimi.it</i>
<b>Photoelectrochemistry</b>	Electrochemical and photoelectrochemical materials and processes for energy conversion and for pollution remediation	    	<b>Alessandro Minguzzi</b> (+39 0250314224) <i>alessandro.minguzzi@unimi.it</i>
<b>Valorizzazione biomasse</b>	Development of nanostructured heterogeneous catalysts for sustainable biomass transformation in fine chemicals, biofuels and H <sub>2</sub>	    	<b>Laura Prati</b> (+39 0250314357) <i>laura.prati@unimi.it</i>
<b>Photocatalysis</b>	Photocatalysis and related industrial applications, photocatalytic product certifications, study of chemical reactions in continuous and discontinuous reactors	    	<b>Claudia Bianchi</b> (+39 0250314253) <i>claudia.bianchi@unimi.it</i>

<b>Reactors</b>	Reactors and processes: experimental development, optimization and simulation in the field of industrial and environmental chemistry, catalysis and energy conversion. Economic analysis	    	<b>Ilenia Rossetti</b> (+39 0250314059) <i>ilenia.rossetti@unimi.it</i>
<b>Photoelectrochemistry</b>	Synthesis and electrochemical and photoelectrochemical characterization of composites and hybrids materials	    	<b>Valentina Pifferi</b> (+39 0250314222) <i>valentina.pifferi@unimi.it</i>
<b>Green chemistry</b>	First row transition metal complexes as sustainable catalyst for selective oxidations and CO2 valorization reactions; sustainable depolymerization reactions	    	<b>Alessandro Caselli</b> (+39 0250304372) <i>alessandro.caselli@unimi.it</i>
<b>Peptide-nucleic acids</b>	Design and synthesis of properly modified peptide-nucleic acids for applications in gene therapy and diagnostic	    	<b>Silvia Cauteruccio</b> (+39 0250314147) <i>silvia.cauteruccio@unimi.it</i>
<b>Nanostructured materials</b>	Development of metal-based catalysts on nanometric scale for the sustainable synthesis of industrially appealing chemicals	    	<b>Cristina Della Pina</b> (+39 0250314408) <i>cristina.dellapina@unimi.it</i>
<b>Antifouling products</b>	Design of new, non-toxic, non-biocide release antifouling agents based on antiadhesive, nature inspired molecules	    	<b>Domenico Albanese</b> (+39 0250314165) <i>domenico.albanese@unimi.it</i>
<b>Optical materials</b>	Coordination compounds with non linear optical and/or luminescent properties	    	<b>Dominique Roberto</b> (+39 0250314399) <i>dominique.roberto@unimi.it</i>
<b>CO2 reduction</b>	Modelling of inorganic and organometallic species for the electrocatalytic reduction of CO2	    	<b>Pierluigi Mercandelli</b> (+39 0250314447) <i>pierluigi.mercandelli@unimi.it</i>
<b>Carbohydrate chemistry</b>	Design and synthesis of carbohydrate-based compounds as new potential vaccine adjuvants	    	<b>Giuseppe D'Orazio</b> (+39 0250314061) <i>giuseppe.dorazio@unimi.it</i>
<b>Nanomaterials</b>	Synthesis and characterization of electrode materials and nanomaterials for energy and environmental applications	    	<b>Mariangela Longhi</b> (+39 0250314226) <i>mariangela.longhi@unimi.it</i>
<b>Colloids</b>	Formulations of novel disperse systems (suspensions, emulsions, foams, etc) for industrial applications	    	<b>Giuseppe Cappelletti</b> (+39 0250314228) <i>giuseppe.cappelletti@unimi.it</i>
<b>Electroanalysis</b>	Electroanalysis of molecules of biological/pharmaceutical interest and enantiodiscrimination of chiral molecules with electroanalytical methods	    	<b>Patrizia Romana Mussini</b> (+39 0250314222) <i>patrizia.mussini@unimi.it</i>
<b>Trattamento superficie</b>	Development of organic-inorganic hybrid materials for environmental and energy applications. Tailoring of surface properties (wetting, adhesion)	    	<b>Daniela Meroni</b> (+39 0250314220) <i>daniela.meroni@unimi.it</i>
<b>Studi LCA</b>	New electrode materials for energy and environmental applications. Measurements and calibrations of electrochemical quantities. Life Cycle Assessments studies	    	<b>Alberto Vertova</b> (+39 0250314232) <i>alberto.vertova@unimi.it</i>
<b>Thermoplastic polymers</b>	Synthesis and study of thermoplastic and thermosetting polymeric materials with low environmental impact for engineering applications	    	<b>Marco Ortenzi</b> (+39 0250314135) <i>marco.ortenzi@unimi.it</i>

<b>Sustainable catalysis</b>	Preparation, functionalization and characterization of novel sustainable materials for application in heterogeneous, environmental catalysis	    	<b>Sebastiano Campisi</b> (+39 0250314261) <i>sebastiano.campisi@unimi.it</i>
<b>Spontaneous emissions</b>	Analytical methodologies applied to plant matrices, food, spontaneous emissions in the study of environmental interactions	    	<b>Laura Santagostini</b> (+39 0250314379) <i>laura.santagostini@unimi.it</i>
<b>Photosensitisers</b>	Porphyrin photosensitizers for solar cells, water splitting and CO2 reduction	    	<b>Francesca Tessore</b> (+39 0250314398) <i>francesca.tessore@unimi.it</i>
<b>Structural chemistry</b>	Crystal growth, morphological characterization and crystal structure determination by diffractometric technique. Data mining in structural analysis	    	<b>Silvia Rizzato</b> (+39 0250314442) <i>silvia.rizzato@unimi.it</i>
<b>Drugs</b>	Synthesis and functionalization of heterocycles-containing drugs	    	<b>Valerio Fasano</b> (+39 0250314141) <i>valerio.fasano@unimi.it</i>
<b>CO2 valorisation</b>	Synthesis of aza-compounds (heterocycles and allylic amines) by using organic azides as atom efficient reagents as well as CO2 as a C1 renewable carbon source	    	<b>Emma Gallo</b> (+39 0250314374) <i>emma.gallo@unimi.it</i>
<b>Photoelectrocatalysis</b>	Synthesis and characterization of catalytic and photo(electro)catalytic materials for the abatement of pollutants and the solar energy conversion. Process simulation and optimization of heat recovery steam generator (HRSG)	    	<b>Gian Luca Chiarello</b> (+39 0250314281) <i>gianluca.chiarello@unimi.it</i>
<b>Tecniche elettroanalitiche</b>	Electroanalytical techniques applied to organic/biological molecules, food, waters, drugs, pollutants; pH and potential standards; conductivity	    	<b>Patrizia Romana Mussini</b> (+39 020314211) <i>patrizia.mussini@unimi.it</i>
<b>Fuel cells</b>	Synthesis and characterization of micro- and nano-structured functional oxides for environmental and energy applications	    	<b>Marco Scavini</b> (+39 0250314270) <i>marco.scavini@unimi.it</i>
<b>Cultural heritage</b>	Development and application of advanced analytical techniques, micro- and non-invasive, for the diagnostics of artistic and archaeological materials	    	<b>Silvia Bruni</b> (+39 0250314393) <i>silvia.bruni@unimi.it</i>
<b>Studi cristallografici</b>	Crystallographic and computational studies of molecular crystals; molecular recognition and self-assembling with application in materials science; Molecular Dynamics and Monte Carlo Techniques applied to solid state	    	<b>Leonardo Lo Presti</b> (+39 0250314252) <i>leonardo.lopresti@unimi.it</i>
<b>Drug-protein interaction</b>	Structural and conformational characterization of organic compounds. Study of ligand-receptor interaction	    	<b>Francesca Vasile</b> (+39 0250314085) <i>francesca.vasile@unimi.it</i>
<b>Crystallisation</b>	X-ray powder and single crystal diffraction on solid pharmaceutical forms; polymorphs, solvates and co-crystals. Crystallization. Thermal analyses (variable temperature Powder X-ray diffraction, TGA/DSC, hot stage microscopy)	    	<b>Valentina Colombo</b> (+39 0250314450) <i>valentina.colombo@unimi.it</i>
<b>Sintesi glicomimetici</b>	Design and synthesis of mono- and polyvalent antimicrobial glycomimetic compounds	    	<b>Anna Bernardi</b> (+39 0250314092) <i>anna.bernardi@unimi.it</i>

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## OTHER R&D ORGANIZATIONS

### Ap.E – Applied Electrochemistry Laboratory

Ap.E is a Research Laboratory of the Department of Chemistry of the Università degli Studi di Milano. Ap.E has an intense research activity in the industrial applications of electrochemical science and technology, and in particular in the field of energy conversion and environmental protection and remediation

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Alessandro Minguzzi (+39 0250314224) - [alessandro.minguzzi@unimi.it](mailto:alessandro.minguzzi@unimi.it)

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### Lab Analysis & Service

Lab Analysis actively interacts with the research groups of the Department, public and private research institutes and companies for the resolution of analytical problems. Moreover, it can host students training them on its analytical techniques

**Contacts:** Ilenia Rossetti (+39 0250314059) - [ilenia.rossetti@unimi.it](mailto:ilenia.rossetti@unimi.it)

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### LaMPo – Polymers and Materials Laboratory

R&D for companies on polymers and polymeric materials

**Contacts:**

Laura Prati (+39 0250314357) - [laura.prati@unimi.it](mailto:laura.prati@unimi.it)

**Web site:** <http://lampo.unimi.it/>

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### LCS – Laboratory of homogeneous Catalysis for sustainable Synthesis

LCS covers many research areas related to the use of chiral and achiral catalysts and to the development of innovative stereoselective synthetic methods to realize sustainable synthesis. LCS is active in all three "pillars" of the modern catalysis, namely organometallic catalysis, biocatalysis and organocatalysis, and in recyclable catalysts, technology-driven catalysis, catalysts for sensors

**Contacts:** Maurizio Benaglia (+39 0250314171) - [maurizio.benaglia@unimi.it](mailto:maurizio.benaglia@unimi.it)

**Web site:** <http://www.lcs.unimi.it>

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### SMARTMATLAB - Smart Materials Laboratory

Laboratory for nanotechnologies, micro- and nano-electronics, biotech, advanced materials, photonics and optoelectronics

**Contacts:** Elena Selli (+39 0250314237) - [elena.selli@unimi.it](mailto:elena.selli@unimi.it)

**Web site:** <http://users2.unimi.it/smartmatlab/wordpress>

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### UNITECH COSPECT: Comprehensive Substances characterization via advanced sPECTtroscopy

The principal aim of the Technological Platform Unitech "CSPECT", of the University of Milano, is to offer high level of service and scientific consultancy in the study of composition and structural characterization of organic and inorganic compounds, of synthetic and natural origin

**Contacts:** Scientific Coordinator

Francesco Demartin (+39 0250314457) - [francesco.demartin@unimi.it](mailto:francesco.demartin@unimi.it)

Technical Manager

Enrico Caneva (+39 0250314587) - [enrico.caneva@unimi.it](mailto:enrico.caneva@unimi.it)

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**Department of Pharmaceutical Science**

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## CONTACTS

Prof.ssa Maria Luisa GELMI

+39 0250319342

## DETAILED INFORMATION

**Staff:** 12 Full Professors

18 Associate Professors

25 Researchers

12 Structured Technicians

10 Administrative Technicians

**Registered students:** 3,500 (Academic year 2020/2021)

**Post Lauream Training:** 30 enrolled in doctoral programs in Medicinal Chemistry

25 Research fellows

**Patents:** 75

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## GENERAL INFORMATION

Università degli Studi di Milano

Department of Biosciences

Via Celoria 26 - 20133 Milano (MI)

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## CONTACTS

Prof. Paolo LANDINI

+39 0250314814

[direzione.bioscienze@unimi.it](mailto:direzione.bioscienze@unimi.it)

## DETAILED INFORMATION

**Staff:** 21 Full Professors

52 Associate Professors

25 Researchers

3 Technologists

24 Structured Technicians

19 Administrative Technicians

2 General Services

**Registered students:** 1,577 (Academic year 2022/2023)

**Post Lauream Training:** 69 enrolled in doctoral programs in Molecular and Cellular Biology

39 Research fellows

20 fellows

**Patents:** 15 Website: <https://www.knowledge-share.eu/proprietario/universita-degli-studi-di-milano/>

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Transcriptional factors

Structural characterization of inhibitors of transcription factors as possible anticancer drugs and for the treatment of muscular dystrophy



**Marco Nardini** (+39 0250314893)

[marco.nardini@unimi.it](mailto:marco.nardini@unimi.it)

### LeCoVax

Mucosal vaccination using a protozoan parasite as a vehicle for antigen delivery



**Sara Epis** (+39 0250314710)

[sara.epis@unimi.it](mailto:sara.epis@unimi.it)

### Antimicrobial peptides

Development of peptide libraries to identify interfering peptides as new antimicrobial solutions



**Simona Masiero** (+39 0250315039)

[simona.masiero@unimi.it](mailto:simona.masiero@unimi.it)

### Vascular physiology

Identification of new antiangiogenic & vasoactive therapeutic candidates in Oncology/Ophthalmology to treat solid cancers and neovascular eye diseases (e.g. retinopathies, age-related macular degeneration)



**Alessandro Fantin** (+39 0250314952)

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### Lips-2

Development of compounds protecting from mosquito bites



**Paolo Gabrieli** (+39 0250314786)

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### Plant biotechnology

Engineering of plant reproduction to introduce the production of clonal seeds in crops



**Lucia Colombo** (+39 0250314772)

[lucia.colombo@unimi.it](mailto:lucia.colombo@unimi.it)

<b>Enzymes</b>	Mechanisms of wild-type and engineered enzyme reactions, inhibition and regulation, in particular flavoprotein oxidoreductases, also with rapid reaction approaches and under anaerobiosis	     	<b>Maria Antonietta Vanoni</b> (+39 0250314901) <i>maria.vanoni@unimi.it</i>
<b>Terapia fagica</b>	Developmento of phage therapy as a tool to fight antibiotic resistant bacterial infections	     	<b>Federica Briani</b> (+39 0250314839) <i>federica.briani@unimi.it</i>
<b>Protein aggregation</b>	Structural biology and biophysics of amyloidogenic proteins that produce toxic aggregates. Systemic amyloidosis with cardiac involvement	     	<b>Stefano Ricagno</b> (+39 0250314914) <i>stefano.ricagno@unimi.it</i>

## OTHER R&D ORGANIZATIONS

<b>Cytometry facility</b>	The facility allows to perform a mutiparametric analysis on monodispersed suspensions of cells on the basis of their physical and optical characteristics (often by employing specific fluorescent markers). The presence of a FACS sorter also allows to select and collect (up to single cell level) specific cell types, for further downstream applications (i.e. cloning, colture, RT-PCR, DNA/RNA seq) <b>Contacts:</b> Claudia Bazzini (+39 0250314931) - <i>claudia.bazzini@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_cellsorter.php">https://bioscienzebio.unimi.it/facility_cellsorter.php</a>
<b>Platform for molecular interactions</b>	The MST (microscale thermophoresis) analysis offers users the ability to measure affinity over a wide range of dissociation constant (Kd): from very strong bonds to weak interactions, therefore it can be used both in basic research and in the characterization of small molecules in pharmacological field <b>Contacts:</b> Stefano Ricagno (+39 0250314914) - <i>stefano.ricagno@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_monolith.php">https://bioscienzebio.unimi.it/facility_monolith.php</a>
<b>Histology Platform</b>	The Histology Platform provides expertise and instrumentation necessary for the preparation and processing of biological samples included in paraffin, OCT or other microtome cutting media, vibratome or cryostat depending on the tissue and/or subsequent staining or method to be performed <b>Contacts:</b> Massimo Alini (+39 0250315023) - <i>massimo.alini@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_ist.php">https://bioscienzebio.unimi.it/facility_ist.php</a>
<b>Microbiology and Functional Genomics Platform (MI-GEM)</b>	MI-GEM offers services using model microorganisms, both prokaryotic and eukaryotic, such as the collection of bacterial strains and vectors supplied upon request, the preparation of competent E. coli cells, the development of MIC determination assays and functional genomics in yeast. Currently these activities are reserved for internal users of the Department of Biosciences. <b>Contacts:</b> Federica Briani (+39 0250314839) - <i>federica.briani@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_mi_gem.php">https://bioscienzebio.unimi.it/facility_mi_gem.php</a>
<b>Platform for advanced technologies</b>	The platform for advanced technologies is equipped by: 1) ImageXpress Micro Confocal, high content screening microscope system for fast and automated imaging of biological samples both in bright field and with fluorescence; 2) SMARTer ICELL8 cx Single Cell, for single cell high-throughput studies; 3) Seahorse XFe24 Analyzer, for real-time quantification of cellular bioenergetic parameters <b>Contacts:</b> Cristina Ruberti (+39 0250315047) - <i>cristina.ruberti@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_TA">https://bioscienzebio.unimi.it/facility_TA</a>
<b>Fermentation Platform</b>	The microorganism fermentation facility, housed in a fully-equipped laboratory located in the basement of Tower building A, supplies the necessary expertise and instrumentation for the scale up of microorganism fermentation processes, from laboratory scale to pilot scale. The facility is particularly indicated for achieving optimal conditions for recombinant protein overexpression. Furthermore, cell masses can be lysed using a highly efficient cell disrupter instrument <b>Contacts:</b> Marco Antonio Benati (+39 0250315043) - <i>marco.benati@unimi.it</i> <b>Web site:</b> <a href="https://bioscienzebio.unimi.it/facility_ferm.php">https://bioscienzebio.unimi.it/facility_ferm.php</a>
<b>UNITECH NOLIMITS, the UNIMI IMAGING facility</b>	The DBS coordinates the activities of the Microscopy facility UNITECH NOLIMITS to which external users, supported by technical assistance, can access. The services offered are: Fluorescence Optical Microscopy (Wide-field, Single- and Multi-photon Confocal microscopes, Super Resolution, Spinning Disk and Stereomicroscopy); Electron Microscopy (FE-SEM-EDS, TEM with STEM/EDX) on inorganic, polymeric and biological material; Preparation of samples for electron microscopy (SEM and TEM) and cryoultramicrotomy; MRI for magnetic resonance analysis on small animals; image analysis <b>Contacts:</b> Alex Costa (+39 0250314831) - <i>alex.costa@unimi.it</i> <b>Web site:</b> <a href="https://www.unimi.it/it/ricerca/luoghi-organizzazione-e-infrastrutture/unitech/unitech-nolimits">https://www.unimi.it/it/ricerca/luoghi-organizzazione-e-infrastrutture/unitech/unitech-nolimits</a>

#### Plants Platform

The Plants Platform is a center for collecting, implementing and disseminating techniques and technologies related to the study of plants. The technical staff involved is available to the DBS research groups interested in using the services provided. The platform provides a seed bank service for the conservation of the germplasm of ecotypes, cultivars or mutants at controlled temperature and humidity. In addition, it provides a plasmid repository service dedicated to clones of interest to the plant area, in collaboration and with the help of the microbiology platform

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**Web site:** [https://bioscienzebio.unimi.it/facility\\_piante.php](https://bioscienzebio.unimi.it/facility_piante.php)

#### Protein Purification Platform

Service for purification, engineering and characterization of proteins, including recombinant ones. Setting up and execution of enzymatic assays

**Contacts:** Louise Gourlay (+39 0250314903) - [louise.gourlay@unimi.it](mailto:louise.gourlay@unimi.it)

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## COLLABORATIONS WITH COMPANIES

- Italfarmaco S.p.A.
- Dompé farmaceutici S.p.A.

## PUBBLICAZIONI

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# DiSAA

DIPARTIMENTO  
di SCIENZE  
AGRARIE e  
AMBIENTALI



## GENERAL INFORMATION

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Via Giovanni Celoria 2 - 20133 Milano (MI)

sito web: <http://www.disaa.unimi.it/ecm/home>

## CONTACTS

Prof. Gian Battista BISCHETTI

+39 0250316888

## DETAILED INFORMATION

**Staff:** 21 Full Professors

44 Associate Professors

29 Researchers

2 Technologists

26 Structured Technicians

11 Administrative Technicians

1 General Services

**Registered students:** 442 (Academic year 2022/2023)

**Post Lauream Training:** 32 enrolled in Doctorate in Agriculture, Environment and Bioenergy

56 Research fellows

7 fellows

**Patents:** 16

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Fertilisers reduction

Production of mineral fertilizers by removing the nitrogen from livestock manure



**Giorgio Provolo** (+39 0250316855)  
[giorgio.provolo@unimi.it](mailto:giorgio.provolo@unimi.it)

### Farms emissions

Methods for the determination of emissions to air in the management of livestock manure



**Alberto Finzi** (+39 0250316858)  
[alberto.finzi@unimi.it](mailto:alberto.finzi@unimi.it)

### Functional food

Valorisation of vegetal residues from food industry to produce bioactive peptides and carbohydrates



**Barbara Scaglia** (+39 0250316535)  
[barbara.scaglia@unimi.it](mailto:barbara.scaglia@unimi.it)

### Renewable fertilisers

Production of P fertilizers from digestates



**Fulvia Tambone** (+39 0250316547)  
[fulvia.tambone@unimi.it](mailto:fulvia.tambone@unimi.it)

### Animal welfare

Development of sensors for monitoring environmental conditions in livestock farms



**Elisabetta Riva** (+39 0250316856)  
[elisabetta.riva@unimi.it](mailto:elisabetta.riva@unimi.it)



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## OTHER R&D ORGANIZATIONS

### Costruzioni Rurali

**Contacts:** Giorgio Provolo (+39 02 50316855) - [giorgio.provolo@unimi.it](mailto:giorgio.provolo@unimi.it)  
**Web site:** <http://www.costruzionirurali.unimi.it>

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### GRUPPO RICICLA

**Contacts:** Fabrizio Adani (+39 0250316545) - [fabrizio.adani@unimi.it](mailto:fabrizio.adani@unimi.it)  
**Web site:** <https://sites.unimi.it/gruppo-ricicla/it>

## COLLABORATIONS WITH COMPANIES

- Acqua e Sole S.r.l.
- Agrorisorse S.r.l.
- Eni S.p.A.
- R3 GIS S.r.l.
- Sema engineering S.r.l.



## GENERAL INFORMATION

**University of Milano – Bicocca**  
**Department of Biotechnology and Biosciences**  
 Piazza della Scienza 2 – 20126 Milano (MI)  
 sito web: <http://www.btbs.unimib.it/>

## CONTACTS

Prof.ssa Francesca GRANUCCI  
 +39 0264483553

## DETAILED INFORMATION

**Staff:** 13 Full Professors  
 37 Associate Professors  
 38 Researchers  
 2 Technologists  
 17 Structured Technicians

**Registered students:** 1.600 (Academic year 2021/2022)

**Post Lauream Training:** 45 enrolled in doctoral programs in Converging Technologies for Biomolecular Systems

40 Research fellows

22 fellows

**Patents:** -

## DATASHEET ICONS



## R&D ACTIVITIES DETAIL

### Bioprocesses

Valorization of agro-food wastes by fermentation bioprocesses; chemical platforms; biofuels; biorefineries



**Danilo Porro**  
[danilo.porro@unimib.it](mailto:danilo.porro@unimib.it)

### Bioprospecting

Developments of qualitative and quantitative methods for analysis of secondary metabolites with bioactive activities derived from food, unprocessed plants, and agricultural by-products matrices



**Luca Campone** (+39 0264483330)  
[luca.campone@unimib.it](mailto:luca.campone@unimib.it)

### Bioactive compounds

Design and synthesis of bioactive compounds



**Barbara La Ferla** (+39 0264483421)  
[barbara.laferla@unimib.it](mailto:barbara.laferla@unimib.it)

### Quality control

Quality control and safety evaluation of foods, botanical food supplements, and nutraceutical products, for determination of pesticide, heavy metal, mycotoxins, PCBs, phytopharmaceutical derivatives, drug abuse, endocrine disruptor



**Luca Campone** (+39 0264483330)  
[luca.campone@unimib.it](mailto:luca.campone@unimib.it)

### Synthetic biology

Engineering of microbial strains by synthetic biology to reshape metabolism and physiology to improved robustness and productivity



**Paola Branduardi** (+39 0264483418)  
[paola.branduardi@unimib.it](mailto:paola.branduardi@unimib.it)

### Biomedicine

Materials for biomedicine, nutraceutic and cosmetic



**Laura Russo** (+39 0364483462)  
[laura.russo@unimib.it](mailto:laura.russo@unimib.it)

### Sustainable chemistry

Sustainable chemistry. Bio-based polymers and innovative materials from renewable resources



**Laura Cipolla** (+39 0264483460)  
[laura.cipolla@unimib.it](mailto:laura.cipolla@unimib.it)

<b>Biocatalysis</b>	Enzymatic synthesis and/or modification of (macro)-molecules with various applications including APIs, building blocks and biopolymers. Enzyme immobilization. Biocatalytic cascades	     	<b>Immacolata Serra</b> (+39 0264484140) <i>immacolata.serra@unimib.it</i>
<b>Bioactive compounds</b>	Identification of bioactive compounds from natural sources	     	<b>Alessandro Palmioli</b> (+39 0264483309) <i>alessandro.palmioli@unimib.it</i>
<b>Metabolomics</b>	NMR-based molecular recognition and metabolomics studies	     	<b>Cristina Airoidi</b> (+39 0264483303) <i>cristina.airoidi@unimib.it</i>
<b>Bioprocesses</b>	Characterization of microorganisms and development/optimization of bioproduction processes for sustainable production of bulk or added-value compounds	     	<b>Valeria Mapelli</b> (+39 0264484140) <i>valeria.mapelli@unimib.it</i>
<b>Extraction</b>	Optimization of green extraction techniques (supercritical fluid extraction, pressurized liquid extraction) and samples preparation methods (solid phase extraction, solid phase microextraction) for the analysis of bioactive compounds from natural matrices	     	<b>Luca Campone</b> (+39 0264483330) <i>luca.campone@unimib.it</i>
<b>Enzymology</b>	Biocatalysis; new enzymes and proteins in particular from extreme environments; protein engineering	     	<b>Marina Lotti</b> (+39 0264483527) <i>marina.lotti@unimib.it</i>
<b>Sustainable chemistry</b>	Synthesis of bioactive compounds, sustainable chemistry, drugs development	     	<b>Francesco Peri</b> <i>francesco.peri@unimib.it</i>
<b>Hydrogen</b>	H2 photoproduction: quantum mechanical simulations of ground and excited states of bioinorganic systems	     	<b>Luca De Gioia</b> (+39 0264483463) <i>luca.degioia@unimib.it</i>

## OTHER R&D ORGANIZATIONS

<b>BBC – Bicocca Biotechnicum Center</b>	Research and technology transfer in bioprocesses <b>Contacts:</b> Danilo Porro - <a href="mailto:danilo.porro@unimib.it">danilo.porro@unimib.it</a> <b>Web site:</b> <a href="https://www.btbs.unimib.it/it/dipartimento/infrastrutture-ricerca-e-laboratori-associati">https://www.btbs.unimib.it/it/dipartimento/infrastrutture-ricerca-e-laboratori-associati</a>
<b>FEM2-Ambiente S.r.l.</b>	Spin-off company of the University of Milano-Bicocca. It is a biotech company with a multidisciplinary team expert in agri-food and environmental biotechnologies. It offers research and development services to companies within the field of cosmetics, veterinary and pharma <b>Contacts:</b> Massimo Labra - <a href="mailto:massimo.labra@unimib.it">massimo.labra@unimib.it</a> <b>Web site:</b> <a href="https://www.fem2ambiente.com/en/eng/">https://www.fem2ambiente.com/en/eng/</a>
<b>Galateabiotech®</b>	Start-up active in the field of industrial biotechnology and green chemistry <b>Contacts:</b> Paola Branduardi - <a href="mailto:paola.branduardi@unimib.it">paola.branduardi@unimib.it</a> <b>Web site:</b> <a href="https://web.galateabiotech.com/?lang=en">https://web.galateabiotech.com/?lang=en</a>
<b>Laboratories of Excellence</b>	Advanced instrumentation for the study of multicellular systems, bioanalytics and molecular recognition <b>Contacts:</b> Francesca Granucci - <a href="mailto:francesca.granucci@unimib.it">francesca.granucci@unimib.it</a> <b>Web site:</b> <a href="https://www.btbs.unimib.it/it/dipartimento/infrastrutture-ricerca-e-laboratori-associati">https://www.btbs.unimib.it/it/dipartimento/infrastrutture-ricerca-e-laboratori-associati</a>
<b>Inter-Department facilities for microscopy</b>	Advanced instrumentation for electron and confocal microscopy <b>Contacts:</b> Francesca Granucci - <a href="mailto:francesca.granucci@unimib.it">francesca.granucci@unimib.it</a> <b>Web site:</b> <a href="https://piattaformadimicroscopia.unimib.it/">https://piattaformadimicroscopia.unimib.it/</a>
<b>Inter-Department facilities for mass spectrometry</b>	Advanced instrumentation for mass spectrometry <b>Contacts:</b> Francesca Granucci - <a href="mailto:francesca.granucci@unimib.it">francesca.granucci@unimib.it</a> <b>Web site:</b> <a href="https://www.btbs.unimib.it/en/services-companies/research-activity-commissioned/interdepartmental-platform-mass-spectrometry-0">https://www.btbs.unimib.it/en/services-companies/research-activity-commissioned/interdepartmental-platform-mass-spectrometry-0</a>

## COLLABORATIONS WITH COMPANIES

- Albini Group
- BiCT S.r.l.  
Indena S.p.A.
- Pirelli S.p.A.
- Radici S.p.A.
- Sipcam Oxon S.p.A.

## MORE INFO

Industrial PhD Programme

- PhD Executive
- Apprenticeship in higher education
- Funding a scholarship



## GENERAL INFORMATION

University of Milano – Bicocca

Department of Materials Science

Via Roberto Cozzi 55 - 20125 Milano (MI)

sito web: <http://www.mater.unimib.it/en>

## CONTACTS

Prof.ssa Anna VEDDA

+39 0264485162

## DETAILED INFORMATION

**Staff:** 20 Full Professors

20 Associate Professors

28 Researchers

2 Technologists

11 Structured Technicians

**Registered students:** 952 (Academic year 2022/2023)

**Post Lauream Training:** 63 enrolled in doctoral programs in Materials Science and Nanotechnology

20 Research fellows

9 fellows

**Patents:** 71 10 active and available patent families and 61 unavailable or discontinued patent families

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Small molecules

Electron-poor heterocyclic compounds for optoelectronic applications (e.g. n-type semiconductors, electroluminescent compounds) and water splitting



**Antonio Papagni** (+39 0264485324)  
[antonio.papagni@unimib.it](mailto:antonio.papagni@unimib.it)

### Multifunctional nanomaterials

Optical spectroscopy of semiconductors



**Emiliano Bonera** (+39 0264485033)  
[emiliano.bonera@unimib.it](mailto:emiliano.bonera@unimib.it)

### Sustainable materials

Characterization of materials between nano and micro scales: accessibility of hierarchical porous systems, description of polymeric networks also for the optimization of production processes, support for the development of materials from agricultural waste



**Michele Mauri** (+39 0264485043)  
[michele.mauri@unimib.it](mailto:michele.mauri@unimib.it)

### Functional materials

Oxides, nanostructures and glass-based materials for optics and optoelectronics and photocatalysis



**Roberto Lorenzi** (+39 0264485221)  
[roberto.lorenzi@unimib.it](mailto:roberto.lorenzi@unimib.it)

### Sustainable electronics

Organic synthesis in water of active materials for optoelectronic devices (e.g. organic solar cells and electrochromic devices for smart windows)



**Luca Beverina** (+39 0264485229)  
[luca.beverina@unimib.it](mailto:luca.beverina@unimib.it)

### Recycling

Recycling of waste lithium ion batteries



**Chiara Ferrara**  
[chiara.ferrara@unimib.it](mailto:chiara.ferrara@unimib.it)

<b>Carbon capture</b>	Inorganic materials for photovoltaic applications and CO <sub>2</sub> capture (MIB-SOLAR Solar Energy Research Centre)	    	<b>Maurizio Acciarri</b> (+39 0264485136) <i>maurizio.acciarri@unimib.it</i>
<b>Photocatalysis</b>	Kesterite nanoparticles as photocatalysts for the degradation of water micropollutants	    	<b>Giorgio Tseberlidis</b> (+39 0264485114) <i>giorgio.tseberlidis@unimib.it</i>
<b>Functional materials</b>	SEFI Lab. Hydrophobic materials for anti-icing applications and selective oil absorption. Polysaccharide-based materials and coatings (cellulose and chitosan) for engineering applications and medical devices. 3D printing via DLP (digital light processing) through photopolymerization of pure resins, as well as ceramic and metallic suspensions	    	<b>Carlo Antonini</b> (+39 0264485188) <i>carlo.antonini@unimib.it</i>
<b>Energy</b>	Synthesis and characterization of anionic and proton-conducting polymeric membranes for fuel cells and electrolyzers. Assembly of MEA. Synthesis and characterization of solid and semisolid electrolytes for lithium and post-lithium batteries. Development of processes for the recycling-reuse of lithium batteries	    	<b>Piercarlo Mustarelli</b> (+39 0264485176) <i>piercarlo.mustarelli@unimib.it</i>
<b>Energy</b>	Electrochemical Energy Storage group. Preparation, characterization and functional characterization of materials for rechargeable batteries, capacitors and supercapacitors. Development, characterization and prototyping of electrochromic devices	    	<b>Riccardo Ruffo</b> (+39 0264485153) <i>riccardo.ruffo@unimib.it</i>
<b>Multifunctional nanomaterials</b>	NanoMat@Lab: Chemistry of inorganic and hybrid materials. The mission of NanoMat@Lab is the synthesis of innovative inorganic and hybrid nanomaterials looking at the economic, environmental sustainability and at the replacement of critical and toxic materials	    	<b>Roberto Scotti</b> (+39 0264485133) <i>roberto.scotti@unimib.it</i>
<b>Energy efficiency</b>	Inorganic materials for thermoelectrics	    	<b>Dario Narducci</b> (+39 0264485137) <i>dario.narducci@unimib.it</i>
<b>Functional materials</b>	Fabrication and study of semiconductor quantum nanostructures (EpiLab)	    	<b>Stefano Sanguinetti</b> (+39 0264485156) <i>stefano.sanguinetti@unimib.it</i>
<b>Photocatalysis</b>	Production of sustainable fuels (hydrogen, methanol, methane) and chemical intermediates by reduction of CO <sub>2</sub> and water and nitrogen fixation to green ammonia, via sunlight (artificial photosynthesis) (Solar Energy Research Center MIB-SOLAR)	    	<b>Alessandro Abboto</b> (+39 0264485227) <i>alessandro.abboto@unimib.it</i>
<b>Functional materials</b>	Porous Materials: design, synthesis, structural characterization and switchable molecular dynamics for hydrogen and methane storage and purification as well as CO <sub>2</sub> capture	    	<b>Angiolina Comotti</b> (+39 0264485140) <i>angiolina.comotti@unimib.it</i>
<b>Catalysis</b>	Theory of oxide surfaces, interfaces, and supported clusters	    	<b>Gianfranco Pacchioni</b> (+39 0264485219) <i>gianfranco.pacchioni@unimib.it</i>
<b>Polymers</b>	Synthesis and characterization of novel polymeric nanostructures (POSYLIFE)	    	<b>Roberto Simonutti</b> (+39 0264485132) <i>roberto.simonutti@unimib.it</i>
<b>Sustainable materials</b>	Low cost chemical deposition processes of inorganic thin films of kesterites and perovskites for photovoltaic applications	    	<b>Simona Binetti</b> (+39 0264485177) <i>simona.binetti@unimib.it</i>

## Functional materials

Advanced spectroscopy of functional nanomaterials



Francesco Meinardi (+39 02644885181)  
francesco.meinardi@unimib.it

## Nanotechnologies

Electronic structure calculations and molecular dynamics simulations of bidimensional materials (graphene, transition metal chalcogenides, and hexagonal boron nitride) and nanoparticles (oxide semiconductors) for fuel cells, water splitting, photocatalysis, photoelectrochemistry, and nanomedicine



Cristiana Di Valentin (+39 0264485235)  
cristiana.divalentin@unimib.it

## Electrocatalysts

Electrocatalysis and Bioelectrocatalysis LAB (EBLAB). Synthesis and characterization of Platinum Group Metal-free (PGM-free) electrocatalysts for hydrogen production and conversion, CO<sub>2</sub> ER and N<sub>2</sub> RR. Bioelectrochemical systems for wastewater treatment and hydrogen production



Carlo Santoro  
carlo.santoro@unimib.it

## OTHER R&D ORGANIZATIONS

### MIB-SOLAR Solar Energy Research Centre

MIB-SOLAR is a research centre to promote and encourage study and research of new materials and devices related to solar energy in its various forms: photovoltaic processes; photocatalytic effects of different processes

**Contacts:** Simona Binetti (+39 0264485177) - simona.binetti@unimib.it

**Web site:** <https://mibsolar.unimib.it/en/>

### CORIMAV - Consortium for research on materials

CORIMAV is a consortium funded between the University of Milano – Bicocca and Pirelli Company for research on advanced materials. CORIMAV aim is the development of innovative technologies in the field of materials for tyre applications, on the basis of the scientific and technologic know-how of the University and Pirelli Company. CORIMAV funds three scholarships per year for the industrial curriculum of the doctorate in Materials Science and Nanotechnologies

**Contacts:** Barbara Di Credico, Supervisor of research activity and PhD students (+39 0264485189) - barbara.dicredico@unimib.it

**Web site:** <https://www.mater.unimib.it/en/research/research-and-enterprise/consortia/corimav>

### L-NESS - Inter-University Center for Nanometric Epitaxial Structures on Silicon and Spintronics

The Laboratory for Epitaxial Nanostructures on Silicon and Spintronics (L-NESS) is an Inter-University research center of the University of Milano - Bicocca and the Polytecnico di Milano University aimed at the development and study of devices realized by the integration of semiconductors of the IV-IV and III-V groups for microelectronic, optoelectronic, quantum photonics and energy applications

**Contacts:** Stefano Sanguinetti (+39 0264485156) - stefano.sanguinetti@unimib.it

**Web site:** <http://lness.como.polimi.it/index.php>

### Interdepartmental Spectroscopy Network

The Interdepartmental Spectroscopy Network brings together numerous researchers and a wide range of instruments from three different departments in the Science Area (Materials Science, Environmental and Earth Sciences and Biotechnology and Biosciences). The Interdepartmental Spectroscopy Network manages all the equipment available to both internal and external users in a coordinated manner. The skills developed over the years enable measurements on any type of material (powders, solids, liquids, biological materials, etc.) even under controlled conditions of temperature and atmosphere, and the design of new experimental procedures for in situ and in operando characterisations.

**Contacts:** Adele Sassella (+39 0264485160) - adele.sassella@unimib.it

**Web site:** <https://www.mater.unimib.it/it/ricerca/research-facilities/laboratori-ricerca/laboratori-interdipartimentali/rete-interdipartimentale-spettroscopia>

## COLLABORATIONS WITH COMPANIES

- Baker Hughes
- Bugnion S.p.A.
- Chimar S.r.l.
- CRPI S.r.l.
- ENI S.p.A.
- Fluorsid S.p.A.
- GemaTEG Italia S.r.l.
- Intercos S.p.A.
- ISC S.r.l.
- MEMC Electronic Materials S.p.A.
- Midac S.p.A.
- Pirelli S.p.A.
- Solvay Group
- Volta Structural Energy S.r.l.
- X-Nano S.r.l.

## PUBBLICAZIONI

- List of publications (journal articles)
- Research Highlights

## MORE INFO

- Enterprise services (servizi-imprese.mater@unimib.it, <https://www.mater.unimib.it/it/servizi-imprese/prestazioni-conto-terzi>): comprehensive service for the investigation of materials and materials-related problems
- Research Area of the University of Milano-Bicocca : how to collaborate with the university through funding and partnerships and tax benefits
- The Ph.D. in Materials Science and Nanotechnology offers, in addition to ministerial positions, numerous research grants funded by companies on joint Department/company projects having materials as their theme (for more information) su progetti congiunti Dipartimento/azienda aventi come argomento i materiali. Director: Prof. Francesco Montalenti (francesco.montalenti@unimib.it)



**UNIMORE**  
UNIVERSITÀ DEGLI STUDI DI  
MODENA E REGGIO EMILIA



## Department of Chemical and Geological Sciences

### GENERAL INFORMATION

Università degli Studi di Modena e Reggio Emilia  
Department of Chemical and Geological Sciences

Via Campi 103 – 41125 Modena (MO)  
sito web: <http://www.dscg.unimore.it>

### CONTACTS

Prof. Gianantonio BATTISTUZZI  
+39 0592058518

Luca Rigamonti (+39 0592058646) - [luca.rigamonti@unimore.it](mailto:luca.rigamonti@unimore.it)

### DETAILED INFORMATION

**Staff:** 8 Full Professors

34 Associate Professors

17 Researchers

9 Structured Technicians

5 Administrative Technicians

5 General Services

**Registered students:** 763 (Academic year 2022/2023)

**Post Lauream Training:** 42 enrolled in doctoral programs in Models and Methods for Materials and Environmental Sciences (M3ES)

9 Research fellows

2 fellows

**Patents:** 4

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### R&D ACTIVITIES DETAIL

#### Metal - biocatalysis

Enhancement of fish wastes by means of metal-enzymes with oxidizing properties



**Gianantonio Battistuzzi** (+39 0592058639)  
[gianantonio.battistuzzi@unimore.it](mailto:gianantonio.battistuzzi@unimore.it)

#### Food

Traceability, authenticity and quality of food products and processes



**Andrea Marchetti** (+39 0592058637)  
[andrea.marchetti@unimore.it](mailto:andrea.marchetti@unimore.it)

#### Fluorescence

Photodegradation of environmental pollutants; optical properties of luminescent materials



**Monica Caselli** (+39 0592058643)  
[monica.caselli@unimore.it](mailto:monica.caselli@unimore.it)

#### Sensors

Electrochemical sensing for the analysis of food and environmental matrices



**Laura Pigani** (+39 0592058638)  
[laura.pigani@unimore.it](mailto:laura.pigani@unimore.it)

#### Quality

Analytical strategies for food quality and environmental monitoring in a context of sustainability and circular economy



**Caterina Durante** (+39 0592058635)  
[caterina.durante@unimore.it](mailto:caterina.durante@unimore.it)

#### Polymers

Synthesis of polymers for industrial applications with new sustainable methodologies for health and environment



**Francesca Parenti** (+39 0592058632)  
[francesca.parenti@unimore.it](mailto:francesca.parenti@unimore.it)

<b>Hydrogen</b>	Innovative catalysts for the production of hydrogen from water electrolysis	    	<b>Francesco Tassinari</b> (+39 0592058465) <i>francesco.tassinari@unimore.it</i>
<b>Chemimetry</b>	Development of Chemometrics methods and Quality by Design approaches for optimization of formulation and industrial process aiming at their eco sustainability	    	<b>Marina Cocchi</b> (+39 0592058554) <i>marina.cocchi@unimore.it</i>
<b>NMR</b>	NMR characterization of complex organic mixtures of industrial or natural origin	    	<b>Adele Mucci</b> (+39 0592058636) <i>adele.mucci@unimore.it</i>
<b>Environment</b>	Targeted and un-targeted analytical methods for environmental monitoring of emerging contaminants and molecules of ecotoxicological concern	    	<b>Guido Perra</b> (+39 0592058491) <i>guido.perra@unimore.it</i>
<b>Sustainability</b>	Characterization and use of raw and secondary materials for industrial applications (ceramics, cements, etc.)	    	<b>Gigliola Lusvardi</b> (+39 0592058549) <i>gigliola.lusvardi@unimore.it</i>
<b>Fertilisers</b>	Reduction of the use of "critical" raw materials and water in the production process of fertilizers	    	<b>Gianluca Malvasi</b> (+39 0592058552) <i>gianluca.malvasi@unimore.it</i>
<b>Green chemistry</b>	Development of environmentally friendly chemical processes through the replacement of REACH-prohibited dangerous reagents	    	<b>Fabrizio Roncaglia</b> (+39 0592058648) <i>fabrizio.roncaglia@unimore.it</i>
<b>Sustainability</b>	Innovative processes and products to increase sustainability in the construction sector	    	<b>Lorenzo Tassi</b> (+39 0592058556) <i>lorenzo.tassi@unimore.it</i>
<b>In silico</b>	Multiscale computational modeling of materials for energy applications	    	<b>Alfonso Pedone</b> (+39 0592058553) <i>alfonso.pedone@unimore.it</i>

## COLLABORATIONS WITH COMPANIES

- Acetificio Carandini Emilio S.p.A
- Athena S.p.A.
- Barilla G. e R. F.lli S.p.A.
- Carlo Riccò e F.lli, S.p.A.
- LB Officine Meccaniche S.p.A.
- Litokol S.p.A.
- Tellure Rota S.p.A.
- Tetra Pak Italiana S.p.A.
- Versalis S.p.A.
- Vinicola San Nazaro S.r.l.

## PUBBLICAZIONI

- Niccolò Braidì, Francesca Parenti, Giulia Scurani, Francesco Tassinari, Mirko Buffagni, Luisa Bonifaci, Gianfranco Cavalca, Nicolò Pettenuzzo and Franco Ghelfi, **"Influences of nitrogen base excess on ARGET ATRP of styrene with ascorbic acid acetone and traces of oxygen and water"**, Polym. Chem., 2023, 14, 1567-1576, DOI: 10.1039/D2PY01373H
- Veronica D'Eusano, Lucia Bertacchini, Andrea Marchetti, Mattia Mariani, Sandro Pastorelli, Michele Silvestri, Lorenzo Tassi, **"Rosaceae nut-shells as sustainable aggregate for potential use in non-structural lightweight concrete"**, Waste 2023, 1(2), 549-568, DOI: 10.3390/waste1020033
- Veronica D'Eusano; Biagio Anderlini; Andrea Marchetti; Sandro Pastorelli; Fabrizio Roncaglia; Alberto Ughetti, **"Exploring the potential of peach (Prunus Persica L.) nut-shells as a sustainable alternative to traditional aggregates in lightweight concrete"**, Multidiscip. J. Eng. Sci., 2023, (2), 22-39, DOI: 10.5281/zenodo.8117772
- Federica Lodesani, Maria Cristina Menziani, Shingo Urata, Alfonso Pedone, **"Biasing crystallization in fused silica: An assessment of optimal metadynamics parameters"**, J.Chem. Phys., 2022, 156(19), 194501, DOI: 10.1063/5.0089183
- Federica Lodesani, Maria Cristina Menziani, Shingo Urata, Alfonso Pedone, **"Evidence of Multiple Crystallization Pathways in Lithium Disilicate: A Metadynamics Investigation"**, J. Phys. Chem. Lett., 2023, 14(6), 1411–1417, DOI: 10.1021/acs.jpcclett.2c03563
- Daniele Tanzilli, Alessandro D'Alessandro, Samuele Tamelli, Caterina Durante, Marina Cocchi, Lorenzo Strani, **"A Feasibility Study towards the On-Line Quality Assessment of Pesto Sauce Production by NIR and Chemometrics"**, Foods, 2023, 12, 1679, DOI: 10.3390/foods12081679
- Lorenzo Strani, Raffaele Vitale, Daniele Tanzilli, Francesco Bonacini, Andrea Perolo, Erik Mantovani, Angelo Ferrando, Marina Cocchi, **"A multiblock approach to fuse process and near-infrared sensors for on-line prediction of polymer properties"**, Sensors, 2022, 22(4), 1436, DOI: 10.3390/s22041436

## MORE INFO

Looking for companies for joint doctorates



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## GENERAL INFORMATION

**Università degli Studi di Napoli Federico II**  
**Department of Pharmacy**  
Via Domenico Montesano 49 - 80131 Napoli (NA)  
sito web: <http://www.farmacia.unina.it>

## CONTACTS

Prof. Angela ZAMPELLA  
+39 081679934

## DETAILED INFORMATION

**Staff:** 35 Full Professors

61 Associate Professors

44 Researchers

16 Structured Technicians

13 Administrative Technicians

5 General Services

**Registered students:** 580 (Academic year 2021/2022)

**Post Lauream Training:** 39 enrolled in Doctorates in Pharmaceutical Sciences and Nutraceuticals, functional foods and human health

14 Research fellows

17 fellows

**Patents:** -

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## OTHER R&D ORGANIZATIONS

### CIRFF

Drug-utilization studies with special reference to the study of determinants of drug consumption, adherence and persistence in therapy, and the development of new indicators for assessing the quality of prescribing. Evaluation of the cost-effectiveness of drug therapies by determining cost-effectiveness, cost-utility, and cost-benefits ratio

**Contacts:** Enrica Menditto (+39 081678669) - [cirfefu@unina.it](mailto:cirfefu@unina.it)

**Web site:** <https://www.cirff.it>



SUSCHEM<sup>IT</sup>



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## GENERAL INFORMATION

**Università degli Studi di Napoli Federico II**

**Department of Chemical Sciences**

Via Cintia 4 - 80126 Napoli (NA)

sito web: <http://www.scienzechimiche.unina.it>

## CONTACTS

Prof. Luigi PADUANO

+39 081674191

## DETAILED INFORMATION

**Staff:** 23 Full Professors

48 Associate Professors

29 Researchers

18 Structured Technicians and Administratives

**Registered students:** 1,200 (Academic year 2021/2022)

**Post Lauream Training:** 60 enrolled in doctoral programs in Chemical Sciences

17 Research fellows

**Patents:** 14 Phone: +39 081674392 (Secretary of Director)

Website: <http://www.trasferimentotecnologico.unina.it>

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Dipartimento  
di Ingegneria Chimica,  
dei Materiali e della  
Produzione Industriale  
Università degli Studi  
di Napoli Federico II

SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

Università degli Studi di Napoli Federico II  
Department of Chemical and Materials Engineering and Industrial Production  
Piazzale Tecchio 80 - 80125 Napoli (NA)  
sito web: <http://www.dicmapi.unina.it>

## CONTACTS

Prof. Giuseppe MENSITIERI  
+39 0817682512

## DETAILED INFORMATION

**Staff:** 31 Full Professors  
37 Associate Professors  
27 Researchers  
9 Structured Technicians  
17 Administrative Technicians

**Registered students:** About 1,500 (Academic year 2021/2022)

**Post Lauream Training:** about 100 enrolled in doctoral programs in Industrial Product and Process Engineering

30 Research fellows

20 fellows

**Patents:** 1 Concerning Sustainable Chemistry

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Hydrogen

CYAN H2 production and CO2 valorization: novel process development



**Almerinda Di Benedetto** (+39 0817682265)  
[almerinda.dibenedetto@unina.it](mailto:almerinda.dibenedetto@unina.it)

### Renewable materials

Processing and thermo-mechanical characterization of biopolymers and plastics at low environmental impact



**Giovanni Filippone** (+39 0817682104)  
[gfilippo@unina.it](mailto:gfilippo@unina.it)

### SSbD

Response to fire of natural and synthetic polymers and composites - Laboratory-scale experimentation and advanced mathematical modelling



**Antonio Galgano** (+39 0817682232)  
[agalgano@unina.it](mailto:agalgano@unina.it)

### Circular economy

Pyrolysis and/or gasification of biomass and solid wastes for the production of biofuels and chemicals



**Fabrizio Scala** (+39 0817682239)  
[fabrizio.scala@unina.it](mailto:fabrizio.scala@unina.it)

### Renewable materials

Characterization of the exchange and surface properties of natural and synthetic microporous materials and their applications in the environmental field



**Bruno de Gennaro** (+39 0817682551)  
[bruno.degennaro@unina.it](mailto:bruno.degennaro@unina.it)

### Formulations

Rheological and chemical/physical study of solutions based on cellulose derivatives and/or biocompatible polymers



**Rosanna Pasquino** (+39 0817682288)  
[r.pasquino@unina.it](mailto:r.pasquino@unina.it)

<b>SSbD</b>	Risk analysis and safety of H2 based technology systems	    	<b>Almerinda Di Benedetto</b> (+39 0817682265) <i>almerinda.dibenedetto@unina.it</i>
<b>Formulations</b>	Development of functional foods by fermentation processes and antimicrobial peptides for bio-functionalization of nanoparticles and packaging materials	    	<b>Roberto Nigro</b> (+39 0817682249) <i>rnigro@unina.it</i>
<b>Hydrogen</b>	Synthesis and characterization of micro and meso-porous adsorbent materials for CO2 capture, biogas purification and hydrogen storage	    	<b>Domenico Caputo</b> (+39 0817682396) <i>domenico.caputo@unina.it</i>
<b>Renewable materials</b>	Enzymatic catalysts, anaerobic digestion, chemical and energetic recovery of agro-forestry wastes	    	<b>Domenico Pirozzi</b> (+39 0817682274) <i>dpirozzi@unina.it</i>
<b>LCA</b>	Sustainability assessment of processes and products: Life Cycle Assessment, Life Cycle Cost Assessment, Social-Life cycle assessment, Tecno-Economic assessment. Eco-design and circularity assessment	    	<b>Roberto Chirone</b> (+39 0817682248) <i>roberto.chirone@unina.it</i>
<b>Ecodesign</b>	Synthesis and chemical-physical characterization of thermosets from biological sources and agri-food waste	    	<b>Veronica Ambrogio</b> (+39 0817682410) <i>ambrogio@unina.it</i>
<b>Sustainable bioprocesses</b>	Sustainable development (design and optimization) of processes for the exploitation of intensive cultures of autotrophic micro-organisms (e.g. microalgae) and lignocellulosic biomass for the production of energy vectors, chemicals, nutraceuticals, antioxidants, antiinflammatories	    	<b>Antonio Marzocchella</b> (+39 0817682541) <i>antonio.marzocchella@unina.it</i>
<b>Ecodesign</b>	Immobilization of enzymes in mesostructured materials for biomass conversion into biofuels	    	<b>Aniello Costantini</b> (+39 0817682596) <i>anicosta@unina.it</i>
<b>Sustainable bioprocesses</b>	Thermo-plasticization and skimming processes of polymers of natural origin	    	<b>Ernesto Di Maio</b> (+39 0817682511) <i>edimaio@unina.it</i>
<b>Sustainable bioprocesses</b>	Development of photocatalytic processes for the production of hydrogen and high value added chemical intermediates using solar energy	    	<b>Raffaele Marotta</b> (+39 0817682968) <i>raffaele.marotta@unina.it</i>
<b>Nanotechnologies</b>	Design and development of eco/bio-inspired nanostructured materials for chemo-bio-sensing and treatment of pathogens and contaminants	    	<b>Giuseppe Vitiello</b> (+39 0817685975) <i>giuseppe.vitiello@unina.it</i>
<b>Ecodesign</b>	Study and characterization of sustainable building materials	    	<b>Barbara Liguori</b> (+39 0817682395) <i>barbara.liguori@unina.it</i>
<b>Sustainable bioprocesses</b>	Microfluidic technologies for sustainability. Applications in biomedical and industry	    	<b>Giovanna Tomaiuolo</b> (+39 0817682261) <i>giovanna.tomaiuolo@unina.it</i>
<b>Ecodesign</b>	Eco/bio-compatible probes design for multimodal imaging and green synthesis of systems for water remediation	    	<b>Brigida Silvestri</b> (+39 0817682413) <i>brigida.silvestri@unina.it</i>

<b>Sustainable bioprocesses</b>	Production biofuel/chemicals by biotechnological conversion of renewable resources - lignocellulosic biomass, C1 gas streams (syngas, CO, CH4) - design of biorefinery processes and bioreactors	     	<b>Francesca Raganati</b> (+39 0817682218) <i>francesca.raganati@unina.it</i>
<b>Renewable materials</b>	Thermal and oxidative pyrolysis of biomass variously catalysed for the production of bio-oil and chemicals, including conversion energetics	     	<b>Colomba Di Blasi</b> (+39 0817682232) <i>diblasidi@unina.it</i>
<b>Hydrogen</b>	Hydrogen and biogas production. Treatments of gaseous streams for fuel cells. Innovative materials for fuel cells	     	<b>Maria Turco</b> (+39 0817682259) <i>turco@unina.it</i>
<b>Sustainable bioprocesses</b>	Biomass value-added processes for the production of environmentally friendly materials for RAEE and micropollutants remediation	     	<b>Giuseppina Luciani</b> (+39 081762433) <i>luciani@unina.it</i>
<b>Sustainable bioprocesses</b>	Emulsification processes with reduced environmental footprint	     	<b>Stefano Guido</b> (+39 3395244623) <i>steguido@unina.it</i>
<b>Ecodesign</b>	Design and synthesis of catalysts for oxidative processes and decontamination from organic pollutants	     	<b>Claudio Imparato</b> (+39 0817682415) <i>claudio.imparato@unina.it</i>
<b>Sustainable bioprocesses</b>	Sustainable development of processes to exploit C-based feedstocks. Production of biofuels and chemicals via thermochemical/biotechnological combined route	     	<b>Maurizio Troiano</b> (+39 0817682258) <i>maurizio.troiano@unina.it</i>
<b>Hydrogen</b>	H2 storage in formates solutions	     	<b>Danilo Russo</b> <i>danilo.russo3@unina.it</i>
<b>Sustainable bioprocesses</b>	Role of environmental conditions on bacterial motility and biofilm morphology	     	<b>Sergio Caserta</b> (+39 3289721146) <i>sergio.caserta@unina.it</i>
<b>Ecodesign</b>	Functionalization of polymer composites with sustainable and/or bio-based fillers	     	<b>Aurelio Bifulco</b> <i>aurelio.bifulco@unina.it</i>
<b>Renewable materials</b>	Thermo-rheological study of biodegradable and/or renewable polymers for biomedical applications and in the food industry	     	<b>Nino Grizzuti</b> (+39 0817682285) <i>grizzuti@unina.it</i>
<b>SSbD</b>	Development of enzymatic processes for biorefinery of lignocellulosic biomass and valorization of CO2 (CCU contest). Kinetic characterization. Bioconversion unit development. Simulation	     	<b>Piero Salatino</b> (+39 0817682258) <i>salatino@unina.it</i>
<b>Sustainable bioprocesses</b>	Design and synthesis of catalysts for non-edible biomass valorisation	     	<b>Antonio Aronne</b> (+39 0817682556) <i>anaronne@unina.it</i>
<b>Resource efficiency</b>	Environmental free surface treatments using Deep Eutectic Solvents	     	<b>Tullio Monetta</b> (+39 0817682403) <i>monetta@unina.it</i>
<b>Energy efficiency</b>	Thermo-kinetic characterization of chemical systems of industrial interest	     	<b>Roberto Andreozzi</b> (+39 0817682251) <i>roberto.andreozzi@unina.it</i>

## OTHER R&D ORGANIZATIONS

<b>ACLabs - Applied Chemistry Laboratory</b>	Laboratory specialized in the characterization of nanoporous materials, building materials and ceramic materials of technological interest <b>Contacts:</b> Domenico Caputo (+39 0817682396) - domenico.caputo@unina.it
<b>BPL - Bioprocess Engineering Laboratory</b>	Laboratory specialized in the design, management and optimization of bioreactors and industrial biotechnological processes <b>Contacts:</b> Antonio Marzocchella (+39 0817682541) - antonio.marzocchella@unina.it <b>Web site:</b> <a href="http://wpage.unina.it/biop.eng.lab/home.htm">http://wpage.unina.it/biop.eng.lab/home.htm</a>
<b>Thermo-kinetic characterization of chemical systems of industrial interest</b>	Laboratory devoted to the study the behaviour of chemical system that may be interested by thermal explosion, using appropriate calorimetric techniques <b>Contacts:</b> Roberto Andreozzi (+39 0817682251)
<b>Materials Chemistry Laboratories</b>	Laboratories specialized in the synthesis and characterization of hybrid and nanostructured materials through bio-inspired and eco-sustainable strategies <b>Contacts:</b> Antonio Aronne (+39 0817682556) - anaronne@unina.it
<b>Food Engineering Lab</b>	Lab specialized in development of products and processes for consumer goods <b>Contacts:</b> Roberto Nigro (+39 0817682249) - rnigro@unina.it
<b>Biochemical Engineering Laboratory</b>	Laboratory specialized in fermentation and enzyme catalysis <b>Contacts:</b> Domenico Pirozzi (+39 0817682274) - dpirozzi@unina.it
<b>Mass Transport Lab</b>	Laboratory aimed at the measurement of diffusion, permeation and sorption of gases and vapors in polymers and at the characterization of thermodynamic properties of polymers <b>Contacts:</b> Giuseppe Mensitieri (+390817682512) - mensitie@unina.it <b>Web site:</b> <a href="https://www.dicmapi.unina.it/research/gruppi-di-ricerca/scienza-e-ingegneria-di-materiali-e-superfici-sems/">https://www.dicmapi.unina.it/research/gruppi-di-ricerca/scienza-e-ingegneria-di-materiali-e-superfici-sems/</a>
<b>SaRAH Lab</b>	Safety, Risk Analysis and Hydrogen <b>Contacts:</b> Almerinda Di Benedetto (+39 0817682265) - almerinda.dibenedetto@unina.it <b>Web site:</b> <a href="https://www.dicmapi.unina.it/research/gruppi-di-ricerca/sarah-safety-risk-analysis-hydrogen/">https://www.dicmapi.unina.it/research/gruppi-di-ricerca/sarah-safety-risk-analysis-hydrogen/</a>



**DIPARTIMENTO  
DI INGEGNERIA  
INDUSTRIALE**



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#### GENERAL INFORMATION

**Università degli Studi di Padova**  
**Department of Industrial Engineering (DII)**  
Via Gradenigo 6/a - 35131 Padova (PD)  
sito web: <http://www.dii.unipd.it>

#### CONTACTS

Prof.ssa Stefania BRUSCHI  
+39 0498277500

#### DETAILED INFORMATION

**Staff:** 42 Full Professors

49 Associate Professors

47 Researchers

44 Structured Technicians

27 Administrative Technicians

6 General Services

**Registered students:** 5,486 (Academic year 2019/2020)

**Post Lauream Training:** 91 enrolled in doctoral programs

68 Research fellows

**Patents:** 52

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UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



## GENERAL INFORMATION

Università degli Studi di Padova  
Department of Chemical Sciences

Via F. Marzolo 1 - 35131 Padova (PD)

sito web: <http://www.chimica.unipd.it>

## CONTACTS

Prof. Michele MAGGINI

<https://www.chimica.unipd.it/ricerca/gruppi-di-ricerca>

## DETAILED INFORMATION

**Staff:** 27 Full Professors

50 Associate Professors

30 Researchers

34 Structured Technicians

18 Administrative Technicians

2 General Services

**Registered students:** 1,223 (Academic year 2021/2022)

**Post Lauream Training:** 96 enrolled in doctoral programs in Molecular Sciences and Materials Science and Engineering

47 Research fellows

**Patents:** 11 (2016-2020)

Trademark: 2

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Optical sensors

Optical sensors and laser synthesis of multifunctional nanoparticles



**Vincenzo Amendola** (+39 0498275673)  
[vincenzo.amendola@unipd.it](mailto:vincenzo.amendola@unipd.it)

### Sintesi organica-inorganica

Synthesis of organic-inorganic hybrids (for catalysis, energy conversion, nanomedicine) and of enzymes and synthetic functional membranes



**Marcella Bonchio** (+39 0498275670)  
[marcella.bonchio@unipd.it](mailto:marcella.bonchio@unipd.it)

### Carbon nanostructures

Organic functionalization of carbon nanostructures for the conversion of solar energy. Functional supramolecular gels; API synthesis in continuous flow



**Michele Maggini** (+39 0498275662)  
[michele.maggini@unipd.it](mailto:michele.maggini@unipd.it)

### Polymers

Study and characterization of polymeric materials and composite systems for manufactures, fibers and coatings



**Carla Marega** (+39 0498275233)  
[carla.marega@unipd.it](mailto:carla.marega@unipd.it)

### Electrochemistry

Study of electron transfer in multi-metal complexes, electrochemical sensors for metal ions



**Saverio Santi** (+39 0498275119)  
[saverio.santi@unipd.it](mailto:saverio.santi@unipd.it)

### Electrochemistry

Electron transfer through molecular bridges and interfaces; dissociative electron transfer; properties and applications of metal nanoclusters; electrochemical sensors



**Flavio Maran** (+39 0498275147)  
[flavio.maran@unipd.it](mailto:flavio.maran@unipd.it)

<b>Modelisation</b>	Multiscale modeling of complex systems of biological (biomembranes, and proteins) and technological interest (polymers, liquid crystals, colloids)	 	<b>Alberta Ferrarini</b> (+39 0498275682) <i>alberta.ferrarini@unipd.it</i>
<b>Peptides</b>	Synthesis of peptide structures for medicinal chemistry applications and materials science	 	<b>Fernando Formaggio</b> (+39 0498275277) <i>fernando.formaggio@unipd.it</i>
<b>Pollutants abatement</b>	Development of Critical Raw Materials-free heterogeneous catalysts for Abatement of Gas Phase Pollutants emitted by veicles and stable plants	 	<b>Antonella Glisenti</b> (+39 0498275176) <i>antonella.glisenti@unipd.it</i>
<b>Functional materials</b>	Design, synthesis and characterization of supramolecular structures, thin films, and inorganic colloids for applications in energy, sensors and nanomedicine	 	<b>Lidia Armelao</b> (+39 0498275236) <i>lidia.armelao@unipd.it</i>
<b>Green chemistry</b>	Wet-chemistry synthesis and characterisation of inorganic nanostructures, by sustainable approaches (colloidal, hydrothermal, microfluidic, synbtehis)	 	<b>Silvia Gross</b> (+39 0498275736) <i>silvia.gross@unipd.it</i>
<b>Functional polymers</b>	Synthesis of functional polymers for lubricating and biocompatible coatings, study of the interaction between polymeric interfaces and biological/physiological environments	 	<b>Edmondo Maria Benetti</b> (+39 0498275232) <i>edmondo.benetti@unipd.it</i>
<b>Catalysis</b>	Synthesis of asymmetric ligands for catalysis, metal-enzymes (haloperoxidase, lignin-peroxidase). Hybrid receptors for anions; self-assembled molecular cages	 	<b>Giulia Licini</b> (+39 0498275147) <i>giulia.licini@unipd.it</i>
<b>Catalytic processes</b>	Development of catalytic processes for use in biorefineries, direct synthesis of hydrogen peroxide and oxidation of alcohols	 	<b>Marco Zecca</b> (+39 0498275737) <i>marco.zecca@unipd.it</i>
<b>Surface chemistry</b>	Surface chemistry. On-surface synthesis on nanosystems of interest for molecular electronics, catalysis and sensing	 	<b>Mauro Sambi</b> (+39 0498275189) <i>mauro.sambi@unipd.it</i>
<b>NMR</b>	Protein production and purification. Structure and interactions of proteins using NMR and Crystallography. Metabolomic analysis of food extracts and biological fluids	 	<b>Stefano Mammi</b> (+39 0498275293) <i>stefano.mammi@unipd.it</i>
<b>Fuel cells</b>	Innovative Materials/Processes for Advanced Environmental Clean Technologies IMPACT: Solid Oxide Fuel Cells/Electrolysers noble metals free	 	<b>Antonella Glisenti</b> (+39 0498275176) <i>antonella.glisenti@unipd.it</i>
<b>Modelisation</b>	Modeling of nanostructures and their interaction with biomolecules for nanobiotechnological applications	 	<b>Stefano Corni</b> (+39 0498275295) <i>stefano.corni@unipd.it</i>
<b>Environmental pollution</b>	Non-thermal plasma for the remediation of air and water and the production of synthesis gas by methane reforming	 	<b>Ester Marotta</b> (+39 0498271608) <i>ester.marotta@unipd.it</i>
<b>Catalysis</b>	Synthesis & characterization of functional nanosystems (nanoparticles composites 2D materials) for energy and catalysis	 	<b>Stefano Agnoli</b> (+39 0498275167) <i>stefano.agnoli@unipd.it</i>

<b>Sensors</b>	Study of energy transfer processes in complex systems and in photonics materials and analytical and bioanalytical sensors	      	<b>Camilla Ferrante</b> (+39 04982756148) <i>camilla.ferrante@unipd.it</i>
<b>Modelisation</b>	Theoretical and computational chemistry; development of methods for the modeling of microfluidic systems, electronic transfers, organic-inorganic hybrid systems	      	<b>Antonino Polimeno</b> (+39 0498275146) <i>antonino.polimeno@unipd.it</i>
<b>Steam phase</b>	Design and synthesis of nanostructured inorganic systems through vapor phase deposition techniques	      	<b>Chiara Maccato</b> (+39 0498275234) <i>chiara.maccato@unipd.it</i>
<b>Organometallic compounds</b>	Organometallic compounds as catalysts, bioactive compounds and advanced materials for devices. Microgel chemistry	      	<b>Andrea Biffis</b> (+39 0498275216) <i>andrea.biffis@unipd.it</i>
<b>Physical-organic chemistry</b>	Complex systems for molecular recognition and catalysis. Physical-organic chemistry. Kinetic models	      	<b>Leonard Prins</b> (+39 0498275251) <i>leonard.prins@unipd.it</i>
<b>Contaminant analysis</b>	Analysis of water, environmental and food contaminants, atmospheric chemistry, optical sensors	      	<b>Paolo Pastore</b> (+39 0498275182) <i>paolo.pastore@unipd.it</i>
<b>Materials</b>	Characterization of molecular materials with physical-chemical experimental techniques	      	<b>Fosca Conti</b> (+39 0498275229) <i>fosca.conti@unipd.it</i>
<b>EPR</b>	Electronic Paramagnetic Resonance (EPR) to study materials and biological systems	      	<b>Donatella Carbonera</b> (+39 0498275144) <i>donatella.carbonera@unipd.it</i>

## OTHER R&D ORGANIZATIONS

<b>Centro di Ateneo Analisi e Servizi Per la Certificazione</b>	Analysis in the field of asbestos fibres and certifications <b>Web site:</b> <a href="http://ceasc.unipd.it">http://ceasc.unipd.it</a>
<b>Centro interdipartimentale di ricerca "Centro studi di economia e tecnica dell'energia Giorgio Levi Cases"</b>	Scientific and technological research about energy sources and their transformation, energy distribution and its final use <b>Web site:</b> <a href="http://www.levicases.unipd.it">http://www.levicases.unipd.it</a>
<b>Centro interdipartimentale di ricerca di meccanica dei materiali biologici</b>	Biomedical and material engineering with main regard to biological tissue mechanics and biomaterials <b>Web site:</b> <a href="http://www.cmbm.unipd.it">http://www.cmbm.unipd.it</a>
<b>CEWMS - Centro studi sull'economia circolare (Circular Economy of Waste, Materials and Sustainability)</b>	Development of research activities and technical support to research centers or companies operating in the field of Circular Economy and environmental sustainability <b>Web site:</b> <a href="https://www.dicea.unipd.it/cewms">https://www.dicea.unipd.it/cewms</a>
<b>CIBA - Centro interdipartimentale di ricerca studio e conservazione dei beni archeologici, architettonici e storico-artistici</b>	Study and monitoring of cultural heritage, design and enhancement of conservation system of historical artefacts
<b>PCNM (Padua Center for Network Medicine)</b>	Interdisciplinary center for preclinical and clinical biomedical research <b>Contacts:</b> <b>Web site:</b> <a href="https://pcnm.unipd.it/index.php">https://pcnm.unipd.it/index.php</a>
<b>Spinoff "Pan / De Rebus Plantarum"</b>	Plant health solutions using environmentally sensitive products and methods <b>Contacts:</b> Paolo Pastore (+39 0498275182) - <a href="mailto:paolo.pastore@unipd.it">paolo.pastore@unipd.it</a> <b>Web site:</b> <a href="http://drp.bio/it">http://drp.bio/it</a>

## COLLABORATIONS WITH COMPANIES

- Acca Industires S.r.l.
- AMCOR FLEXIBLES ITALIA S.r.l.
- Basell Poliolefine Italia S.r.l.
- BerkemS.r.l.
- CHELAB S.r.l.
- dtoLABS S.r.l.
- EcamRicert S.r.l.
- Enphos S.r.l.
- Exclusive Lash Brow S.r.l.s.
- FIAMM Energy Technology S.p.A.
- Hyter S.r.l.
- Sincera Sistemi S.r.l.
- Società Italiana Biotecnologie S.r.l.
- Tin Cast S.r.l.

”

## PUBBLICAZIONI

- M. Parnigotto, M. Mazzucato, D. Fabris, L. Dainese, S. Cazzanti, N. Bortolamei, C. Durante, **"Water Loss Predictive Tests in Flooded Lead-Acid Batteries"**, ChemElectroChem, 2022, 9, e2022008
- A. Ahmed, F. Conti, M. Schießl-Widera, M. Goldbrunner, **"CFD-Based Sensitivity-Analysis and Performance Investigation of a Hydronic Road-Heating System"**, Energies 2023, 16(5), 2173
- E. Guazzelli, L. Santarlasci, M. Oliva, C. Pretti, M. Romio, A. Glisenti, E. M. Benetti, E. Martinelli, **"Oligo(2-alkyl-2-oxazoline)-based graft copolymers for marine antifouling coatings"**, European Polymer Journal 190 (2023) 11 1998
- D. Salvò, D. Mosconi, A. Neyman, M. Bar-Sadan, L. Calvillo, G. Granozzi, M. Cattelan, S. Agnoli, **"Nanoneedles of Mixed Transition Metal Phosphides as Bifunctional Catalysts for Electrocatalytic Water Splitting in Alkaline Media"**, Nanomaterials 2023, 13, 683
- A. Vagias, A. Nelson, P. Wang, J. Reitenbach, C. Geiger, L.P. Kreuzer, T. Saerbeck, R. Cubitt, E.M. Benetti, P. Müller-Buschbaum, **"The Topology of Polymer Brushes Determines Their Nanoscale Hydration"**, Macromol. Rapid Commun. 2023, 44, 230003
- M. Micheletto, E. Gaio, E. Tedesco, G. Di Maira, E. Mantovan, M. Zanella, P. Pastore, M. Roverso, G. Favaro, F. Benetti, **"Intestinal Absorption Study of a Granular Form of Ferric Pyrophosphate"**, Metabolites 2022, 12, 463
- A. Romano, L. Navarini, V. Lonzarich, S. Bogialli, P. Pastore, L. Cappellin, **"2,4,6-Trichloroanisole Off-Flavor Screening in Green Coffea arabica by a Novel Vocus NO+ CI-MS Method: A Study on Green Coffee from Different Geographical Origins"**, J. Agric. Food Chem. 2022, 70, 11412–11418

## MORE INFO

- Doctoral Scholarships in collaboration with companies
- UNIMPRESA to set up projects in collaboration with companies aimed at innovation
- Relations with companies in the Department of Chemical Sciences (analysis, dissemination, meetings with companies)



## GENERAL INFORMATION

Università degli Studi di Padova

Department of Pharmaceutical and Pharmacological Sciences

Via F. Marzolo 5 – 35131 Padova (PD)

sito web: <http://www.dsfarm.unipd.it>

## CONTACTS

Prof. Stefano MORO

+39 0498275704

Department Secretary

Maria Teresa Giordano (+39 0498275322) - [mariateresa.giordano@unipd.it](mailto:mariateresa.giordano@unipd.it)

## DETAILED INFORMATION

**Staff:** 10 Full Professors

28 Associate Professors

19 Researchers

13 Structured Technicians

21 Administrative Technicians

3 General Services

**Registered students:** 1,564 (Academic year 2022/2023)

**Post Lauream Training:** 51 enrolled in doctoral programs in Molecular Sciences, Pharmacological Sciences, Biomedicine

9 Research fellows

13 fellows

**Patents:** 109 <https://www.dsfarm.unipd.it/terza-missione/brevetti>

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Regenerative medicine

The research regards tissue engineering to construct biological substitutes for research, diagnostic or regenerative medicine purposes and In vitro models of inflammation



**Maria Teresa Conconi** (+39 0498275714)  
[mariateresa.conconi@unipd.it](mailto:mariateresa.conconi@unipd.it)

### Oncological pharmacology

Studies on pharmacodynamics and pharmacokinetic aspects of cancer pharmacology, with emphasis on discovering novel molecular targets in cancer cells and in the non-cancerous cells forming the tumor microenvironment



**Monica Montopoli** (+39 0498275090)  
[monica.montopoli@unipd.it](mailto:monica.montopoli@unipd.it)

### Nutraceuticals

The research focuses on: food analysis; metabolomic-based studies for natural bioactive products and nutraceuticals; isolation of bioactive constituents from plants, crop and other agricultural products for nutraceutical development



**Stefano Dall'Acqua** (+39 0498275344)  
[stefano.dallacqua@unipd.it](mailto:stefano.dallacqua@unipd.it)

### Tossicologia ambientale

Studies on: plant extracts and compounds useful for drug development; multidrug strategy in diseases with multicausal aetiology and complex physiopathology; development of environmentally sustainable pesticides



**Girolamo Calò** (+39 0498275103)  
[girolamo.calo@unipd.it](mailto:girolamo.calo@unipd.it)

<b>Cosmetic formulation</b>	The research comprises wet granulation and scale up, development of lipid formulations, design and development of oral solid dosage forms, muco-adhesive tablets, technological development of $\beta$ emitting radiopharmaceutical produced with radioactive ion beams	    	<b>Nicola Realdon</b> (+39 0498275338) <i>nicola.realdon@unipd.it</i>
<b>Neuropharmacology</b>	Molecular/functional studies to evaluate: the role of microglial cells in the development of the neuronal network and the maintenance of cerebral homeostasis; the causes of demyelinating diseases affecting the central nervous system with particular attention to multiple sclerosis	    	<b>Morena Zusso</b> (+39 0498275093) <i>morena.zusso@unipd.it</i>
<b>Cardiovascular pharmacology</b>	Studies on: role of endogenous/exogenous estrogens on the activation of human monocyte-derived macrophages; cell-cell interaction in relation to fibrosis angiogenesis; role of the endothelium and cells of the innate immune system in the inflammatory process; molecular mechanisms regulating cholesterol homeostasis and development of atherosclerotic plaque	    	<b>Chiara Bolego</b> (+39 0498275101) <i>chiara.bolego@unipd.it</i>
<b>Gastrointestinal pharmacology</b>	Studies on mechanisms regulating gastrointestinal function in health and disease conditions, in order to develop new pharmacological treatments and nutritional strategies for disorders of the gut-brain axis, obesity, inflammatory bowel disease and neurodegenerative diseases	    	<b>Maria Cecilia Giron</b> (+39 0498275091) <i>cecilia.giron@unipd.it</i>
<b>Biochemistry</b>	Research concerning protein structure, protein folding and misfolding by using biochemical and biophysical technologies	    	<b>Vincenzo De Filippis</b> (+39 0498275698) <i>vincenzo.defilippis@unipd.it</i>
<b>Sintesi di farmaci</b>	The research focuses on: synthesis and development of bioactive molecules for the treatment of cancer, pain and inflammation, cystic fibrosis, obesity, erectile dysfunction and pulmonary arterial hypertension; development of low weight chemical entities to investigate complex super-molecular arrangements; molecular modeling and drug discovery via computational techniques	    	<b>Stefano Moro</b> (+39 0498275704) <i>stefano.moro@unipd.it</i>
<b>Biopharmaceutics</b>	The research focuses on: proteins modification; lipid and polymeric nanoparticles and polymer bioconjugates production; development of lipid membrane vesicles, liposomes and polymerases as delivery carriers; oncolytic virotherapy for cancer treatment; development of polysaccharides for immune system modulation; development of nano-nucleic for nanomedicine; development of gold nanoparticles as diagnostic/therapeutic agents	    	<b>Paolo Caliceti</b> (+39 0498275695) <i>paolo.caliceti@unipd.it</i>
<b>Pharmaceutical-molecular mechanisms</b>	The research focuses on: study of anticancer compounds; drugs targeting nucleic acids or other disease-selective protein targets; photochemical and photobiological effects; biophysical chemistry	    	<b>Claudia Sissi</b> (+39 0498275711) <i>claudia.sissi@unipd.it</i>
<b>Pharmaceutical biology</b>	The research comprises plants as source of secondary metabolites, in vitro plant cell cultures, pharmacognostic evaluation of herbal drugs, algae as source of phytochemicals	    	<b>Raffaella Filippini</b> (+39 0498275371) <i>raffaella.filippini@unipd.it</i>

## OTHER R&D ORGANIZATIONS

### Ananas Nanotech

Spin off active in the biomedical sector which operates in particular in the development of analytical and diagnostic systems that exploit the technology of nanoparticles of avidin-nucleic acids (ANANAS) originating within the Department of Pharmaceutical Sciences. The company's purpose is the development and marketing of kits and reagents for research, in vitro and in vivo diagnostics and drug delivery using the proprietary technology of the ANANAS assemblies

**Contacts:** Margherita Morpurgo (+39 0498275330) - [margherita.morpurgo@unipd.it](mailto:margherita.morpurgo@unipd.it)

**Web site:** <https://www.dsfarm.unipd.it/terza-missione/spin>

### Eubiome

Among the microbiome modulation strategies, one of the most interesting and promising is fecal microbiota transplantation (FMT), a medical procedure in which stool from a healthy donor is introduced into a patient's intestine as a medical treatment. FMT has also been applied in veterinary medicine for the treatment of intestinal disorders of ruminants and equines since the 17th century. In this scenario, Eubiome intends to offer fecal biobank services in an attempt to meet the growing need for safe, standardized, rapid and economic access to the material necessary for the practice of FMT, both in the field of research and in veterinary care, in particular as far as pets are concerned

**Contacts:** Maria Cecilia Giron (+39 0498275091) - [cecilia.giron@unipd.it](mailto:cecilia.giron@unipd.it)

**Web site:** <https://www.eubiome.it/en/>

### Institute of Condensed Matter Chemistry and Energy Technologies - ICMATE

Research activity in the fields of Radiopharmaceutical Chemistry, Pharmaceutical Radiochemistry, Nuclear Medicine and Molecular Imaging; Bio-inorganic Chemistry

**Contacts:** Alessandro Dolmella (+39 0498275345) - [alessandro.dolmella@unipd.it](mailto:alessandro.dolmella@unipd.it)

**Web site:** <https://www.cnr.it/en/institute/031>

### National Institute for Nuclear Physics INFN - ISOLPHARM Project

The ISOLPHARM Project was born from the collaboration between the Departments of Pharmaceutical and Pharmacological Sciences, the Department of Chemical Sciences of the University of Padova and the Legnaro National Laboratories (LNL) of the National Institute of Nuclear Physics (INFN) where the Selective Production of Exotic Species (SPES) Project is under development. By means of the Isotope Separation On-Line (ISOL) technique both traditional and innovative radioisotopes will be produced with high-specific activity, going beyond the state of art of the radioisotope production

**Contacts:** Nicola Realdon (+39 0498275338) - [nicola.realdon@unipd.it](mailto:nicola.realdon@unipd.it)

**Web site:** <https://isolpharm.pd.infn.it/web/>

### UNIRED

Spin off of active in the research field of cosmetic products, dietary and herbal food supplements, medical devices and home products; investigations on sensorial, psychophysical, neuroimaging, marketing, customer satisfaction aimed at the development, promotion and marketing of wellness through the use of the products themselves

**Contacts:** Alessandra Semenzato (+39 0498275356) - [alessandra.semenzato@unipd.it](mailto:alessandra.semenzato@unipd.it)

**Web site:** <http://unired.it/en/home-2/>

## COLLABORATIONS WITH COMPANIES

- Bios Line S.p.A.
- Fidia S.p.A.
- Solgar Italia Multinutrient S.p.A.
- Unifarco S.p.A.

## MORE INFO

- Research areas
- Contracts for commissioned research
- Spin-off



## GENERAL INFORMATION

**Università degli Studi di Palermo**  
**Department of Engineering**

Viale delle Scienze, Edificio 7 – 90128 Palermo (PA)  
sito web: <http://www.unipa.it/dipartimenti/ingegneria>

## CONTACTS

Prof. Antonino VALENZA  
+39 09123863701

## DETAILED INFORMATION

**Staff:** 73 Full Professors  
94 Associate Professors  
116 Researchers  
16 Structured Technicians  
72 Administratives

**Registered students:**

**Post Lauream Training:** 40 enrolled in international doctoral programs in Chemical, Environmental, Biomedical, Hydraulic and Materials Engineering

22 Research fellows

64 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Pollutants abatement

Photocatalytic processes for the abatement of emerging pollutants



**Giuseppe Marci** (+39 09123863738)  
*giuseppe.marci@unipa.it*

### Circular economy

Production of renewable energy via salinity gradients



**Giorgio Micale** (+39 3204328589)  
*giorgiod.maria.micale@unipa.it*

### Circular economy

Valorisation of brines coming from desalination plants and recovery of critical raw materials for waste saline streams



**Giorgio Micale** (+39 3204328589)  
*giorgiod.maria.micale@unipa.it*

### Sensors

Development of electrochemical sensors for applications in the environmental, food and biomedical fields



**Rosalinda Inguanta** (+39 3332751523)  
*rosalinda.inguanta@unipa.it*

### Nanomaterials

Development of nanostructured electrodes for electrochemical devices



**Rosalinda Inguanta** (+39 3332751523)  
*rosalinda.inguanta@unipa.it*

### Fluid dynamics

Computational Fluid Dynamics Simulation in Monophasic and Multiphasic Industrial Systems



**Francesca Scargiali** (+3909123863714)  
*francesca.scargiali@unipa.it*

### Waste valorisation

Study of thermochemical processes for the valorization of residual organic matrices: -Hydrothermal liquefaction processes for the production of biofuels and the valorization of residual biomass



**Alessandro Galia** (+39 09123863758)  
*alessandro.galia@unipa.it*

<b>Microalgae</b>	Development of microalgae cultivation techniques for the accumulation of high-value compounds. Utilization of residual biomass. Application of microalgae in wastewater treatment and removal of emerging contaminants	    	<b>Francesca Scargiali</b> (+39 09123863714) <i>francesca.scargiali@unipa.it</i>
<b>Energy recovery</b>	Reverse electrolysis and microbial cells for energy production, waste water treatment and production of fine chemicals	    	<b>Onofrio Scialdone</b> (+39 09123863754) <i>onofrio.scialdone@unipa.it</i>
<b>Biomass</b>	Synthesis of catalysts and catalytic tests for the valorization of biomass	    	<b>Giuseppe Marci</b> (+39 09123863738) <i>giuseppe.marci@unipa.it</i>
<b>Soil electrodeposition</b>	Electrochemical remediation of soil and sediments contaminated by recalcitrant organic pollutants	    	<b>Federica Proietto</b> (+39 09123863758) <i>federica.proietto@unipa.it</i>
<b>Circular economy</b>	Energy storage processes based on salinity and pH gradients	    	<b>Giorgio Micale</b> (+39 3204328589) <i>giorgiod.maria.micale@unipa.it</i>
<b>Hydrogen</b>	Development of electrocatalysts for the production of green hydrogen	    	<b>Rosalinda Inguanta</b> (+39 3332751523) <i>rosalinda.inguanta@unipa.it</i>
<b>CO2 electro-reduction</b>	Innovative electrochemical process for the waste-CO2 valorisation into added-value chemicals (e.g. formic acid, syngas)	    	<b>Onofrio Scialdone</b> (+39 09123863754) <i>onofrio.scialdone@unipa.it</i>
<b>Polymer functionalisation</b>	Synthesis and modification of polymers by electrochemical methods or in dense CO2-based process media	    	<b>Alessandro Galia</b> (+39 09123863758) <i>alessandro.galia@unipa.it</i>
<b>Circular economy</b>	Low-energy seawater desalination	    	<b>Giorgio Micale</b> (+39 3204328589) <i>giorgiod.maria.micale@unipa.it</i>
<b>Bio-coatings</b>	Development of biocoatings for orthopedic applications	    	<b>Rosalinda Inguanta</b> (+39 3332751523) <i>rosalinda.inguanta@unipa.it</i>
<b>Decarbonization</b>	Chemical processes driven by concentrated solar heat	    	<b>Alessandro Galia</b> (+39 09123863758) <i>alessandro.galia@unipa.it</i>
<b>Waste valorisation</b>	Study of thermochemical processes for the carbonization of single use plastics in molten salts	    	<b>Claudia Prestigiaco</b> (+39 09123863758) <i>claudia.prestigiaco01@unipa.it</i>
<b>Supercritical fluids</b>	Supercritical Water Oxidation and Gasification Processes and Supercritical CO2 Extraction	    	<b>Giuseppe Caputo</b> (+39 09123862658) <i>giuseppe.caputo01@unipa.it</i>
<b>Circular economy</b>	Computational fluid dynamics (CFD) simulations of membrane separation processes and chemical engineering apparatuses. Computational emodynamics for biomedical applications	    	<b>Giorgio Micale</b> (+39 3204328589) <i>giorgiod.maria.micale@unipa.it</i>
<b>Circular economy</b>	Hydrogen productions via electro-membrane processes	    	<b>Giorgio Micale</b> (+39 3204328589) <i>giorgiod.maria.micale@unipa.it</i>
<b>Wastewater treatment</b>	Innovative electrochemical processes for the wastewater treatment polluted by organic recalcitrants	    	<b>Onofrio Scialdone</b> (+39 09123863754) <i>onofrio.scialdone@unipa.it</i>

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**Supercritical fluids**

Supercritical fluids extraction of high added values products.

**Alessandro Galia** (+39 09123863758)  
*alessandro.galia@unipa.it*

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**Circular economy**

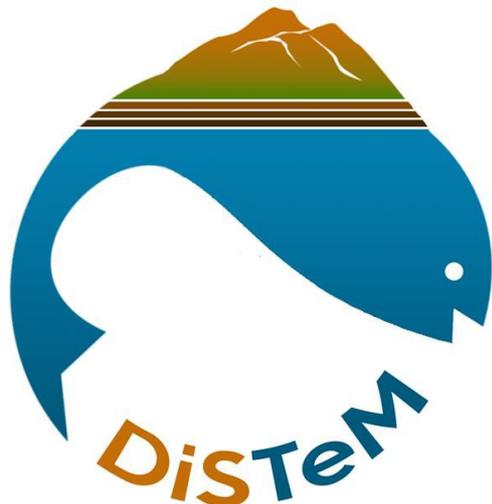
Reactive crystallisation of alkali and alkaline earth metals

**Giorgio Micale** (+39 3204328589)  
*giorgiod.maria.micale@unipa.it*

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**PUBBLICAZIONI**

- Tamburini A., Tedesco M., Cipollina A., Micale G., Ciofalo M., Papapetrou M., Van Baak W., Piacentino A., **"Reverse electro dialysis heat engine for sustainable power production"** (2017) Applied Energy, 206, pp. 1334 – 1353
- Prestigiacomo C., Costa P., Pinto F., Schiavo B., Siragusa A., Scialdone O., Galia A., **"Sewage sludge as cheap alternative to microalgae as feedstock of catalytic hydrothermal liquefaction processes"**, (2019) Journal of Supercritical Fluids, 143, pp. 251 – 258
- Giacalone F., Catrini P., Tamburini A., Cipollina A., Piacentino A., Micale G., **"Exergy analysis of reverse electro dialysis"**, (2018) Energy Conversion and Management, 164, pp. 588 – 602
- Patella B., Narayan T., O'Sullivan B., Daly R., Zanca C., Lovera P., Inguanta R., O'Riordan A., **"Simultaneous detection of copper and mercury in water samples using in-situ pH control with electrochemical stripping techniques"**, (2023) Electrochimica Acta, 439, art. no. 141668
- Proietto F., Schiavo B., Galia A., Scialdone O., **"Electrochemical conversion of CO<sub>2</sub> to HCOOH at tin cathode in a pressurized undivided filter-press cell"**, (2018) Electrochimica Acta, 277, pp. 30 – 40
- Lima S., García-López E.I., Adawy A., Marci G., Scargiali F., **"Valorisation of Chlorella sp. biomass in 5-HMF through a two-step conversion in the presence of Nb<sub>2</sub>O<sub>5</sub> and NbOPO<sub>4</sub> and optimisation through reactive extraction"**, (2023) Chemical Engineering Journal, 471, art. no. 144583
- García-López E.I., Pomilla F.R., Krivtsov I., Serrano A., Liotta L.F., Villar-Rodil S., Paredes J.I., Marci G., **"Heteropolyacids supported on boron nitride and carbon nitride for catalytic and catalytic photo-assisted alcohol dehydration"**, (2021) Catalysis Today, 380, pp. 209 – 222



Dipartimento di Scienze della Terra e del Mare

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## GENERAL INFORMATION

Università degli Studi di Palermo  
Department of Earth and Sea Sciences (DiSTeM)  
Via Archirafi 22 - 90123 Palermo (PA)  
sito web: <http://www.dipartimento.distem@unipa.it>

## CONTACTS

Prof. Attilio SULLI  
+39 09123864631

## DETAILED INFORMATION

**Staff:** 11 Full Professors  
19 Associate Professors  
31 Researchers  
7 Technologists

**Registered students:**

**Post Lauream Training:** 28 enrolled in doctoral programs in Earth and Sea Sciences  
6 Research fellows  
26 fellows

**Patents:** -

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## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

The scientific activity focuses on various topics related to environmental microbiology and microbial biotechnologies aimed at the restoration of contaminated environments and matrices (e.g. water, sediments, soils contaminated with hydrocarbons). The majority of the research activities are aimed at the taxonomic, catabolic, and metabolic characterization of cultivable and non-cultivable microbial communities, as well as the development of microbial biotechnological systems for bioremediation applications. Ongoing and/or completed activities include: the study of biofilms and the plastsphere associated with biodegradable and non-biodegradable plastics in marine environments, analysis of hydrocarbon-oxidizing microbial communities, immobilization of hydrocarbon-degrading bacteria on biopolymeric supports for bioremediation applications in contaminated waters, isolation and characterization of microorganisms with lipolytic activity, and development of systems for the bioaugmentation of industrial effluents (mixtures of oils and fats), as well as the search for antimicrobials from unconventional sources, and the study of microbial bioindicators in desertified soils

**Analytical chemistry**

Studies on the interactions between components of natural waters (alkali metal ions or alkaline earth metals) with low molecular weight ligands of environmental interest (carbonates, phosphates) and biological interest (amino acids, carboxylates, nucleotides). Different modeling approaches have been used to define interaction parameters [SIT (Specific ion Interaction Theory), Pitzer, and Ionic Association model]. Investigations on the acid-base properties of high molecular weight synthetic ligands (polyacrylates and polymethacrylates) and natural ligands (alginate, chitosan, pectin, humic and fulvic acids) and on the formation of complex species with metal ions and organometallics in different ionic media and at different ionic strengths, aimed at defining the dependence of protonation constants and complex formation on ionic strength, and their capacity as sequestering agents for ions of toxic metals. Studies on the binding capacity of organic and inorganic soils, aimed at defining the bioavailability of essential and toxic metal ions. Development of chemical speciation models capable of predicting the chemical behavior of different classes of ligands in natural fluids, with particular reference to marine waters. Formulation and characterization of composites (halloysite nanotubes) and biopolymers, to study the selective adsorption of organic and inorganic pollutants. Analysis of different contaminants and their ecotoxicological impact in natural environments, aimed at environmental control and monitoring. Characterization, biodegradation, and environmental risks associated with bioplastics. Theoretical and practical studies on the behavior of zirconium and hafnium in natural waters. Separative analytical methods for the characterization of food and environmental matrices





DIPARTIMENTO DI SCIENZE E TECNOLOGIE  
BIOLOGICHE, CHIMICHE E FARMACELUTICHE (STeBiCeF)



## GENERAL INFORMATION

Università degli Studi di Palermo

Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STeBiCeF)

Viale delle Scienze, Ed. 16 - 90128 Palermo (PA)

sito web: <http://www.unipa.it/dipartimenti/stebicef>

## CONTACTS

Prof. Vincenzo ARIZZA

+39 09123891804

+39 09123897111

<http://www.unipa.it/dipartimenti/stebicef/ricerca/aree.html>

## DETAILED INFORMATION

**Staff:** 27 Full Professors

59 Associate Professors

66 Researchers

15 Structured Technicians

16 Administratives

6 General Services

**Registered students:** 3,200 (Academic year 2022/2023)

**Post Lauream Training:** 40 enrolled in doctoral programs in Molecular and Biomolecular sciences

40 enrolled in doctoral programs in Technologies and Science for Human Health

7 Research fellows

2 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Green chemistry

Design and synthesis of supramolecular gels formed in solvents of low environmental impact. Use of supramolecular gels in the field of environmental preservation and remediation. Green solvents (ionic liquids and deep eutectic solvents) as reaction media for the biomass conversion in products of industrial value



**Francesca D'Anna** (+39 09123897540)  
[francesca.danna@unipa.it](mailto:francesca.danna@unipa.it)

### Microbial biotechnology

Study of epigenetic mechanisms of gene regulation in antibiotic producer environmental isolates (actinomycetes). Microbiome analysis of various environmental (soil and water) niches. Antimicrobial and resistome analyses of emergent microbial pathogen strains. Use of biotechnological relevant microorganisms to produce biopolymers (bioplastics)



**Rosa Alduina** (+39 09123897360)  
[valeria.alduina@unipa.it](mailto:valeria.alduina@unipa.it)

### Nutrition

Determination of contaminants and toxic agents in agro-food products: Pesticides, VOCs, PAHs, PCBs, and Mycotoxins. Characterization of polyphenols and aromatic component of fruit, oils, and olives, alcoholic beverages and wines by Mass Spectrometry



**Giuseppe Avellone** (+39 09123891950)  
[beppe.avellone@unipa.it](mailto:beppe.avellone@unipa.it)

<b>Pharmaceutical chemistry</b>	Design and synthesis of new drugs with antitumor, antiviral or antiparasitic activity. Study of their biological properties by using molecular modelling and SAR/QSAR/QSPR techniques	    	<b>Anna Maria Almerico</b> (+39 09123896804) <i>annamaria.almerico@unipa.it</i>
<b>Innovative materials</b>	Synthesis and characterization of materials for organic photovoltaics and perovskite solar cells based on fullerene derivatives. Synthesis and characterization of hybrid materials based on carbon nanoforms (fullerene, nanotubes, nanohorns, graphene) to be employed as supports for catalysts	    	<b>Francesco Giacalone</b> (+39 09123897530) <i>francesco.giacalone@unipa.it</i>
<b>Biochemistry</b>	Evaluation of biochemical mechanisms underlying the protective effects of phytochemicals in inflammatory and dysmetabolic pathologies	    	<b>Mario Allegra</b> (+39 09123896803) <i>mario.allegra@unipa.it</i>
<b>Microbial biotechnology</b>	Bacterial ecosystem services: Bioremediation of environmental matrices contaminated by organic pollutants (hydrocarbons, chlorinated solvents, fats & oils, etc)	    	<b>Paola Quatrini</b> (+39 09123897320) <i>paola.quatrini@unipa.it</i>
<b>Innovative materials</b>	Synthesis, structural characterization and study of the controlled inclusion and release properties of nanosponge materials, for their exploitation as sorbents, drug carriers or functional supports for nanocatalysts	    	<b>Paolo Lo Meo</b> (+39 09123897537) <i>paolo.lomeo@unipa.it</i>
<b>Life science</b>	Innovative therapies for the treatment of rare genetic diseases characterized by nonsense mutations	    	<b>Ivana Pibiri</b> (+39 09123897545) <i>ivana.pibiri@unipa.it</i>
<b>Microbial biotechnology</b>	Study of the physio-metabolic mechanisms of microorganisms (environmental isolates) resistant to toxic metal salts and known environmental pollutants to produce biogenic nanomaterials of economic and biotechnological interest	    	<b>Alessandro Presentato</b> (+39 09123897865) <i>alessandro.presentato@unipa.it</i>
<b>Life science</b>	Supramolecular and covalent modification of clay minerals for application in the drug carrier and delivery fields, filler in polymeric matrices and catalyst support	    	<b>Serena Riela</b> (+39 09123897546) <i>serena.riela@unipa.it</i>
<b>Microbial biotechnology</b>	Isolation and gene manipulation of microbial producers and production of biologically active biomolecules (antibiotics, anticancer, plant hormones, antioxidants, etc.) and hydrolytic enzymes (proteases, peptidases, xylanases, chitinases, cellulases, etc.) of biotechnological interest	    	<b>Giuseppe Gallo</b> (+39 09123897312) <i>giuseppe.gallo@unipa.it</i>
<b>Pharmaceutical technology</b>	Biocompatible polymers and biomaterials for drug delivery, regenerative medicine and nanomedicine	    	<b>Fabio Salvatore Palumbo</b> (+39 09123891939) <i>fabiosalvatore.palumbo@unipa.it</i>
<b>Analytical chemistry</b>	Development of analytical methods for the determination of drugs in food, aquatic organisms and biological fluids	    	<b>David Bongiorno</b> (+39 09123891900) <i>david.bongiorno@unipa.it</i>

<b>Nutrition</b>	Analytical study of the metabolic profile of plant species of food interest: search for secondary metabolites in order to identify chemical markers useful for quality control of the studied species. the bio-functional compounds of extra virgin olive oil, the extracts from fruits produced by native Sicilian and tropical plants subjected to various crop management models were studied. Quality control of food matrices: determinations of pesticides, VOCs, PAHs and mycotoxins. Enhancement of by-products of the agri-food industry, for the preparation of functional foods and for the pharmaceutical and cosmetic industry	    	<b>Vita Di Stefano</b> (+39 3392742001) <i>vita.distefano@unipa.it</i>
<b>Pharmaceutical technology</b>	Design, preparation and characterization of scaffolds for regenerative medicine	    	<b>Giovanna Pitarresi</b> (+39 09123891954) <i>giovanna.pitarresi@unipa.it</i>
<b>Analytical chemistry</b>	Characterization of food products, qualitative and quantitative determination of micropollutants in environmental matrices, development of analytical methods for investigations in the chemical-clinical field	    	<b>Serena Indelicato</b> (+39 09123891932) <i>serena.indelicato@unipa.it</i>
<b>Genomics</b>	Bioinformatics analysis of epigenomes. DNA methylation changes induced by bioactive molecules. Comparative bioinformatics analysis of transcriptomes	    	<b>Maria A. Ragusa</b> (+39 09123897401) <i>maria.ragusa@unipa.it</i>
<b>Pharmaceutical technology</b>	Development and characterization of bioadhesive drug delivery systems (microspheres and microcapsules, micromatrices, films) as enhancement tool for drug absorption throughout mucosal epithelium (ocular, buccal and skin)	    	<b>Viviana De Caro</b> (+39 09123891926) <i>viviana.decaro@unipa.it</i>
<b>Pharmaceutical technology</b>	Production of innovative polymeric biomaterials for the development of three-dimensional supports to be used in the field of regenerative medicine and drug delivery. These supports are produced using biofabrication techniques such as electrospinning, 3D printing and microfluidic technique and are used for the delivery of bioactive molecules of various kinds	    	<b>Calogero Fiorica</b> (+39 09123891935) <i>calogero.fiorica@unipa.it</i>
<b>Life science</b>	Design, synthesis and characterization of metal complexes for biomedical purposes. Study of the interaction of newly synthesized metal complexes and clinical approved metal-based drugs with biological molecules involved in carcinogenesis and other diseases. A special focus is dedicated to non-canonical DNA structures called G-quadruplexes	    	<b>Alessio Terenzi</b> (+39 09123897980) <i>alessio.terenzi@unipa.it</i>
<b>Biochemistry</b>	Identification of phytochemicals with anti-oxidant and anti-tumoral activities and biochemical characterization of the nutraceutical properties	    	<b>Antonella D'Anneo</b> (+39 09123890650) <i>antonella.danneo@unipa.it</i>
<b>Biochemistry</b>	Assays aimed at the identification of molecules with anti-tumor and anti-inflammatory action	    	<b>Michela Giuliano</b> (+39 09123890653) <i>michela.giuliano@unipa.it</i>
<b>Biochemistry</b>	Evaluation of the biological activity of phytochemicals extracted from waste products of the agri-food industry	    	<b>Luisa Tesoriere</b> (+39 09123896824) <i>luisa.tesoriere@unipa.it</i>
<b>Cultural heritage</b>	Developing of methodologies for the non invasive investigation of ancient paintings and metals	    	<b>Maria Luisa Saladino</b> (+39 3281290207) <i>marialuisa.saladino@unipa.it</i>

<b>Cellular biology</b>	Effect of natural and synthetic molecules on the proliferative and invasive behaviour and on gene expression of cultured human cancer cells	    	<b>Claudio Luparello</b> (+39 09123897405) <i>claudio.luparello@unipa.it</i>
<b>Pharmaceutical technology</b>	Production of microparticles by spray drying for the release of natural and nutraceutical active molecules and evaluation of their effectiveness	    	<b>Mariano Licciardi</b> (+39 09123891927) <i>mariano.licciardi@unipa.it</i>
<b>Pharmaceutical technology</b>	Functionalized polymeric materials for drug delivery. Design, preparation and characterization of polymeric systems for drug and gene delivery	    	<b>Gennara Cavallaro</b> (+39 09123891931) <i>gennara.cavallaro@unipa.it</i>
<b>Genomics</b>	Conventional, banded and molecular karyotype. Chromosomal immuno-localization of proteins. Study of genetic polymorphisms. Evaluation of DNA methylation at the genomic, chromosomal and gene level; evaluation of the potential modulation of DNA methylation of molecules contained in foods. In vitro tests for mutagenicity and genotoxicity of environmental xenobiotic substances	    	<b>Fabio Caradonna</b> (+39 09123897331) <i>fabio.caradonna@unipa.it</i>
<b>Cultural heritage</b>	Development of materials for the conservation of historical paper	    	<b>Delia Chillura Martino</b> (+39 09123897981) <i>delia.chilluramartino@unipa.it</i>
<b>Innovative materials</b>	Photochemical synthesis methodologies. Photochemical/photocatalytic degradation and removal methods of pollutants. Synthesis of fluorofunctionalized organic salts for use in organic photovoltaic and conductive phases in fuel cells PFAS. Analysis methods in complex matrices	    	<b>Andrea Pace</b> (+39 09123897543) <i>andrea.pace@unipa.it</i>
<b>Biochemistry</b>	Identification of phytochemicals with anti-oxidant and anti-tumoral activities and biochemical characterization of the nutraceutical properties	    	<b>Antonella D'Anneo</b> (+39 09123890650) <i>antonella.danneo@unipa.it</i>
<b>Nanostructured materials</b>	Development of biodegradable and biocompatible compounds. Development of new analytical approaches aimed to the traceability of dairy products	    	<b>Delia Chillura Martino</b> (+39 09123897981) <i>delia.chilluramartino@unipa.it</i>
<b>Energy saving</b>	Synthesis and characterization of hybrid materials based on amorphous and mesostructured silica or on polyhedral silsesquioxanes (POSS) functionalized with ionic liquids and their use as support for catalysts, anti-fouling and for the fixation or for the capture of CO <sub>2</sub>	    	<b>Michelangelo Gruttadauria</b> (+39 09123897534) <i>michelangelo.gruttadauria@unipa.it</i>
<b>Pharmaceutical chemistry</b>	Design, synthesis and biologic evaluation of organic molecules with heterocyclic nuclei having a potential antitumoral and antimicrobial activity	    	<b>Demetrio Raffa</b> (+39 09123891917) <i>demetrio.raffa@unipa.it</i>
<b>Life science</b>	Host-guest binding of small molecules with biomolecular targets, investigated by spectroscopic and computational approaches, for applications in biomedical research	    	<b>Giampaolo Barone</b> (+39 09123897973) <i>giampaolo.barone@unipa.it</i>
<b>Sustainability</b>	Developing of persistent luminescence formulations for light paths and anti-counterfeiting. Developing of nanomaterials for preventive stone conservation	    	<b>Maria Luisa Saladino</b> (+39 3281290207) <i>marialuisa.saladino@unipa.it</i>

## OTHER R&D ORGANIZATIONS

**Laboratory of environmental microbiology and microbial ecology (EMME-Lab)**

**Contacts:** Paola Quatrini (+39 09123897320) - paola.quatrini@unipa.it

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**Laboratory of molecular microbiology and biotechnology (LAMMB)**

**Contacts:** Giuseppe Gallo (+39 09123897312) - giuseppe.gallo@unipa.it

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**Laboratory of Organic Chemical Processes, Synthesis and Purification of polymers**

**Contacts:**  
Gennara Cavallaro (+39 09123891931) - gennara.cavallaro@unipa.it

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**Mass Spectrometry Laboratory (LabMass)**

**Contacts:** Giuseppe Avellone (+39 09123891950) - beppe.avellone@unipa.it

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**Multilab Nodes 1.2 (Chemical safety), 3.2 (Process quality), 3.3 (Food traceability) of the technological platform PI.A.S.S.- Platform for Agrofood Science and Safety**

**Contacts:** Andrea Pace (+39 09123897543) - andrea.pace@unipa.it

## COLLABORATIONS WITH COMPANIES

- ALAB.TECH S.r.l
- Irritec S.p.A.
- Nutrigea S.r.l
- NanoSilv S.r.l.
- Zoetis Manufacturing S.r.l.



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## GENERAL INFORMATION

**Università degli Studi di Parma**

**Department of Engineering and Architecture**

Parco Area della Scienze 181/A - Padiglione 10 - 43124 Parma (PR)

sito web: <https://dia.unipr.it/it>

## CONTACTS

Prof. Antonio MONTEPARA

+39 0521905904

## DETAILED INFORMATION

**Staff:** 48 Full Professors

51 Associate Professors

36 Researchers

10 Structured Technicians

20 Administrative Technicians

**Registered students:** 3,894 (A.A. 2020/2021)

**Post Lauream Training:** 28 enrolled in Doctorates in Civil Engineering and Architecture;

30 enrolled in Doctorates in Industrial Engineering;

31 enrolled in Doctorates in Information Technology;

5 enrolled in Doctorates in Automotive Engineering for Intelligent Mobility (administrative headoffice University of Bologna);

36 Research fellows

**Patents:** 2 Universal structural node - Prof. Alessandro Pironi, Ing. Fabrizio Moroni, Sig. Riccardo De Filippis, UNIPR - Industrial Engineering Siteia, Parma

Detection of nuclear radiation sources by autonomous aircraft equipped with attractive haptic interface - Prof. Stefano Caselli, Prof. Jacopo Aleotti, UNIPR - CNR - Department of Information Engineering

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## OTHER R&D ORGANIZATIONS

### CIPACK Laboratory of Chemistry and Materials

**Contacts:** Daniel Milanese (+39 0521905295) - [daniel.milanese@unipr.it](mailto:daniel.milanese@unipr.it)  
Corrado Sciancalepore (+39 0521904780) - [corrado.sciancalepore@unipr.it](mailto:corrado.sciancalepore@unipr.it)  
**Web site:** <https://www.centritecnopolo.unipr.it/cipack/>

### Laboratory of Hydraulics and Hydraulics Structures

**Contacts:**  
Sandro Longo (+39 0521905157) - [sandro.longo@unipr.it](mailto:sandro.longo@unipr.it)  
Luca Chiapponi (+39 0521906978)  
**Web site:** <https://dia.unipr.it/it/servizi/laboratori-ufficiali/laboratorio-di-idraulica-e-costruzioni-idrauliche>

### Laboratory of Rheology and Rheometry

**Contacts:** Felice Giuliani (+39 0521905905) - [felice.giuliani@unipr.it](mailto:felice.giuliani@unipr.it)  
Sandro Longo (+39 0521905157) - [sandro.longo@unipr.it](mailto:sandro.longo@unipr.it)  
[reometrica@unipr.it](mailto:reometrica@unipr.it)  
**Web site:** <http://www.reometrica.unipr.it/>



# UNIVERSITÀ DI PARMA



DEPARTMENT OF CHEMISTRY, LIFE  
SCIENCES AND ENVIRONMENTAL  
SUSTAINABILITY

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## GENERAL INFORMATION

**Università degli Studi di Parma**  
**Department of Food and Drug**

Parco Area delle Scienze 27/a - 43124 Parma (PR)

sito web: <https://saf.unipr.it/it>

## CONTACTS

Prof. Gabriele COSTANTINO

+39 0521906630

## DETAILED INFORMATION

**Staff:** 17 Full Professors

42 Associate Professors

22 Researchers

15 Structured Technicians

11 Administrative Technicians

**Registered students:** 2,232 (Academic year 2018/2019)

**Post Lauream Training:** 24 enrolled in Doctorates in Food Science,

25 enrolled in Doctorates in Pharmacy

22 Research fellows

**Patents:** 6

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## OTHER R&D ORGANIZATIONS

### Biopharmanet\_tec

Interdepartmental Centre for Innovation in Health Products

**Contacts:** Ruggero Bettini (+39 0521905089) - [ruggero.bettini@unipr.it](mailto:ruggero.bettini@unipr.it)

**Web site:** <http://www.centritecnopolo.unipr.it/biopharmanet-tec/>



**UNIVERSITÀ  
DI PARMA**

**DIPARTIMENTO DI SCIENZE  
CHIMICHE, DELLA VITA E DELLA  
SOSTENIBILITÀ AMBIENTALE**

SUSCHEM<sup>IT</sup>



## GENERAL INFORMATION

Università degli Studi di Parma

Department of Chemistry, Life Sciences and Environmental Sustainability

Parco Area delle Scienze 11/A – 43124 Parma (PR)

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## CONTACTS

Prof. Roberto CORRADINI

+39 0521906621 (Department Research Office)

Guglielmina Gnappi (+39 0521905103) - [guglielmina.gnappi@unipr.it](mailto:guglielmina.gnappi@unipr.it)

## DETAILED INFORMATION

**Staff:** 29 Full Professors

72 Associate Professors

34 Researchers

1 Technologist

43 Structured Technicians

13 Administrative Technicians

**Registered students:** 2,644 (Academic year 2022/2023)

**Post Lauream Training:** 137 enrolled in doctoral programs in Chemistry, Material Sciences, Biotech & Biosciences, Evolutional Biology and Ecology, Earth Sciences

41 Research fellows

29 fellows

**Patents:** 6 Reference years: 2011-2021

<https://www.unipr.it/en/proprietà-intellettuale-brevetti>

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Bio-orthogonal reactions

Development of bio-orthogonal reactions for ligation and small-molecules release



**Alex Manicardi** (+39 0521905551)  
[alex.manicardi@unipr.it](mailto:alex.manicardi@unipr.it)

### Cellular imaging

Design and synthesis of fluorophores for the imaging of cell membranes by nonlinear optics techniques



**Laura Baldini** (+39 0521905457)  
[laura.baldini@unipr.it](mailto:laura.baldini@unipr.it)

### Mini proteins

Realization of supramolecular mini-proteins with catalytic and recognition activities



**Alex Manicardi** (+39 0521905551)  
[alex.manicardi@unipr.it](mailto:alex.manicardi@unipr.it)

### Photocatalysis

The research aims to develop a waste water remediation system, based on photocatalysts supported on 3D printed matrices. Emergent contaminants will be considered



**Laura Bergamonti** (+39 0521903080)  
[laura.bergamonti@unipr.it](mailto:laura.bergamonti@unipr.it)

### Sustainability

Development of systems able to remove metal ions from waste waters or to recover critical elements



**Alessandro Casnati** (+39 0521905412)  
[alessandro.casnati@unipr.it](mailto:alessandro.casnati@unipr.it)

### Sustainability

Development of additives and detergents for lubricants



**Alessandro Casnati** (+39 0521905412)  
[alessandro.casnati@unipr.it](mailto:alessandro.casnati@unipr.it)

<b>Spettroscopia non-lineare</b>	Study of the structural and dynamic properties of molecular systems by pump-probe IR and 2D-IR spectroscopy; protein aggregation. Study of the properties of exciton systems by pump-probe and 2D electronic spectroscopy	    	<b>Andrea Lapini</b> (+39 0521906677) <i>andrea.lapini@unipr.it</i>
<b>Protein-protein interactions</b>	Characterization of protein-protein interactions of biomedical interest and identification of their inhibitors	    	<b>Barbara Montanini</b> (+39 0521905654) <i>barbara.montanini@unipr.it</i>
<b>Artificial proteins</b>	Design and study of metalloproteins and metallopeptides with applications in stereoselective biocatalysis and photocatalysis	    	<b>Matteo Tegoni</b> (+39 0521905424) <i>matteo.tegoni@unipr.it</i>
<b>Crystalline materials</b>	Design and characterization of solid phases, polymorphs and cocrystals of active compounds in the pharmaceutical, agrochemical and environmental fields for optimizing the storage and release of active ingredients	    	<b>Alessia Bacchi</b> (+39 0521905421) <i>alessia.bacchi@unipr.it</i>
<b>Chirality</b>	Chiroptical properties of molecular, supramolecular and plasmonic systems: experimental and theoretical studies	    	<b>Anna Painelli</b> (+39 0521905461) <i>anna.painelli@unipr.it</i>
<b>Cyclic peptides</b>	Synthesis of cyclic peptide derivatives for recognition of proteins and inhibition of protein-protein interactions	    	<b>Alex Manicardi</b> (+39 0521905551) <i>alex.manicardi@unipr.it</i>
<b>Metals recovery</b>	Complexation studies for the recovery of noble metals from inorganic residues and for the recovery of metals from permanent magnets	    	<b>Luciano Marchiò</b> (+39 0521905419) <i>luciano.marchio@unipr.it</i>
<b>Fluorescence</b>	Investigation of fluorescent molecules and materials for applications in the fields of bioimaging, biosensors, OLED (exploiting TADF)	    	<b>Cristina Sissa</b> (+39 0521905450) <i>cristina.sissa@unipr.it</i>
<b>Spettroscopia vibrazionale</b>	Micro FT-IR and micro-Raman study of molecular materials: polymorphism and phase-transitions	    	<b>Matteo Masino</b> (+39 0521905438) <i>matteo.masino@unipr.it</i>
<b>Diagnostic methods</b>	Development of diagnostic methods through biomolecules modifications measurements with omics technologies and big data analysis	    	<b>Marco Morselli</b> (+39 0521905150) <i>marco.morselli@unipr.it</i>
<b>Geopolymers</b>	The research develops innovative geopolymer composites, based on industrial and agricultural waste, to be used as plasters or mortars for sustainable buildings	    	<b>Claudia Graiff</b> (+39 0521906581) <i>claudia.graiff@unipr.it</i>
<b>Optical imaging</b>	Investigation of cells and tissues through imaging based on the nonlinear optical processes of two-photon excited fluorescence and/or second-harmonic generation	    	<b>Francesca Terenzi</b> (+39 0521905453) <i>francesca.terenzi@unipr.it</i>
<b>Circular economy</b>	Development of antimicrobial lignin-based materials functionalized with metals of agronomical interest	    	<b>Dominga Rogolino</b> (+39 0521906582) <i>dominga.rogolino@unipr.it</i>
<b>Sustainable materials</b>	Recovery of cosmetic waste for the production of ecosustainable material	    	<b>Federica Bianchi</b> (+39 0521905446) <i>federica.bianchi@unipr.it</i>

<b>Health</b>	Design and synthesis of multivalent/multifunctional ligands and inhibitors for medically and pharmaceutically relevant biomacromolecules	     	<b>Francesco Sansone</b> (+39 0521905458) <i>francesco.sansone@unipr.it</i>
<b>Theoretical chemistry</b>	Development of novel theoretical approaches to attack the molecular electronic structure as well as the excited state dynamics of electrons and nuclei	     	<b>Francesco Di Maiolo</b> (+39 0521902077) <i>francesco.dimaiolo@unipr.it</i>
<b>Health</b>	Design and synthesis of non-viral vectors for nucleic acid therapeutics	     	<b>Francesco Sansone</b> (+39 0521905458) <i>francesco.sansone@unipr.it</i>

## OTHER R&D ORGANIZATIONS

<b>BIOPHARMANET-TEC</b>	Interdepartmental Research Centre for Health Product Innovation <b>Contacts:</b> Ruggero Bettini (+39 0521905089) - <a href="mailto:ruggero.bettini@unipr.it">ruggero.bettini@unipr.it</a> <b>Web site:</b> <a href="http://www.centritecnopolo.unipr.it/biopharmanet-tec">http://www.centritecnopolo.unipr.it/biopharmanet-tec</a>
<b>CIDEA</b>	Multidepartment Center for Energy and the Environment <b>Contacts:</b> Agostino Gambarotta (+39 0521905864) - <a href="mailto:agostino.gambarotta@unipr.it">agostino.gambarotta@unipr.it</a> <b>Web site:</b> <a href="http://www.centritecnopolo.unipr.it/cidea">http://www.centritecnopolo.unipr.it/cidea</a>
<b>CIM</b>	Multidepartment Center of Measures "Giuseppe Casnati" <b>Contacts:</b> Enrico Dalcanale (+39 0521905463) - <a href="mailto:enrico.dalcanale@unipr.it">enrico.dalcanale@unipr.it</a> <b>Web site:</b> <a href="http://www.centritecnopolo.unipr.it/cim/">http://www.centritecnopolo.unipr.it/cim/</a>
<b>CIPACK</b>	Multidepartment Center for Packaging <b>Contacts:</b> Roberto Montanari (+39 0521905851) - <a href="mailto:roberto.montanari@unipr.it">roberto.montanari@unipr.it</a> <b>Web site:</b> <a href="http://www.centritecnopolo.unipr.it/cipack/">http://www.centritecnopolo.unipr.it/cipack/</a>
<b>SITEIA.PARMA</b>	Multidepartment Center for Safety, Technology, Innovation and Agri-food <b>Contacts:</b> Alessandro Pirondi (+39 0521905885) - <a href="mailto:alessandro.pirondi@unipr.it">alessandro.pirondi@unipr.it</a> <b>Web site:</b> <a href="http://www.centritecnopolo.unipr.it/siteiaparma">http://www.centritecnopolo.unipr.it/siteiaparma</a>

## COLLABORATIONS WITH COMPANIES

- Barilla G. e R. Fratelli S.p.A
- Chiesi Farmaceutici S.p.A.
- Davines S.p.A.
- ENI S.p.A.
- Mectron S.p.A.
- Teregroup S.r.l.
- Versalis S.p.A.

## PUBBLICAZIONI

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- M. Vescovi, M. Melegari, C. Gazzurelli, M. Maffini, C. Mucchino, P.P. Mazzeo, M. Carcelli, J. Perego, A. Migliori, G. Leonardi, S. Pietarinen, P. Pelagatti, D. Rogolino, "**Industrial lignins as efficient biosorbents for Cr(VI) water remediation: transforming a waste into an added value material**", *RSC Sustainability*, 2023, 1, 1423. DOI: 10.1039/d3su00081h. Green Innovation GMBH, Grabenweg 68, Innsbruck, 6020, Austria
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- G. Vargas-Nadal, M. Köber, A. Nsamela, F. Terenzi, C. Sissa, S. Pescina, F. Sonvico, A. Mohd Gazzali, H.A. Wahab, L. Grisanti, M.E. Olivera, M.C. Palena, M.L. Guzman, L.C. Luciani-Giacobbe, A. Jimenez-Kairuz, N. Ventosa, I. Ratera, K.D. Belfield, B.M. Maoz, "**Fluorescent Multifunctional Organic Nanoparticles for Drug Delivery and Bioimaging: A Tutorial Review**", *Pharmaceutics* 2022, 14(11), 2498  
10.3390/pharmaceutics14112498. Elvsys SAS, 172 Rue de Charonne, 75011 Paris, France

## MORE INFO

- JobDay: yearly meeting with companies
- Job Opportunities - Career Center Services for graduates and Companies
- Collaborazioni con le imprese
- Support services for innovation
- Curricular internships for companies
- Innovative industrial PhDs



## GENERAL INFORMATION

Università degli Studi di Pavia

Department of Chemistry

Via Taramelli, 12 - 27100 Pavia (PV)

sito web: <https://chimica.dip.unipv.it/en>

## CONTACTS

Prof. Antonella PROFUMO

+39 0382987330

## DETAILED INFORMATION

### Staff:

14 Full Professors

27 Associate Professors

12 Researchers

9 Structured Technicians

7 Administratives

### Registered students:

#### Post Lauream Training:

45 enrolled in doctoral programs in Chemical and Pharmaceutical Sciences and Industrial Innovation

20 Research fellows

7 fellows

Patents: 14

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Perovskites

Design of novel hybrid organic-inorganic perovskites for optoelectronic applications



**Lorenzo Malvasi** (+39 0382987921)  
[lorenzo.malvasi@unipv.it](mailto:lorenzo.malvasi@unipv.it)

### Circular economy

Design, synthesis and characterization of low-impact binder and ceramic materials and valorization of secondary raw materials from hydrothermal treatments of biomass, waste and industrial by-products



**Serena C. Tarantino** (+39 0382985876)  
[serenachiara.tarantino@unipv.it](mailto:serenachiara.tarantino@unipv.it)

### Antivirals

Synthesis of molecules of heterocyclic nature with potential activities as antivirals



**Paolo Quadrelli** (+39 0382987315)  
[paolo.quadrelli@unipv.it](mailto:paolo.quadrelli@unipv.it)

### Innovative materials

Synthesis and characterization of innovative materials



**Umberto Anselmi Tamburini** (+39 0382987799)  
[tau@unipv.it](mailto:tau@unipv.it)

### Nanomaterials

Interaction of nanomaterials with biological systems and development of nanomaterials for biomedical applications



**Umberto Anselmi Tamburini** (+39 0382987799)  
[tau@unipv.it](mailto:tau@unipv.it)

### Biometals

Effect of active redox metal ions on neurodegenerative processes. Synthesis and characterization of biomimetic metallo-enzyme complexes and of bioinspired catalysts



**Enrico Monzani** (+39 0382987925)  
[enrico.monzani@unipv.it](mailto:enrico.monzani@unipv.it)

### Organic photovoltaics

Chiral nanostructures, synthesis of functional polymers and organic materials for applications in the energy and environmental fields



**Dario Pasini** (+39 0382987835)  
[dario.pasini@unipv.it](mailto:dario.pasini@unipv.it)

<b>NMR</b>	High resolution <sup>1</sup> H and <sup>13</sup> C NMR spectroscopy through multi-dimensional homo- and hetero-nuclear NMR experiments of complex mixtures, process impurities and complex mixtures	    	<b>Mariella Mella</b> (+39 0382987319) <i>mariella.mella@unipv.it</i>
<b>Energy</b>	Synthesis and characterization of organometallic and coordination compounds for applications in supramolecular chemistry, nonlinear optics, optoelectronic and/or photoelectrochemical devices	    	<b>Alessio Orbelli Biroli</b> (+39 0382987227) <i>alessio.orbellibiroli@unipv.it</i>
<b>Sensors</b>	Synthesis and characterization of nanomaterials (nanoparticles, nanostructured surfaces, composite materials) for sensing	    	<b>Giacomo Dacarro</b> (+39 0382987337) <i>giacomo.dacarro@unipv.it</i>
<b>Water remediation</b>	Determination and/or removal of emerging contaminants, particularly pharmaceuticals, from polluted waters by sorbent phases (natural, synthetic, from waste) or photocatalysis under sunlight. Determination of metals in biological markers for biomonitoring studies and evaluation of brain aging and neurodegeneration mechanisms	    	<b>Michela Sturini</b> (+39 0382987347) <i>michela.sturini@unipv.it</i>
<b>Drug delivery</b>	Synthesis of organic-inorganic hybrids for the release of poorly soluble drugs	    	<b>Marcella Bini</b> (+39 0382987202) <i>bini@unipv.it</i>
<b>Computational chemistry</b>	Design and development of functional materials (batteries, fuel cells) through a combined experimental-computational approach	    	<b>Cristina Tealdi</b> (+39 0382987569) <i>cristina.tealdi@unipv.it</i>
<b>Micropollutants</b>	Preparation and application of sorbent materials for extraction, pre-concentration, and cleanup in complex matrices. Development and validation of analytical methods for trace determination of organic contaminants and pharmacologically active compounds in environmental, food and biological matrices	    	<b>Antonella Profumo</b> (+39 0382987581) <i>antonella.profumo@unipv.it</i>
<b>Photochemistry</b>	Design of visible light labile compounds for synthetic applications such as photoacid generators and for polymerization processes	    	<b>Maurizio Fagnoni</b> (+39 0382987198) <i>fagnoni@unipv.it</i>
<b>Biomaterials</b>	Synthesis and characterization of ferrites and bones cements as biomaterials	    	<b>Marcella Bini</b> (+39 0382987202) <i>bini@unipv.it</i>
<b>Batteries</b>	Synthesis and physico chemical and electrochemical characterization of anodes and cathodes for sodium ion batteries	    	<b>Marcella Bini</b> (+39 0382987202) <i>bini@unipv.it</i>
<b>Photocatalysis</b>	Development of materials and processes for the production of solar fuels such as green hydrogen and ammonia	    	<b>Lorenzo Malvasi</b> (+39 0382987921) <i>lorenzo.malvasi@unipv.it</i>
<b>Batteries</b>	Development of novel electrode materials for Sodium-Ion Batteries: synthesis, physico-chemical and electrochemical characterization	    	<b>Doretta Capsoni</b> (+39 0382987213) <i>capsoni@unipv.it</i>

<b>Green Hydrogen</b>	Green Hydrogen production via water splitting and photo-reforming: analytical approach and applications in the energy-environmental field. New inorganic and organic catalysts, active under solar light, are investigated to be applied to photocatalytic systems for H <sub>2</sub> production from wastewater and (waste) biomass	    	<b>Andrea Speltini</b> (+39 0382987350) <i>andrea.speltini@unipv.it</i>
<b>Circular economy</b>	Development of new synthetic methods through green processes. New paradigms in the circular economy field	    	<b>Giuseppe Zanoni</b> (+39 0382987321) <i>giuseppe.zanoni@unipv.it</i>
<b>Molecular recognition</b>	Design and preparation of (supra)molecular systems and materials for recognition, separation and sensing	    	<b>Valeria Amendola</b> (+39 0382987338) <i>valeria.amendola@unipv.it</i>
<b>Terapie mirate</b>	Synthesis of nucleic acid binders and conjugates for targeted diagnostics and therapeutic applications	    	<b>Mauro Freccero</b> (+39 0382987668) <i>mauro.freccero@unipv.it</i>
<b>Solar cells</b>	Research on Hybrid Perovskite Solar Cells: from innovative materials to advanced device fabrication	    	<b>Giulia Grancini</b> (+39 0382987245) <i>giulia.grancini@unipv.it</i>
<b>Drug design</b>	Research spans computational chemistry, structural biochemistry, molecular design and drug discovery	    	<b>Giorgio Colombo</b> (+39 0382987044) <i>g.colombo@unipv.it</i>
<b>Stoccaggio H<sub>2</sub></b>	Synthesis, characterization and functional evaluation of carbon-based nanostructures from agro-food waste and of hydride compounds from industrial metal waste for solid state hydrogen storage	    	<b>Chiara Milanese</b> (+39 0382987556) <i>chiara.milanese@unipv.it</i>
<b>Antimicrobial</b>	Preparation and application of new materials (nanoparticles, nanocomposites, functionalized surfaces) to fight microbial infections	    	<b>Angelo Maria Taglietti</b> (+39 0382987342) <i>angelo.taglietti@unipv.it</i>
<b>Bioinorganic chemistry</b>	Role of transition metals in neurodegenerative diseases	    	<b>Simone Dell'Acqua</b> (+39 382987354) <i>simone.dellacqua@unipv.it</i>
<b>Colorimetric sensors</b>	Development of sensors where receptors fixed on a solid phase (silica /plastic materials (EVOH) /compostable materials (cellulose, CMC)) change color by interaction with an analyte or class of analytes. All device development and testing are based on multivariate and DOE analysis, aimed at food and environmental applications	    	<b>Raffaella Biesuz</b> (+39 0382987348) <i>raffaella.biesuz@unipv.it</i>
<b>Adsorbent materials</b>	Development and physico-chemical characterization of adsorbents and composites for drug delivery and emerging pollutants remediation	    	<b>Doretta Capsoni</b> (+39 0382987213) <i>capsoni@unipv.it</i>
<b>Studi strutturali</b>	Advanced characterization of functional materials	    	<b>Mauro Coduri</b> (+39 0382987212) <i>mauro.coduri@unipv.it</i>
<b>Forensic analysis</b>	Development of electroanalytical methods applied to substances of pharmaceutical and forensic interest. Application of optical and chromatographic methods to the study of forensic evidence (gunshot residues, substances of abuse)	    	<b>Daniele Merli</b> (+39 0382987580) <i>daniele.merli@unipv.it</i>
<b>Antibiotics</b>	Biocatalytic green transition of industrial processes for the production of Cephalosporin and Carbapenem antibiotics	    	<b>Filippo Doria</b> (+39 0382987668) <i>filippo.doria@unipv.it</i>

<b>Smart packaging</b>	Plastic films from renewable or fossil sources, with additional properties for food preservation	    	<b>Piersandro Pallavicini</b> (+39 0382987336) <i>psp@unipv.it</i>
<b>Green chemistry</b>	Eco-sustainable photochemical processes using visible light	    	<b>Stefano Protti</b> (+39 0382987314) <i>stefano.protti@unipv.it</i>
<b>Stress ossidativo</b>	Studies on the reactivity of metal-complexes with neuronal peptides and proteins involved in neurodegenerative processes	    	<b>Chiara Bacchella</b> (+39 3496850123) <i>chiara.bacchella@unipv.it</i>
<b>XAS operando</b>	Determination of the mechanisms of heterogeneous reactions	    	<b>Paolo Ghigna</b> (+39 0382987574) <i>paolo.ghigna@unipv.it</i>
<b>Preservation</b>	Preparation and application of new materials (gels, nanoparticles, nanocomposites) to the conservation of artworks	    	<b>Maurizio Licchelli</b> (+39 0382987936) <i>maurizio.licchelli@unipv.it</i>
<b>Sensors</b>	Development of chemically modified electrodes and optical sensors for selective and highly sensitive detection of analytes of environmental, food and clinical interest	    	<b>Giancarla Alberti</b> (+39 0382987057) <i>giancarla.alberti@unipv.it</i>
<b>Solidi farmaceutici</b>	Solid state of API and their interactions with excipients, methods to improve solubility and dissolution rate	    	<b>Giovanna Bruni</b> (+39 0382987667) <i>giovanna.bruni@unipv.it</i>
<b>Struttura proteine</b>	Protein 3D structure prediction and analysis; Datamining the Protein Data Base and other data collections	    	<b>Oliviero Carugo</b> (+39 0382987858) <i>olicar04@unipv.it</i>
<b>Metalloproteins</b>	Effects of oxidative stress and precursors of neuronal damage on peptides and proteins	    	<b>Stefania Nicolis</b> (+39 0382987340) <i>stefania.nicolis@unipv.it</i>
<b>Photocatalysis</b>	Sustainable organic synthesis via photochemical/photocatalytic conditions and processes under flow conditions	    	<b>Davide Ravelli</b> (+39 0382987316) <i>davide.ravelli@unipv.it</i>

## COLLABORATIONS WITH COMPANIES

Research and/or PhD collaborations are active with the following companies:

- De Nora S.p.A.
- Endeavour S.r.l.
- Edison S.p.A.
- ENI S.p.A.
- Flamma S.p.A.
- Gruppo PER
- Millbo S.r.l.
- Olon S.p.A.
- RSE S.p.A.
- Sodai S.p.A.
- Solvay SA

## PUBBLICAZIONI



## GENERAL INFORMATION

**Università degli Studi di Pavia**  
**Department of Biology and Biotechnology L. Spallanzani**  
 Via Ferrata 9 - 27100 Pavia (PV)  
 sito web: <http://dbb.unipv.it>

## CONTACTS

Prof. Marco BIGGIOGERA  
 +39 0382986446

## DETAILED INFORMATION

**Staff:** 14 Full Professors  
 25 Associate Professors  
 20 Researchers  
 2 Technologists

24 Structured and Administrative Technicians  
 1 General Services

**Registered students:** 1,992 (Academic year 2022/2023)

**Post Lauream Training:** 50 enrolled in doctoral programs in in Genetics, Molecular and Cellular Biology

12 enrolled in doctoral programs in Biomolecular sciences and biotechnology

8 enrolled in doctoral programs in Biomedical sciences

2 enrolled in doctoral programs in Bioengineering, Bioinformatics and Health technologies

34 enrolled in II level Master biennale in Discipline Regolatorie "G. Benzi"

17 enrolled in II level Master in "Human Nutrition"

23 enrolled in II level Master in "Biologia e biotecnologie della riproduzione: dalla ricerca alla clinica"

26 Research fellows

8 fellows

**Patents:** 7 <https://dbb.dip.unipv.it/en/research/innovation/patents>

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Dermocosmetics

Development and implementation of new tests on reconstituted human tissues for cosmetic products and medical devices



**Ornella Pastoris** (+39 0382986393)  
[ornella.pastoris@unipv.it](mailto:ornella.pastoris@unipv.it)

### Seed priming

New molecular hallmarks and priming agents for the optimization of seed priming techniques



**Alma Balestrazzi** (+39 0382985435)  
[alma.balestrazzi@unipv.it](mailto:alma.balestrazzi@unipv.it)

### Nutraceuticals

Production of flavorings and nutraceutical foods from *Hericium erinaceus*, *Lentinula edodes* and *Grifola frondosa*



**Paola Rossi** (+39 0382986076)  
[paola.rossi@unipv.it](mailto:paola.rossi@unipv.it)

### Anionic biopolymers

Fermentative synthesis of an anionic biopolymer usable in the food, biomedical, cosmetic, agriculture and metal recovery sectors



**Cinzia Calvio** (+39 0382985559)  
[cinzia.calvio@unipv.it](mailto:cinzia.calvio@unipv.it)

### Infertility

Fighting infertility: a biotechnological platform to evaluate the effects of chemicals and physical agents on oocytes and sperm quality



**Maurizio Zuccotti** (+39 0382986323)  
[maurizio.zuccotti@unipv.it](mailto:maurizio.zuccotti@unipv.it)

<b>Molecular biotechnology</b>	Biochemical and structural studies on enzymes relevant for industrial biocatalysis	     	<b>Andrea Mattevi</b> (+39 038298525) <i>andrea.mattevi@unipv.it</i>
<b>Biocompatible polymers</b>	Biocompatible materials: optimization of silicon-based coatings and interaction with tissues	     	<b>Maurizia Dossena</b> (+39 0382986468) <i>maurizia.dossena@unipv.it</i>
<b>New antibiotics</b>	Active compounds against pathogenic bacteria and study of their mechanism of action and resistance	     	<b>Maria Rosalia Pasca</b> (+39 0382985576) <i>mariarosalia.pasca@unipv.it</i>
<b>Biostimulants</b>	Development of biostimulants from sustainable raw material for seed priming treatments	     	<b>Anca Macovei</b> (+39 0382985435) <i>anca.macovei@unipv.it</i>
<b>Circular economy</b>	Phytochemicals from vegetable waste using an enzyme-assisted extraction method	     	<b>Daniela Buonocore</b> (+39 038296390) <i>daniela.buonocore@unipv.it</i>
<b>Molecular biotechnology</b>	"Customized" production of recombinant proteins using prokaryotic and eukaryotic expression systems	     	<b>Federico Forneris</b> (+39 0382985228) <i>federico.forneris@unipv.it</i>
<b>Circular economy</b>	Biotechnological Recycling of Liquid Organic Waste Using Microalgae	     	<b>Alberta Pinnola</b> (+39 038298524) <i>alberta.pinnola@unipv.it</i>
<b>Drug design</b>	Drug design studies on monoamine oxidases as validated targets for neurological diseases	     	<b>Claudia Binda</b> (+39 038298527) <i>claudia.binda@unipv.it</i>

## OTHER R&D ORGANIZATIONS

<b>Alga&amp;Zyme Factory S.r.l.</b>	Spin-off that produces industrial enzymes in tobacco plants <b>Contacts:</b> Rino Cella (+39 0382985570) - rino.cella@unipv.it
<b>bioRESTART S.r.l.</b>	Spin-off for the sustainable recovery of bioactive compounds from vegetable waste <b>Contacts:</b> Daniela Buonocore (+39 0382987530) - daniela.buonocore@unipv.it <b>Web site:</b> <a href="https://www.f6s.com/biorestart">https://www.f6s.com/biorestart</a>
<b>Centro Grandi Strumenti - CGS</b>	The center hosts tools, large equipment (e.g. super resolution equipment) and services for scientific research <b>Contacts:</b> (+39 0382987530) - cgs@unipv.it <b>Web site:</b> <a href="https://cgs.unipv.it/">https://cgs.unipv.it/</a>
<b>MICONET S.r.l.</b>	Spin-off that develops and produces new foods derived from mushrooms <b>Contacts:</b> Paola Rossi (+39 0382986076) - paola.rossi@unipv.it <b>Web site:</b> <a href="http://www.miconet.it">http://www.miconet.it</a>

## COLLABORATIONS WITH COMPANIES

- Bio Basiceurope S.r.l.
- Gek S.r.l.
- Merck serono S.p.A.
- Professional Dietetics S.p.A.

## PUBBLICAZIONI

- Nat Commun doi: 10.1038/s41467-022-34912-3
- Plant Cell Environ doi: 10.1111/pce.14295
- Plants doi: 10.3390/plants11060816
- Protein Sci doi: 10.1002/pro.4486

## MORE INFO

DBB displays a strong vocation for the transfer of research results outside the academic context. The degree course in Advanced Biotechnology participates in the initiative of the University of Pavia "Master's Degrees Plus" which provides for access, on a reward basis, to an extra semester of paid professional training / internship in companies in the biotechnology sector (<https://biotecnologieavanzate.cdl.unipv.it/en/node/164>)



## DIPARTIMENTO DI SCIENZE AGRARIE, ALIMENTARI E AMBIENTALI

### GENERAL INFORMATION

Università degli Studi di Perugia  
Department of Agricultural, Food and Environmental Sciences  
Borgo XX giugno 74 - 06121 Perugia (PG)  
sito web: <http://dsa3.unipg.it/en/>

### CONTACTS

Prof. Gaetano MARTINO  
+39 0755856060

### DETAILED INFORMATION

**Staff:** 9 Full Professors  
42 Associate Professors  
21 Researchers  
25 Structured Technicians  
10 Administrative Technicians

**Registered students:** 570 (Academic year 2022/2023)  
**Post Lauream Training:** 10 Research fellows

**Patents:** 6

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### R&D ACTIVITIES DETAIL

#### Circular economy

Agronomic potential of glass-based materials recycled by waste product of ceramic sector as novel inorganic slow-release iron fertilizer



**Daniela Businelli** (+39 0755856228)  
[daniela.businelli@unipg.it](mailto:daniela.businelli@unipg.it)

#### Nanomaterials

Evaluation of biologically-based nanomaterials for crop protection from biotic agents



**Gianandrea Salerno** (+39 0755856034)  
[gianandrea.salerno@unipg.it](mailto:gianandrea.salerno@unipg.it)

#### Green chemistry

Use of lignocellulosic biomasses as C sources for producing biofuels and biochemicals by microorganisms



**Benedetta Turchetti** (+39 0755856487)  
[benedetta.turchetti@unipg.it](mailto:benedetta.turchetti@unipg.it)

#### Circular economy

Valorisation of agro-industrial waste to obtain bioactive substances that can be used as biostimulants in agriculture



**Daniele Del Buono** (+39 0755856225)  
[daniele.delbuono@unipg.it](mailto:daniele.delbuono@unipg.it)



A.D. 1308  
**unipg**

DEPARTMENT OF CHEMISTRY,  
BIOLOGY AND BIOTECHNOLOGY



## GENERAL INFORMATION

Università degli Studi di Perugia  
Department of Chemistry, Biology and Biotechnology  
Via Elce di sotto 8 - 06123 Perugia (PG)

## CONTACTS

Prof. Alceo MACCHIONI  
+39 0755855634

Cristina Mencolini (Administrative Secretary) - +39 075585 5504

## DETAILED INFORMATION

**Staff:** 14 Full Professors

32 Associate Professors

25 Researchers

14 Structured Technicians

10 Administrative Technicians

7 General Services

**Registered students:** 2,500 (Academic year 2022/2023)

**Post Lauream Training:** 30 enrolled in doctoral programs in Chemical Sciences

37 enrolled in doctoral programs in Biotechnology

7 enrolled in doctoral programs in Biological and Natural Sciences

46 enrolled in doctoral programs of national interest in Photo-Induced Processes and Technologies

28 enrolled in doctoral programs of national interest in Catalysis

16 Research fellows

14 fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Photocatalysis

Degradation of polluting species of wastewater photocatalyzed by TiO<sub>2</sub> and assisted by surfactants



**Tiziana Del Giacco** (+39 0755855540)  
*tiziana.delgiacco@unipg.it*

### CO<sub>2</sub> decomposition

Calculation of kinetic coefficients for the plasma assisted CO<sub>2</sub> splitting to carbon and oxygen



**Andrea Lombardi** (+39 0755855511)  
*andrea.lombardi@unipg.it*

### Micro/nano plastics

Toxicity assessment of micro- and nano-plastics isolated from environmental matrices



**Roberto Fabiani** (+39 0755857332)  
*roberto.fabiani@unipg.it*

### Activation

Cooperative small molecule activation by apolar and weakly polar M-M' bonds is studied through a suitable computational protocol which allows to both rationalize the observed reactivities and infer general principles applicable to activation processes



**Paola Belanzoni** (+39 0755855520)  
*paola.belanzoni@unipg.it*

### Artificial intelligence

Design and implementation of chemical systems that mimic some performances of human intelligence



**Pier Luigi Gentili** (+39 0755855573)  
*pierluigi.gentili@unipg.it*

<b>Lipidomics</b>	Lipidomic profile from biological samples	    	<b>Gabriele Cruciani</b> (+39 0755855629) <i>gabriele.cruciani@unipg.it</i>
<b>Vescicole extracellulari</b>	Purification of plant derived Extracellular vesicles with anticancer, antiinflammatory and antioxidant activity	    	<b>Carla Emiliani</b> <i>carla.emiliani@unipg.it</i>
<b>Struttura proteine</b>	Design of Invariant parameters for the classification of biomolecular structure by machine learning methods	    	<b>Andrea Lombardi</b> (+39 0766855511) <i>andrea.lombardi@unipg.it</i>
<b>Renewable materials</b>	Development of methods of storage of small gas molecules by adsorption (CO <sub>2</sub> / CH <sub>4</sub> /H <sub>2</sub> ) on various types of carbon-nanostructures using semi-empirical potentials relating to the formulation of the Van der Waals (vdW) intermolecular interaction	    	<b>Noelia Faginas Lago</b> (+39 0755855527) <i>noelia.faginaslago@unipg.it</i>
<b>Catalysis</b>	Development of homogeneous and heterogeneous catalysts to facilitate the production and storage of fuels from renewable sources and for energy storage	    	<b>Alceo Macchioni</b> (+39 3404778271) <i>alceo.macchioni@unipg.it</i>
<b>Catalysis</b>	Mechanistic study and optimization of catalytic processes through quantum chemical simulations and machine learning techniques. Development of computational models and protocols for applications in catalysis	    	<b>Giovanni Bistoni</b> (+39 3791928461) <i>giovanni.bistoni@unipg.it</i>
<b>Nanomaterials</b>	Moledding and simulation of carbon membranes for CO <sub>2</sub> separation	    	<b>Noelia Faginas lago</b> (+39 0755855511) <i>noelia.faginaslago@unipg.it</i>
<b>Polymers</b>	Synthesis, characterization and application of catalytic systems for olefin polymerization and plastic depolymerization	    	<b>Cristiano Zuccaccia</b> (+39 0755855578) <i>cristiano.zuccaccia@unipg.it</i>
<b>Biological markers</b>	Identification of new biological markers in cancer and mendelian diseases	    	<b>Paolo Gorello</b> <i>paolo.gorello@unipg.it</i>
<b>Medicinal mushrooms</b>	Bioactivity and mycochemical profile of medicinal mushrooms cultivated on different agri-food byproducts	    	<b>Paola Angelini</b> (+39 0755857346) <i>paola.angelini@unipg.it</i>
<b>Protein hydrolysates</b>	Production of Protein Hydrolysates from waste biomasses to create high-added value products	    	<b>Carla Emiliani</b> <i>carla.emiliani@unipg.it</i>
<b>Chemo-prevention</b>	Valorisation of molecules with anti-tumour activities from agro-food chain wastes	    	<b>Patrizia Rosignoli</b> (+39 0755857336) <i>patrizia.rosignoli@unipg.it</i>
<b>Biomass</b>	Carbon-based materials derived from biomass waste	    	<b>Assunta Marrocchi</b> (+39 0755855536) <i>assunta.marrocchi@unipg.it</i>
<b>Drug discovery</b>	Design, synthesis and optimization of organic compounds endowed with anticancer and antiviral drugs	    	<b>Laura Goracci</b> (+39 0755855632) <i>laura.goracci@unipg.it</i>
<b>Ionic channels</b>	Role of ion channels in cell volume regulation, migration, and invasion of glioblastoma cells, underlying tumor malignancy	    	<b>Luigi Catacuzzeno</b> (+39 0755855755) <i>luigi.catacuzzeno@unipg.it</i>

<b>Tissue engineering</b>	Development of tissue engineering models with stem cells and biomaterials	  	<b>Sabata Martino</b> <i>sabata.martino@unipg.it</i>
<b>Ionic channels</b>	Use of electrophysiology and molecular dynamics techniques to study the gating and selectivity of ion channels	  	<b>Luigi Catacuzzeno</b> (+39 0755855758) <i>luigi.catacuzzeno@unipg.it</i>
<b>Contaminant analysis</b>	Quantification of essential and toxic elements in environmental matrices (soil, water, vegetal biomass, selected animal tissues, particulate matter)	  	<b>David Cappelletti</b> (+39 0755855528) <i>david.cappelletti@unipg.it</i>
<b>Aptamers</b>	Development of aptamers through computational systems	  	<b>Francesco Morena</b> <i>francesco.morena@unipg.it</i>
<b>Polaritonic chemistry</b>	Use of quantum electromagnetic fields to control properties and chemical processes in molecular systems	  	<b>Enrico Ronca</b> <i>enrico.ronca@unipg.it</i>
<b>Biochemical assays</b>	Development of biochemical assays for monitoring enzymatic activity and antibodies in biological samples of patients with genetic diseases after gene therapy	  	<b>Sabata Martino</b> <i>sabata.martino@unipg.it</i>
<b>Metabolomics</b>	Metabolomic profile from biological samples	  	<b>Gabriele Cruciani</b> (+39 0755855629) <i>gabriele.cruciani@unipg.it</i>
<b>Nanomaterials</b>	Synthesis of inorganic nanostructured microporous materials for gas sorption/separation and catalysis	  	<b>Ferdinando Costantino</b> (+39 0705855563) <i>ferdinando.costantino@unipg.it</i>
<b>Insect-environment interaction</b>	Sensory biology and attachment ability of insects	  	<b>Manuela Rebora</b> (+39 0755855722) <i>manuela.rebora@unipg.it</i>
<b>ADME</b>	Prediction and experimental evaluation of ADME properties of chemical compounds	  	<b>Gabriele Cruciani</b> (+39 0755855629) <i>gabriele.cruciani@unipg.it</i>
<b>Organometallic chemistry</b>	Synthesis of organometallic and coordination compounds for mechanistic investigations on stoichiometric and catalytic small molecule activation reactions	  	<b>Luca Rocchigiani</b> (+39 0755855577) <i>luca.rocchigiani@unipg.it</i>
<b>Artificial intelligence</b>	Artificial intelligence for the automatic identification of impurities in synthetic processes	  	<b>Gabriele Cruciani</b> (+39 0755855629) <i>gabriele.cruciani@unipg.it</i>
<b>Photovoltaic</b>	Characterization and optimization of hybrid organic/inorganic materials for photovoltaics using computational simulations	  	<b>Francesca Nunzi</b> (+39 0755855607) <i>francesca.nunzi@unipg.it</i>
<b>Enzymatic immobilisation</b>	Enzyme Immobilization for industrial and biomedical application	  	<b>Carla Emiliani</b> <i>carla.emiliani@unipg.it</i>
<b>Atmospheric modelling</b>	Investigation into the transport and transformation of atmospheric pollutants	  	<b>Stefano Crocchianti</b> (+39 0755855515) <i>stefano.crocchianti@unipg.it</i>

## OTHER R&D ORGANIZATIONS

### **SMAArt Centre of Excellence (Scientific Methodologies applied to Archaeology and Art)**

S.M.A.Art is a Centre of research and education of the University of Perugia devoted to develop activities such as to promote the co-operation between human and physical sciences; to offer academic and research Institutions, dedicated to the study and preservation of national and European cultural heritage, an integrated body of resources and competence in both historical and scientific fields; to create, through research, new highly-qualified professional figures with a knowledge on the cultural heritage also from the point of view of materials and their properties; to develop new investigation methods and portable instruments for non-destructive in situ studies

**Contacts:** Aldo Romani (+39 0755855620)

**Web site:** <https://smaart.unipg.it/en/>

### **Istituto CNR di Scienze e Tecnologie Chimiche "Giulio Natta" (CNR-SCITEC)**

"SCITEC in Perugia carries out research activities aimed at developing knowledge and technologies in the field of materials science relating to the following topics: computational methods for predictive modeling of processes and functionality of materials in photovoltaic, optoelectronics and catalysis applications; chemical methodologies and technologies for the knowledge, conservation and protection of our cultural heritage

**Contacts:** Laura Cartechini (+39 0755855645)

Simona Fantacci (+39 0755855522)

**Web site:** <https://www.scitec.cnr.it/en/>

## COLLABORATIONS WITH COMPANIES

- Italmatch Chemicals S.p.A.
- Master-tec S.r.l.

## PUBBLICAZIONI

- Valença Ferreira de Aragão E, Mancini L, Faginas-Lago N, Rosi M, Skouteris D, Pirani F., "**Semiempirical Potential in Kinetics Calculations on the HC<sub>3</sub>N + CN Reaction**", *Molecules*. 2022; 27(7):2297. <https://doi.org/10.3390/molecules27072297>



SUSCHEM IT



## Dipartimento di Scienze e Tecnologie Chimiche

### GENERAL INFORMATION

Università degli Studi di Roma "Tor Vergata"  
Department of Chemical Sciences and Technologies  
Via della Ricerca Scientifica 1 - 00133 Roma (RM)  
sito web: <http://www.stc.uniroma2.it>

### CONTACTS

Prof.ssa Valeria CONTE  
+39 0672594014

### DETAILED INFORMATION

**Staff:** 14 Full Professors  
28 Associate Professors  
17 Researchers  
9 Structured Technicians  
5 Administrative Technicians  
**Registered students:** 470 (Academic year 2022/2023)  
**Post Lauream Training:** 24 enrolled in doctoral programs in Chemical Science  
33 enrolled in doctoral programs in Materials for Sustainable Development  
25 Research fellows  
4 fellows  
**Patents:** 28 Licensing list

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

### R&D ACTIVITIES DETAIL

<b>Pollution reduction</b>	Porphyrinoids based Chemical Sensors							<b>Roberto Paolesse</b> (+39 0672594752) <a href="mailto:paolesse@uniroma2.it">paolesse@uniroma2.it</a>
<b>Health</b>	Structural and dynamic characterization of synthetic polymers by molecular modeling methods							<b>Ester Chiessi</b> (+39 0672594462) <a href="mailto:ester.chiessi@uniroma2.it">ester.chiessi@uniroma2.it</a>
<b>Alternative energies</b>	Functionalization of carbon based materials (fullerenes, graphene and carbon nanospheres) for photovoltaic cells							<b>Pietro Tagliatesta</b> (+39 0672594759) <a href="mailto:pietro.tagliatesta@uniroma2.it">pietro.tagliatesta@uniroma2.it</a>
<b>Health</b>	DNA Sensors for clinical applications							<b>Francesco Ricci</b> (+39 0672594422) <a href="mailto:francesco.ricci@uniroma2.it">francesco.ricci@uniroma2.it</a>
<b>Nutrition</b>	Immunosensors development for food field applications							<b>Giulia Volpe</b> (+39 0672594411) <a href="mailto:giulia.volpe@uniroma2.it">giulia.volpe@uniroma2.it</a>
<b>SSbD</b>	Sustainable Catalytic Oxidations and Bromination							<b>Pierluca Galloni</b> (+39 0672594380) <a href="mailto:galloni@scienze.uniroma2.it">galloni@scienze.uniroma2.it</a>

<b>CRM</b>	Synthesis of tungsten monocarbide powders	   	<b>Riccardo Polini</b> (+39 0672594414) <i>polini@uniroma2.it</i>
<b>Health</b>	Bioactive peptides aggregation studies. Antibacterial coating with antimicrobial peptides	   	<b>Mariano Venanzi</b> (+39 0672594468) <i>venanzi@uniroma2.it</i>
<b>Alternative energies</b>	Diamond-base devices for current generation under concentrate solar power	   	<b>Riccardo Polini</b> (+39 0672594414) <i>polini@uniroma2.it</i>
<b>Alternative energies</b>	Electrochemical materials and devices for energy production and storage (fuel cells, flow batteries)	   	<b>Silvia Licocchia</b> (+39 0672594386) <i>licocchia@uniroma2.it</i>
<b>Environmental sensors</b>	Synthesis and reactivity of porphyrins and corroles	   	<b>Manuela Stefanelli</b> (+39 0672594732) <i>manuela.stefanelli@uniroma2.it</i>
<b>Biodegradability</b>	Biobased, biodegradable and compostable plastics	   	<b>Emanuela Gatto</b> (+39 0672594469) <i>emanuela.gatto@uniroma2.it</i>
<b>Health</b>	Design of polymer-structured micro and nanosystems for diagnostics and controlled drug release	   	<b>Gaio Paradossi</b> (+39 0672594464/4454) <i>paradossi@stc.uniroma2.it</i>
<b>Ecological transition</b>	Development of sustainable electrodes for solar cells	   	<b>Emanuela Gatto</b> (+39 0672594469) <i>emanuela.gatto@uniroma2.it</i>
<b>Health</b>	Synthesis of porphyrin analogues	   	<b>Sara Nardis</b> (+39 0672594732) <i>nardis@scienze.uniroma2.it</i>
<b>Nanotechnologies</b>	Development of electrochemical sensors modified with nanomaterials	   	<b>Fabiana Arduini</b> (+39 0672594404) <i>fabiana.arduini@uniroma2.it</i>
<b>Cultural heritage</b>	Development of new monitoring methods for cultural heritage	   	<b>Laura Micheli</b> (+39 0672594420) <i>laura.micheli@uniroma2.it</i>

## OTHER R&D ORGANIZATIONS

### Centro NAST

Nanosciences, Nanotechnology and Advanced Instrumentation in Multidisciplinary Applications

**Contacts:** Silvia Licocchia (+39 0672594386) - [licocchia@uniroma2.it](mailto:licocchia@uniroma2.it)

**Web site:** <http://centronast.it>

### SENSORGROUP- Laboratorio Sensori

Developing chemical sensor matrices for food, environmental and medical diagnostic applications

**Contacts:** Roberto Paolesse (+39 0672594752) - [paolesse@uniroma2.it](mailto:paolesse@uniroma2.it)

**Web site:** <http://sensorsgroup.eln.uniroma2.it>

## COLLABORATIONS WITH COMPANIES

More information

## PUBBLICAZIONI

- R. Salvio et al, *Inorganica Chimica Acta* 2021, 522, 120288
- A. Operamolla et al, *ACS Appl. Mater. Interfaces* 2021, 13, 37, 44972–44982
- R. Polini et al, *ACS Sustainable Chem. Eng.* 2021, 9, 25, 8458–8466
- E. Gatto et al, "**Plastica compostabile a base di proteine del latte e relativo processo di preparazione**", Italian Patent N. 10202000029684 (granted on 15/12/2022)
- V. Caratelli et al, *J. Mater. Chem. B* 2022, 10, 9021-9039
- W. Da Silva Freitas et al, *J. Power Sources* 2022, 550, 232135
- J. Montero et al, *ChemElectroChem* 2023, 10, e202201002

## MORE INFO

"The Department of Chemical Sciences and Technologies (DSTC) is strongly active on the front of the TM, for both the economic enhancement of knowledge (spin-offs and industry funded research grants), and for the support provided to the society, in order to increase its cultural and social well-being.

The DSCT supports and has supported the industrial activity through the development of new products, processes and analytical methods for small, medium and large national and international companies and consortia.

In many cases the collaboration between companies and DSTC has led to the development and commercialization of innovative processes and products, as well as international patents."



## GENERAL INFORMATION

Università degli Studi di Salerno

Department of Chemistry and Biology "A. Zambelli"

Via Giovanni Paolo II, 132 - 84084 Fisciano (SA)

sito web: <https://www.dcb.unisa.it/en>

## CONTACTS

Prof. Carmine CAPACCHIONE

+39 089969413

## DETAILED INFORMATION

**Staff:** 14 Full Professors

32 Associate Professors

12 Researchers

4 Structured Technicians

15 Administratives

**Registered students:** 900(A.A. 2022/2023)

**Post Lauream Training:** 49 enrolled in doctoral programs in Chemical biological and environmental sciences

15 Research fellows

20 fellows

**Patents:** 10

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Organocatalysis

Synthesis of biodegradable polyesters by copolymerization of epoxides and anhydrides by organocatalysis



**Mina Mazzeo** (+39 089969566)  
[mmazzeo@unisa.it](mailto:mmazzeo@unisa.it)

### Flow chemistry

Study of new processes in flow for the preparation of intermediates and compounds with potential pharmaceutical applications



**Irene Izzo** (+39 08996959560)  
[iizzo@unisa.it](mailto:iizzo@unisa.it)

### Vitrimeri

Polyester networks



**Mina Mazzeo** (+39 089969566)  
[mmazzeo@unisa.it](mailto:mmazzeo@unisa.it)

### Organic synthesis

Synthesis of cyclic peptides and peptoids; complexing and catalytic properties, applications in organic synthesis



**Francesco De Riccardis** (+39 089969552)  
[dericca@unisa.it](mailto:dericca@unisa.it)

### Environmental monitoring

Developing innovative platforms for environmental monitoring and ecological assessment



**Daniela Baldantoni** (+39 089969542)  
[dbaldantoni@unisa.it](mailto:dbaldantoni@unisa.it)

### Ecosystem management

Fostering circular economy and fighting desertification through biowaste valorization



**Daniela Baldantoni** (+39 089969542)  
[dbaldantoni@unisa.it](mailto:dbaldantoni@unisa.it)

### Depolymerisation

Chemical depolymerization of waste plastics



**Mina Mazzeo** (+39 089969566)  
[mmazzeo@unisa.it](mailto:mmazzeo@unisa.it)

<b>Sustainable catalysis</b>	Development of sustainable catalytic processes for the synthesis of bioactive compounds and building blocks in optically active form	   	<b>Alessandra Lattanzi</b> (+39 089969563) <i>lattanzi@unisa.it</i>
<b>Green chemistry</b>	Valorization of biobased chemicals obtained from biomasses and waste biomasses	   	<b>Raffaele Cucciniello</b> (+39 089969575) <i>rcucciniello@unisa.it</i>
<b>Sustainability</b>	Synthesis of oleochemicals and polymers from renewable sources through olefin metathesis reactions	   	<b>Fabia Grisi</b> (+39 089969557) <i>fgrisi@unisa.it</i>
<b>Organic synthesis</b>	Synthesi of biologically active natural products and their analogues	   	<b>Irene Izzo</b> (+39 089969560) <i>iizzo@unisa.it</i>
<b>Biodiversity</b>	Understanding biodiversity and its drivers to preserve ecosystem functioning and dynamics	   	<b>Daniela Baldantoni</b> (+39 089969542) <i>dbaldantoni@unisa.it</i>
<b>Ecological restoration</b>	Forecasting ecological restoration actions outcomes through ecological modelling	   	<b>Daniela Baldantoni</b> (+39 089969542) <i>dbaldantoni@unisa.it</i>
<b>Biobased polymers</b>	Synthesis of new polymeric materials by using as starting monomer terpenes derived from biomass	   	<b>Carmine Capacchione</b> (+39 089969543) <i>ccapacchione@unisa.it</i>
<b>Biopolymers</b>	Synthesis of catalytic systems for the production of biodegradable polyesters and polycarbonates, deriving from renewable sources	   	<b>Marina Lamberti</b> (+39 089969562) <i>mlamberti@unisa.it</i>
<b>LCA</b>	Life cycle assessment	   	<b>Raffaele Cucciniello</b> (+39 089969575) <i>rcucciniello@unisa.it</i>

## OTHER R&D ORGANIZATIONS

<b>Thermal Analysis Laboratory</b>	<b>Contacts:</b> Ivano Immediata (+39 089969540) - <a href="mailto:iimedia@unisa.it">iimedia@unisa.it</a> <b>Web site:</b> <a href="https://www.dcb.unisa.it/dipartimento/strutture?id=66">https://www.dcb.unisa.it/dipartimento/strutture?id=66</a>
<b>X-ray Diffraction Laboratory</b>	<b>Contacts:</b> Ivano Immediata (+39 089969540) - <a href="mailto:iimedia@unisa.it">iimedia@unisa.it</a> <b>Web site:</b> <a href="https://www.dcb.unisa.it/dipartimento/strutture?id=68">https://www.dcb.unisa.it/dipartimento/strutture?id=68</a>
<b>Nuclear Magnetic Resonance Laboratory</b>	<b>Contacts:</b> Patrizia Oliva (+39 089969574) - <a href="mailto:poliva@unisa.it">poliva@unisa.it</a> <b>Web site:</b> <a href="https://www.dcb.unisa.it/dipartimento/strutture?id=275">https://www.dcb.unisa.it/dipartimento/strutture?id=275</a>
<b>Mass Spectrometry Laboratory</b>	<b>Contacts:</b> Patrizia Iannece (+39 089969377) - <a href="mailto:piannece@unisa.it">piannece@unisa.it</a> <b>Web site:</b> <a href="https://www.dcb.unisa.it/dipartimento/strutture?id=258">https://www.dcb.unisa.it/dipartimento/strutture?id=258</a>

## COLLABORATIONS WITH COMPANIES

- 4Achem S.r.l.
- AOP4Water S.r.l.
- Bio Valore World S.r.l.
- Bi-QEM S.p.A.
- Bracco S.p.A.
- Chiesi Farmaceutici S.p.A.
- Cleprin S.r.l.
- ENI S.p.A.
- Lete S.p.A.
- Merck S.p.A.
- Nano Active Film S.r.l.
- Pirelli S.p.A.
- Prometeon Tyre Group S.r.l.
- Prysmian Group S.p.A.
- Recordati Industria Chimica e Farmaceutica S.p.A.

## PUBBLICAZIONI

- <https://pubs.acs.org/doi/10.1021/acs.macromol.9b02646>
- <https://pubs.acs.org/doi/10.1021/acs.macromol.2c00719>
- <https://pubs.acs.org/doi/10.1021/acs.macromol.8b01044>
- <https://www.sciencedirect.com/science/article/pii/S2213343721017796?via%3Dihub>
- <https://pubs.acs.org/doi/10.1021/acs.joc.1c01794>
- <https://pubs.acs.org/doi/10.1021/acsomega.1c01133>
- <https://onlinelibrary.wiley.com/doi/10.1002/mame.202200500>

## GENERAL INFORMATION

**Università degli Studi di Salerno**  
**Department of Pharmacy**

Via Giovanni Paolo II 132 - 84084 Fisciano (SA)  
 sito web: <https://www.difarma.unisa.it/en>

## CONTACTS

Prof. Pietro CAMPIGLIA  
 +39 089969242

## DETAILED INFORMATION

**Staff:** 19 Full Professors

42 Associate Professors

30 Researchers

6 Structured Technicians

13 Administrative Technicians

**Registered students:** 1,714 (Academic year 2022/2023)

**Post Lauream Training:** 38 enrolled in doctoral programs in Drug Sciences

6 enrolled in II level Master in Microbiological controls: quality and safety in production processes

6 enrolled in II level Master in Radiopharmaceutical Management

23 Research fellows

33 fellows

**Patents:** 6 <https://web.unisa.it/terza-missione/trasferimento-tecnologico/proprietà-intellettuale/portafoglio-brevetti>

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Green extraction

Development of environmentally friendly extraction methods and metabolomics approaches for the exploration of plant matrices as source of bioactive compounds



**Sonia Piacente** (+39 089969763)  
*piacente@unisa.it*

### Drug delivery

Innovative pharmaceutical technologies for the delivery of synthetic and natural bioactive compounds



**Pasquale Del Gaudio** (+39 089969247)  
*pdelgaudio@unisa.it*

### Analytical methods

Development of advanced analytical methods for the determination of polar metabolites, xenobiotics, and microplastics



**Carlo Crescenzi** (+39 089969746)  
*carlo.crescenzi@unisa.it*

### Biodiversity

Food Chemistry, Nutraceuticals and Biodiversity



**Luca Rastrelli** (+39 089969766)  
*rastrelli@unisa.it*

### NMR

Structural studies on drug-DNA interactions by advanced NMR techniques, Molecular Docking and Molecular Dynamics Simulations



**Giuseppe Bifulco** (+39 089969741)  
*bifulco@unisa.it*

### Natural products

Identification of bioactive compounds from natural matrices



**Nunziatina De Tommasi** (+39 089969754)  
*detommasi@unisa.it*

<b>Health products</b>	Green technologies and micro algae for health and agricultural products	     	<b>Rita Patrizia Aquino</b> (+39 089969737) <i>aquinorp@unisa.it</i>
<b>Artificial intelligence</b>	Development of computational models for drugs and biomaterials design	     	<b>Stefano Piotto</b> (+39 089969795) <i>piotto@unisa.it</i>
<b>Drug discovery</b>		     	<b>Agostino Casapullo</b> (+39 089969243) <i>casapullo@unisa.it</i>
<b>Small molecules</b>	Design and synthesis of biologically active "small molecules"	     	<b>Gianluca Sbardella</b> (+39 089969770) <i>gsbardella@unisa.it</i>
<b>Peptides</b>	Design and Synthesis of Peptides and Peptidomimetics	     	<b>Anna Maria D'Ursi</b> (+39 089969748) <i>dursi@unisa.it</i>
<b>Official plants</b>	Chemical and biological study of medicinal and food plants	     	<b>Vincenzo De Feo</b> (+39 089969751) <i>defeo@unisa.it</i>
<b>Nutrition</b>	Study of nutritional molecular processes	     	<b>Mario Felice Tecce</b> (+39 089969772) <i>tecce@unisa.it</i>
<b>Multi-Omics</b>	Omics-Based Strategies in Precision Medicine	     	<b>Pietro Campiglia</b> (+39 089969242) <i>pcampiglia@unisa.it</i>

## OTHER R&D ORGANIZATIONS

### Preclinical Experimentation Laboratory

The Preclinical Experimentation Laboratory aims to support the scientific activity of university researchers working in the field of life sciences, allowing them to carry out "in vivo" research in compliance with CEE directives of D.L. 26/2014, and according to the international standards of "Good Laboratory Practice". The Laboratory provides users with structures, personnel, basic equipment for keeping animals and for experimental procedures. The Laboratory, compatibly with institutional tasks, may also carry out activities on behalf of third parties by entering into agreements or contracts in compliance with current legislation

**Contacts:** Secretariat (+39 089969764)

### Observatory on the Parks and Protected Areas, Laboratories, Libraries, Multimedia Classrooms

The center proposes to integrate the development of the Third Mission with the territorial competences of the Parks by carrying out research and training activities in the context of the government and management of parks and protected areas

**Web site:** <https://www.difarma.unisa.it/dipartimento/strutture?id=394>

### Pharmanomics

Interdepartmental Center for Research in Pharmaceutical Technologies and Pharmacoeconomics - The formula of the Interdepartmental Center (Department of Pharmacy, Department of Medicine, Surgery and Dentistry, Department of Business Sciences - Management & Innovation System) represents a suitable structural and organizational solution for implementing an interdisciplinary network between departments. In particular, researchers and experts of the University of Salerno, through the Interdepartmental Center, are encouraged to promote the scientific debate at the local level and to extend it to national and international level, in line with national and European Community guidelines

**Contacts:** Secretariat (+39 089969151)

**Web site:** <https://www.pharmanomics.unisa.it/en>

## COLLABORATIONS WITH COMPANIES

Active agreements for job placement:

- Alfa Instruments S.r.l.
- Analisis S.r.l.
- Anseris Pharma S.r.l.
- Aphros Cosmetics
- Aqua Biotech S.r.l.
- ATM Service S.r.l.
- Biocentro S.r.l.
- Evra S.r.l. Società Benefit
- Fisiopharma S.r.l.
- Fondazione Telethon ETS
- Franzese S.p.A.
- Genelife S.r.l.
- Genetic S.p.a.
- Herbelia Cosmetici S.r.l.
- Hosmotic S.r.l.
- Laboratori Nutriphyt S.r.l.
- Magipharm S.r.l.
- NEILOS S.r.l.
- Pharmatec S.r.l.
- Renée Blanche S.r.l.
- Svas Biosana S.p.A.
- Teina Adam
- Zafferano Lucano

Active agreements for Phd program:

- Angelini Pharma S.p.A.
- Arterra Bioscience
- EPI-C S.r.l.
- Home Medicine Italia S.r.l.
- Hosmotic S.r.l.
- ImmunePharma S.r.l.
- Laboratori Biokyma S.r.l.
- Merck Italia
- Nippon Gases Industrial S.r.l.
- Nutriphyt srl, Paolillo S.r.l.
- SCAI Lab S.r.l.
- Shedir Pharma S.r.l.
- SmartVase S.r.l.
- Soft-Mining-an artificial intelligence (AI)-powered drug discovery company
- Spectra 2000 S.r.l. Parte di R&D Chemicals Group S.r.l.
- Tescan Brno
- Theorem@ S.r.l.

## PUBBLICAZIONI

- Anseris Pharma S.r.l., Journal of Cardiovascular Development and Disease, 10.3390/jcdd9120423
- DODACO S.r.l., Antioxidants, 10.3390/antiox9050378
- Centrale del Latte di Salerno, Journal of Functional Foods, 10.1016/j.jff.2016.08.021
- San Salvatore, Food Research International, 10.1016/j.foodres.2017.12.038
- Felix S.r.l., International Journal of Molecular Sciences, 10.3390/ijms20236087
- Coppola S.p.a., Food Chemistry, 10.1016/j.foodchem.2012.10.023
- EPO S.r.l., Biomedicine & Pharmacotherapy, <https://doi.org/10.1016/j.biopha.2020.110670>



## GENERAL INFORMATION

**Università degli Studi di Sassari**  
**Department of Agriculture**  
 Viale Italia 39 - 07100 Sassari (SS)  
 sito web: <https://www.agrariaweb.uniss.it/en>

## CONTACTS

Prof. Pier Paolo ROGGERO  
 +39 079229226

## DETAILED INFORMATION

**Staff:** 18 Full Professors  
 32 Associate Professors  
 35 Researchers  
 3 Technologists  
 49 Structured and Administrative Technicians  
**Registered students:**  
**Post Lauream Training:** 48 enrolled in doctoral programs  
 21 Research fellows  
 51 fellows  
**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Remediation</b>	Use of organic and inorganic soil amendments for the recovery of soils contaminated by Potentially Toxic Elements (PTE)	     	<b>Maria Vittoria Pinna</b> (+39 079229349) <i>mavi@uniss.it</i>
<b>Remediation</b>	Biological strategies for the recovery of contaminated soils and waters	     	<b>Giovanni Garau</b> (+39 079229210) <i>ggarau@uniss.it</i>
<b>Remediation</b>	Development of protocols for the management and use of microorganisms and pedofauna for the recovery of degraded areas	     	<b>Stefania Diquattro</b> (+39 079229213) <i>sdiquattro@uniss.it</i>
<b>Recycling</b>	Study of the evolution of organic matter during the composting process of waste biomasses	     	<b>Paola Castaldi</b> (+39 079229214) <i>castaldi@uniss.it</i>

## OTHER R&D ORGANIZATIONS

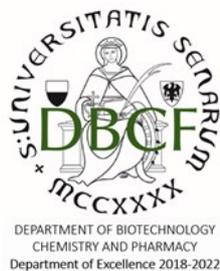
**Laboratory of Agricultural Biochemistry** | **Contacts:** Maria Vittoria Pinna (+39 079229349) - [mavi@uniss.it](mailto:mavi@uniss.it)

**Laboratory of Soil Chemistry** | **Contacts:** Maria Vittoria Pinna (+39 079229349) - [mavi@uniss.it](mailto:mavi@uniss.it)

**Laboratory of Instrumental Chemistry (Spectroscopy and Potentiometry)** | **Contacts:** Matteo Garau (+39 079229348) - [matteo\\_gp@libero.it](mailto:matteo_gp@libero.it)

**Laboratory of Chromatography** | **Contacts:** Gian Paolo Lauro (+39 079229215) - [gplauro@uniss.it](mailto:gplauro@uniss.it)





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## GENERAL INFORMATION

**Università degli Studi di Siena**  
**Department of Biotechnology, Chemistry and Pharmacy**  
Via Aldo Moro 2 - 53100 Siena (SI)

## CONTACTS

Prof.ssa Agnese MAGNANI  
+39 0577232108

## DETAILED INFORMATION

**Staff:** 8 Full Professors  
38 Associate Professors  
17 Researchers  
19 Structured Technicians  
4 Administrative Technicians  
**Registered students:** 1,228 (Academic year 2021/2022)

**Post Lauream Training:**

104 enrolled in Doctorates in Biochemistry & Molecular Biology (BiBiM2.0), Chemical & Pharmaceutical Sciences  
41 enrolled in Masters  
10 fellows

**Patents:** 22

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## OTHER R&D ORGANIZATIONS

**R2ES Lab - Research on  
Renewable Energy and  
Sustainability**

**Contacts:** [info@r2eslab.com](mailto:info@r2eslab.com)  
**Web site:** <http://www.r2eslab.com>



SUSCHEM<sup>IT</sup>



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## GENERAL INFORMATION

**Università degli Studi di Torino**

**Department of Chemistry**

Via Pietro Giuria 7 - 10125 Torino (TO)

sito web: <https://www.chemistry.unito.it/do/home.pl>

## CONTACTS

Prof. Lorenza OPERTI

+39 0116707510

## DETAILED INFORMATION

**Staff:** 24 Full Professors

46 Associate Professors

31 Researchers

16 Research Technicians

**Registered students:** 1,868 (Academic year 2021/2022)

**Post Lauream Training:** 101 enrolled in Doctorates in Chemistry and Industrial Chemistry

32 Research fellows

23 fellows

**Patents:** -

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## OTHER R&D ORGANIZATIONS

**C3S**

Competence Centre for Scientific Computing

**Contacts:** Lorenzo Maschio (+39 0116707564) - [lorenzo.maschio@unito.it](mailto:lorenzo.maschio@unito.it)

**Web site:** <https://c3s.unito.it/>

**"G. Scansetti" Centre**

"G. Scansetti" Interdepartmental Centre for Studies on Asbestos and Other Toxic Particulates

**Contacts:** Francesco Turci (+39 0116707566) - [francesco.turci@unito.it](mailto:francesco.turci@unito.it)

**Web site:** <http://www.centroscansetti.unito.it>

**CrisDi**

Center for Crystallography

**Contacts:** Domenica Marabello (+39 0116707505) - [domenica.marabello@unito.it](mailto:domenica.marabello@unito.it)

**Web site:** <http://www.crisdi.unito.it>

**ICxT**

Interdepartmental Center for the innovation

**Contacts:** Claudia Barolo (+39 0116707594) - [claudia.barolo@unito.it](mailto:claudia.barolo@unito.it)

**Web site:** <https://icxt.di.unito.it/>

**NIS**

Interdepartmental Center and INSTM Reference Centre

**Contacts:** Gabriele Ricchiardi (+39 011 6707503) - [gabriele.ricchiardi@unito.it](mailto:gabriele.ricchiardi@unito.it)

**Web site:** <http://www.nis.unito.it>



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## GENERAL INFORMATION

### University of Torino

### Department of Life Sciences and Systems Biology

Via Accademia Albertina 13 - 10123 Torino (TO)

sito web: <http://www.dbios.unito.it>

## CONTACTS

Prof.ssa Consolata SINISCALCO

+39 0116704506

## DETAILED INFORMATION

**Staff:** 14 Full Professors

37 Associate Professors

27 Researchers

47 Structured Technicians

**Registered students:** 3.535 (Academic Year 2021-2022)

**Post Lauream Training:** 53 enrolled in Doctorates in Biological Sciences and Applied Biotechnologies, Pharmaceutical and Biomolecular Sciences, Complex Systems for Life Sciences, Neuroscience, Experimental Medicine and Therapy, Psychological, Anthropological Educational Sciences

24 Research fellows

36 fellows

**Patents:** 39 (period 2000-2022)

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## OTHER R&D ORGANIZATIONS

### MYCOTHECA UNIVERSITATIS TAURINENSIS

Mycoteca of the University of Turin

**Contacts:** Giovanna Cristina Varese (+39 0116705984) - [cristina.varese@unito.it](mailto:cristina.varese@unito.it)

**Web site:** <https://www.tucc-database.unito.it/mut>



## GENERAL INFORMATION

Università degli Studi di Trento  
Department of Industrial Engineering  
Via Sommarive 9 - 38123 Trento (TN)  
sito web: <https://www.dii.unitn.it/en>

## CONTACTS

Prof. Alessandro PEGORETTI  
+39 0461282500 / +39 0461282503

## DETAILED INFORMATION

**Staff:** 15 Full Professors  
27 Associate Professors  
8 Researchers  
17 Structured Technicians  
9 Administrative Technicians  
**Registered students:** 1,056 (Academic year 2022/2023)  
**Post Lauream Training:** 86 enrolled in the Doctorate in Materials, Mechatronics and Systems Engineering  
34 Research fellows  
24 fellows  
**Patents:** 4

### DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

<b>Recycling</b>	Plastic materials recycling							<b>Alessandro Pegoretti</b> (+39 0461282452) <i>alessandro.pegoretti@unitn.it</i>
<b>Batteries</b>	Materials for lithium ions batteries							<b>Gian Domenico Sorarù</b> (+39 0461282454) <i>giandomenico.soraru@unitn.it</i>
<b>SOFC-SOEC</b>	Materials for solid oxide fuel cells (SOFC)							<b>Vincenzo M. Sglavo</b> (+39 0461282468) <i>vincenzo.sglavo@unitn.it</i>
<b>Sintering</b>	Advanced processes for ceramics production (cold sintering, flash sintering and UHS)							<b>Vincenzo M. Sglavo</b> (+39 0461282468) <i>vincenzo.sglavo@unitn.it</i>
<b>Stoccaggio energia</b>	Materials for thermal energy storage (TES)							<b>Alessandro Pegoretti</b> (+39 0461282452) <i>alessandro.pegoretti@unitn.it</i>
<b>Photoactive materials</b>	Synthesis and characterization of photoactive materials							<b>Francesco Parrino</b> (+39 0461285295) <i>francesco.parrino@unitn.it</i>
<b>Piezoelectric</b>	Sol-gel synthesis of nanoparticles and coatings for piezoelectric nanocomposites and photodetectors							<b>Sandra Dirè</b> (+39 0461282456) <i>sandra.dire@unitn.it</i>
<b>Waste recovery</b>	Recovery of industrial wastes for the production of ceramics and glasses							<b>Vincenzo M. Sglavo</b> (+39 0461282468) <i>vincenzo.sglavo@unitn.it</i>

<b>Oxidation</b>	Advanced oxidation processes	     	<b>Francesco Parrino</b> (+39 0461285295) <i>francesco.parrino@unitn.it</i>
<b>Perovskites</b>	Synthesis of perovskites by reverse micelles route	     	<b>Riccardo Ceccato</b> (+39 0461282466) <i>riccardo.ceccato@unitn.it</i>
<b>Photocatalysis</b>	Green photocatalytic synthesis of high added value industrial compounds	     	<b>Francesco Parrino</b> (+39 0461285295) <i>francesco.parrino@unitn.it</i>
<b>Nanopowders</b>	Synthesis of innovative calcium-phosphates nano-powders from natural sources	     	<b>Vincenzo M. Sglavo</b> (+39 0461282468) <i>vincenzo.sglavo@unitn.it</i>
<b>DSSC cells</b>	DSSC cells	     	<b>Riccardo Ceccato</b> (+39 0461282466) <i>riccardo.ceccato@unitn.it</i>
<b>Aerogel</b>	Aerogel in the Si-C-N-O system	     	<b>Gian Domenico Sorarù</b> (+39 0461282454) <i>giandomenico.soraruru@unitn.it</i>

## COLLABORATIONS WITH COMPANIES

The Department has several partnerships with Italian and foreign companies on research and development projects regarding materials technology, mechatronics and system engineering

## PUBBLICAZIONI

- Pegoretti, A, **Material circularity in rubber products** in EXPRESS POLYMER LETTERS, v. 17, n. 4 (2023), p. 352-352. - DOI: 10.3144/expresspolymlett.2023.25
- Sandra Dirè, Taffelli, Alberto; Ligorio, Giovanni; Pancheri, Lucio; Quaranta, Alberto; Ceccato, Riccardo; Chiappini, Andrea; Nardi, Marco Vittorio; List-Kratochvil, Emil J. W.; Dirè, Sandra, **Large area MoS<sub>2</sub> films fabricated via sol-gel used for photodetectors** in OPTICAL MATERIALS, v. 135, (2023), p. 113257.1-113257.8. - DOI: 10.1016/j.optmat.2022.113257
- Zorzi, V.; Berardinelli, A.; Gozzi, G.; Ragni, L.; Vannini, L.; Ceccato, R.; Parrino, F., **Combined effect of atmospheric gas plasma and UVA light: A sustainable and green alternative for chemical decontamination and microbial inactivation of fish processing water** in CHEMOSPHERE, v. 317, (2023), p. 137792. - DOI: 10.1016/j.chemosphere.2023.137792
- Dirè, S; Callone, E; Ceccato, R; Parrino, F; Di Credico, B; Mostoni, S; Scotti, R; D'Arienzo, M, **Structural effects of TiO<sub>2</sub> nanoparticles in photocurable ladder-like polysilsesquioxane nanocomposites** in JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, v. 2023, (2023). - DOI: 10.1007/s10971-023-06127-5
- Galotta, Anna; Sglavo, Vincenzo Maria, **The cold sintering process: A review on processing features, densification mechanisms and perspectives** in JOURNAL OF THE EUROPEAN CERAMIC SOCIETY, v. 41, n. 16 (2021), p. 1-17. - DOI: 10.1016/j.jeurceramsoc.2021.09.024
- Zambotti, A.; Ionescu, E.; Gargiulo, N.; Caputo, D.; Vakifahmetoglu, C.; Santhosh, B.; Biesuz, M.; Soraru, G. D., **Processing of polymer-derived, aerogel-filled, SiC foams for high-temperature insulation** in JOURNAL OF THE AMERICAN CERAMIC SOCIETY, v. 106, n. 8 (2023), p. 4891-4901. - DOI: 10.1111/jace.19118
- Valentini, F; Roux, Jc; Lopez-Cuesta, Jm; Fambri, L; Dorigato, A; Pegoretti, A, **Fire behaviour of EPDM/NBR panels with paraffin for thermal energy storage applications. Part 1: Fire behaviour** in POLYMER DEGRADATION AND STABILITY, v. 207, (2023), p. 110240. - DOI: 10.1016/j.polymdegradstab.2022.110240



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## GENERAL INFORMATION

Università degli Studi di Trieste  
Department of Life Sciences  
Via Weiss 2 (Palazzina Q) - 34128 Trieste (TS)  
sito web: <http://dsv.units.it/>

## CONTACTS

Prof. Mauro TRETIACH  
+39 0405588788

## DETAILED INFORMATION

**Staff:** 14 Full Professors  
35 Associate Professors  
31 Researchers  
9 Structured Technicians  
20 Administrative Technicians  
**Registered students:** 1,860 (Academic year 2020/2021)  
**Post Lauream Training:** 87 enrolled in Doctoral programs  
13 students of the Specialization School  
30 Research fellows  
**Patents:** 19

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## GENERAL INFORMATION

**Università degli Studi di Trieste**  
**Department of Chemical and Pharmaceutical Sciences**

Via Licio Giorgieri 1 - 34127 Trieste (TS)

sito web: <http://dscf.units.it/eng>

## CONTACTS

Prof. Paolo TECILLA

+39 0405583904

## DETAILED INFORMATION

**Staff:** 13 Full Professors

25 Associate Professors

16 Researchers

1 Technologist

11 Structured Technicians

9 Administrative Technicians

**Registered students:** 887 (Academic year 2022/2023)

**Post Lauream Training:** 54 enrolled in doctoral programs in Chemistry and Nanotechnologies

8 Research fellows

**Patents:** 2

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Cheminformatics

Computational pipelines to design new bioactive compounds and identify putative targets for drugs and natural compounds



**Emanuele Carosati** (+39 0405583671)  
[emanuele.carosati@units.it](mailto:emanuele.carosati@units.it)

### Materials

Design and development of materials for electrocatalysis and photocatalytic organic synthesis



**Michele Melchionna** (+39 0405583940)  
[melchionnam@units.it](mailto:melchionnam@units.it)

### Functional materials

Synthesis of chromophores for catalytic solar hydrogen production. Synthesis and study of redox switches and their subsequent implementation in polymeric materials.



**Jacopo Dosso** (+39 3714320384)  
[jacopo.dosso@units.it](mailto:jacopo.dosso@units.it)

### Crystal engineering

Synthesis and characterization of nanoporous/elastic/polar crystals and development of artificial receptors for biologically active molecules



**Silvano Geremia** (+39 0405583936)  
[sgeremia@units.it](mailto:sgeremia@units.it)

### Photocatalysis

Design and development of molecular and nanostructured catalysts for the photo- and electrocatalytic activation and conversion of small molecules to fuels and value-added chemicals



**Federico Franco** (+39 0405583922)  
[federico.franco@units.it](mailto:federico.franco@units.it)

### Biobased chemistry

Design, synthesis and/or production of new polymers, materials from renewable sources and biomass. Integration of chemoenzymatic and computational methods for the eco-design of biodegradable polymers and study of the impact at marine level



**Lucia Gardossi** (+39 0405583103)  
[gardossi@units.it](mailto:gardossi@units.it)

### Functional materials

Carbon nanostructures for bioapplication and for materials applications



**Tatiana Da Ros** (+39 0405583597)  
[daros@univ.trieste.it](mailto:daros@univ.trieste.it)

<b>Biosensors</b>	Design, synthesis and evaluation of peptides and polymeric materials as biosensors transducers for the quality control in agrifood	    	<b>Federico Berti</b> (+39 0405583920) <i>fberti@units.it</i>
<b>Functional materials</b>	Development of functional (pharmaceutical and cosmetic) materials through weak supramolecular interactions	    	<b>Dritan Hasa</b> (+39 0405583987) <i>dhasa@units.it</i>
<b>Heterogeneous catalysis</b>	Design and synthesis of materials for energy and environment related catalytic applications	    	<b>Paolo Fornasiero</b> (+39 0405583973) <i>pfornasiero@units.it</i>
<b>Archaeometry</b>	Analysis of archaeological materials, or related to Cultural Heritage, particularly for the identification of biomolecular markers of nutraceutical or psychotropic substances of archaeological significance, the study of paleodiets, and the mobility of ancient populations	    	<b>Enrico Greco</b> (+39 0405583941) <i>enrico.greco@units.it</i>
<b>Plasmonic materials</b>	Development and application of time-dependent theoretical methods for molecular plasmonics and ultrafast spectroscopies	    	<b>Emanuele Coccia</b> (+39 0405583972) <i>ecoccia@units.it</i>
<b>Medical chemistry</b>	Design and synthesis of antifungal and antimycobacterial compounds	    	<b>Maria Grazia Mamolo</b> (+39 0405583724) <i>mamolo@units.it</i>
<b>Natural products</b>	Identification of natural products in plants and synthesis of natural product derivatives with biological activity	    	<b>Cristina Forzato</b> (+39 0405583921) <i>cforzato@units.it</i>
<b>Bioorganic chemistry</b>	Design and synthesis of enzymatic inhibitors with antitumor and antiviral activity	    	<b>Fulvia Felluga</b> (+39 0405583924) <i>ffelluga@units.it</i>
<b>Medical chemistry</b>	Design and development of protein kinase inhibitors	    	<b>Stephanie Federico</b> (+39 0405583671) <i>sfederico@units.it</i>
<b>Heterogeneous catalysis</b>	Synthesis and characterization of nanostructured materials for photothermal and photocatalytic application in the energy field	    	<b>Tiziano Montini</b> (+39 0405583981) <i>tmontini@units.it</i>
<b>Environmental chemistry</b>	Analytical chemistry applied to the determination of metals in the environment (water and sediments) and cultural heritage (paper and monetary artefacts)	    	<b>Gianpiero Adami</b> (+39 0405583996) <i>gadami@units.it</i>
<b>Functional materials</b>	Design and synthesis of hybrid materials for application in biomedicine and material science and study of the relation structure-activity	    	<b>Lucia Pasquato</b> (+39 0405582406) <i>lpasquato@units.it</i>
<b>Biomimetics</b>	Development of biomimetic materials for energy and public health	    	<b>Pierangelo Gobbo</b> (+39 3475812606) <i>pierangelo.gobbo@units.it</i>
<b>Medical chemistry</b>	Design and synthesis of adenosine receptor antagonists	    	<b>Giampiero Spalluto</b> (+39 0405583726) <i>spalluto@units.it</i>
<b>Skin permeation</b>	Skin permeation studies of toxic substances (particularly metallic species) in the context of environmental and occupational health.	    	<b>Matteo Crosera</b> (+39 0405583992) <i>mcrosera@units.it</i>

<b>Supramolecular chemistry</b>	Development of metalcomplex-chromophore conjugates for artificial photosynthesis, photo-catalysis and molecular recognition	     	<b>Elisabetta Iengo</b> (+39 0405583955) <i>eiengo@units.it</i>
<b>Rare diseases</b>	Design and synthesis of GCS inhibitors for the treatment of Gaucher disease	     	<b>Prencipe Filippo</b> (+39 3926675225) <i>filippo.prencipe@units.it</i>
<b>Air quality</b>	Physical, chemical and microbiological characterization and control technologies of aerosols and vapors. Risk assessment and LCA	     	<b>Pierluigi Barbieri</b> (+39 0405583950) <i>barbierp@units.it</i>
<b>Structural biology</b>	3D structural characterization of proteins and complexes via crystallography using synchrotron radiation and cryo-electron microscopy	     	<b>Rita De Zorzi</b> (+39 0405583935) <i>rdezorzi@units.it</i>
<b>Phytomedicine</b>	Development of new formulations containing actives of natural origin	     	<b>Dario Voinovich</b> (+39 0405583106) <i>d.voinovich@units.it</i>
<b>Medical chemistry</b>	Design and synthesis of sigma ligands	     	<b>Daniele Zampieri</b> (+39 04045583677) <i>dzampieri@units.it</i>

## OTHER R&D ORGANIZATIONS

### Bioaerosol and Air Quality Laboratory (BAQLab)

The laboratory is equipped with sampling and analysis systems for atmospheric particulates and bioaerosols, and for gases. Assemble aerosolization chambers for testing air sanitization technologies

**Contacts:** Sabrina Semeraro (+39 0405583950) - [ssemeraro@units.it](mailto:ssemeraro@units.it)

### Trace Element in the Environment Laboratory (TREELab)

The laboratory is equipped with instrumentation (ICP-AES, ICP-MS, XRF, IC, ...) suitable for the analysis of trace and ultratrace elements in different matrices for research in the environmental, occupational, geochemical and cultural heritage fields

**Contacts:** Gianpiero Adami (+39 0405583991) - [gadami@unist.it](mailto:gadami@unist.it)

### Mass Spectrometry Laboratory

The laboratory is equipped with mass spectrometers with ion trap technology for structural elucidation and qTOF and Orbitrap for the determination of accurate masses. The systems are coupled to HPLC and UHPLC chromatographic systems.

**Contacts:** Fabio Hollan (+39 0405583674) - [hollan@units.it](mailto:hollan@units.it)

**Web site:** <https://dscf.units.it/it/servizi-strumenti/strumenti/Spettrometro-di-Massa>

## COLLABORATIONS WITH COMPANIES

- Basell
- Bracco Imaging
- Demus
- Dr. Shar
- Eni
- Enphos
- Esteco
- Eurofins
- FIS
- Illy
- Phenbiox srl
- TCR Tecora
- Versalis

## PUBBLICAZIONI

- ACS Catal.2022, 12, 3430–3443, 10.1021/acscatal.1c05326 **Tunable “In-Chain” and “At the End of the Branches” Methyl Acrylate Incorporation in the Polyolefin Skeleton through Pd(II) Catalysis** - Chiara Alberoni, Massimo C. D’Alterio, Gabriele Balducci, Barbara Immirzi, Maurizio Polentarutti, Claudio Pellecchia, and Barbara Milani
- Chem Catalysis, 2022, 2, 1177–1190, 10.1016/j.checat.2022.03.015 **Defect engineering over anisotropic brookite toward substrate-specific photo-oxidation of alcohols** - S. M. Hossein Hejazi, Mahdi Shahrezaei, Piotr Błonski, Mattia Allieta, Polina M. Sheverdyeva, Paolo Moras, Zdenek Badura, Sergii Kalytchuk, Elmira Mohammadi, Radek Zboril, Stepan Kment, Michal Otyepka, Alberto Naldoni, and Paolo Fornasiero
- ACS Nano2022, 16, 20902–20914, 10.1021/acsnano.2c08467 **Spotting local environments in self-assembled monolayer-protected gold nanoparticles** - Cristian Gabellini, Maria Şologan, Elena Pellizzoni, Domenico Marson, Mario Daka, Paola Franchi, Luca Bignardi, Stefano Franchi, Zbyšek Posel, Alessandro Baraldi, Paolo Pengo, Marco Lucarini, Lucia Pasquato, and Paola Posocco
- J. Am. Chem. Soc. 2022, 144, 31, 14021–14025, 10.1021/jacs.2c05857 **Enhancing Oxygenic Photosynthesis by Cross-Linked Perylenebisimide “Quantasomes”** - Thomas Gobbato, Francesco Rigodanza, Elisabetta Benazzi, Paolo Costa, Marina Garrido, Andrea Sartorel, Maurizio Prato, Marcella Bonchio
- Environmental Pollution 292 (2022) 118353, 10.1016/j.envpol.2021.118353 - **Percutaneous metals absorption following exposure to road dust powder** - Greta Camilla Magnano, Giovanna Marussi, Elena Pavoni, Gianpiero Adami, Francesca Larese Filon, Matteo Crosera
- Construction and Building Materials, Volume 338, 4 July 2022, 127349, 10.1016/j.conbuildmat.2022.127349 **Photocatalytic TiO<sub>2</sub> nanosheets-SiO<sub>2</sub> coatings on concrete and limestone: An enhancement of de-polluting and self-cleaning properties by nanoparticle design** - M. Luna, J.J. Delgado, I. Romero, T. Montini, M.L. Almoraima Gil, J. Martínez-Lopez, P. Fornasiero, M.J. Mosquera
- ACS Catal. 2022, 12, 8, 4290–4295, 10.1021/acscatal.2c00565 **Unveiling the Synthetic Potential of Substituted Phenols as Fully Recyclable Organophotoredox Catalysts for the Iodosulfonylation of Olefins** - Cristian Rosso, Sara Cuadros, Giorgia Barison, Paolo Costa, Marina Kurbasic, Marcella Bonchio, Maurizio Prato, Luca Dell’Amico, and Giacomo Filippini



## GENERAL INFORMATION

Università degli Studi di Trieste  
Department of Engineering and Architecture - DIA  
Via Alfonso Valerio 6/1 - 341127 Trieste (TS)  
sito web: <https://dia.units.it>

## CONTACTS

Prof. Paolo GALLINA  
+39 0405587300

## DETAILED INFORMATION

**Staff:** 22 Full Professors  
51 Associate Professors  
38 Researchers  
12 Structured Technicians  
16 Administratives Technicians  
1 General Services  
**Registered students:** 2,175 (Academic year 2022/2023)  
**Post Lauream Training:** 73 enrolled in Doctoral programs in Engineering  
13 enrolled in II level Master in Management in clinical engineering  
27 Research fellows  
6 fellows  
**Patents:** 11

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Tecnologie no-solvente

Supercritical carbon dioxide extraction of natural bioactive compounds from plant materials



**Angelo Cortesi** (+39 0405583755)  
[angelo.cortesi@dia.units.it](mailto:angelo.cortesi@dia.units.it)

### Soft materials

Modeling and rheological, Low filed NMR, UV and laser light scattering characterisation of controlled drug delivery systems, gels and biological tissues



**Mario Grassi** (+39 0405583435)  
[mario.grassi@dia.units.it](mailto:mario.grassi@dia.units.it)

### Bionanotechnology

Computer-aided design (HPC-baese Molecular Simulation) and experimental characterization with calorimetric (ITC) and spectroscopic (UV, CD and Fluorescence) techniques of bionanotechnological systems



**Erik Laurini** (+39 0405583432)  
[erik.laurini@dia.units.it](mailto:erik.laurini@dia.units.it)

### Sustainable processes

Design of chemical and biochemical processes of industrial relevance in the energy, biotechnological and pharmaceutical fields. Use of process simulators and professional SW for environmental impact assessments (LCA) according to ISO 14040



**Maurizio Fermeglia** (+39 0405583438)  
[maurizio.fermeglia@units.it](mailto:maurizio.fermeglia@units.it)

## COLLABORATIONS WITH COMPANIES

- Fibre-Net
- Serichim Srl

## PUBBLICAZIONI

- **Use of low-field NMR and rheology to evaluate the microstructure and stability of a poly(D,L-lactide-co-glycolide)-based W/O emulsion to be processed by spray drying** Ana Juric Simci, Michela Abrami, Iva Erak, Iva Paladin, Biserka Cetina Cizmek, Anita Hafner, Mario Grassi, Jelena Filipovic-Grcic. *International Journal of Pharmaceutics* 2023, 631, 122471, 1-10
- **Desorption of artemisinin extracts of CIM-Arogya by supercritical carbon dioxide** Negi, A.S., Cortesi, A., Kikic, I., Calabrese, M., Solinas, D; *Journal of Supercritical Fluids*, 2018, 133, pp. 42–48
- Russi M, Valeri R, Marson D, Danielli C, Felluga F, Tintaru A, Skoko N, Aulic S, Laurini E, Pricl S. **Some things old, new and borrowed: Delivery of dabrafenib and vemurafenib to melanoma cells via self-assembled nanomicelles based on an amphiphilic dendrimer.** *Eur J Pharm Sci.* 2023 Jan 1;180:106311.
- A Mio, E Barbera, AM Pavan, R Danielis, A Bertucco, M Fermeglia, 2023, **Analysis of the energetic, economic, and environmental performance of hydrogen utilization for port logistic activities**, *Applied Energy* 347, 121431



# UNIVERSITÀ DEGLI STUDI DI UDINE

hic sunt futura



## GENERAL INFORMATION

Università degli Studi di Udine

Department of Agricultural, Food, Environmental and Animal Sciences

Via delle Scienze 206 - 33100 Udine (UD)

sito web: <http://www.uniud.it>

## CONTACTS

Prof. Edi PIASENTIER

+39 0432558670

## DETAILED INFORMATION

**Staff:** 24 Full Professors

50 Associate Professors

47 Researchers

40 Structured Technicians

20 Administrative Technicians

**Registered students:** 1800 (Academic year 2022/2023)

**Post Lauream Training:** 40 enrolled in the Ph.D. program in Food Human Health, Agricultural Biotechnology Sciences

31 research fellows

2 fellows

**Patents:** 52

## DATASHEET ICONS



PRODUCTS



PROPRIETARY SEARCH



PROCESSES



THIRD PARTY RESEARCH



SERVICES



TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Solventi eutettici

Development of innovative electrochemical detection strategies based on ILs and DESs for the rapid quantification of volatile compounds and allergenic proteins in food products. Ionic liquids (ILs) and a subclass of them known as "deep eutectic solvents" (DESs) are ionic solvents considered "green solvents" due to their biodegradability and low toxicity. Application of these solvents both in the development of electrochemical sensors capable of operating in the gas phase and biosensors based on the use of synthetic bioreceptors such as aptamers. Synthesis of aptamers into DESs for their subsequent use in the selective recognition of proteins (food allergens) in the same solvents adopted as extractors by exploiting an electrochemical assay. Study for the gas phase transfer of the operation of cost-effective electrochemical transduction systems printed on paper or commercially available screen-printed electrodes



**Rosanna Toniolo** (+39 0432558885)

[rosanna.toniolo@uniud.it](mailto:rosanna.toniolo@uniud.it)

### Peptidomimetics

Synthesis of peptide and peptidomimetic with biological activity and their functionalization on nanoparticles of synthesis, for applications in therapy, as drug delivery or nano-carriers, and diagnosis



**Rossella De Marco** (+39 0432558876)

[rossella.demarco@uniud.it](mailto:rossella.demarco@uniud.it)

<b>Biomaterials</b>	Development of processes for the synthesis of eco-friendly polymeric materials. Chemical modification of biomass syntones lignocellulosic for the production of value-added products that can act as bio-building blocks for the preparation of new Renewable Polymer Materials	    	<b>Paolo Strazzolini</b> (+39 0432558870) <i>paolo.strazzolini@uniud.it</i>
<b>Homogeneous catalysis</b>	Development of ruthenium catalysts for the hydrogenation of carbonyl and carboxylic derivatives of biomass to high value-added products under low environmental impact conditions	    	<b>Walter Baratta</b> (+39 0432558836) <i>walter.baratta@uniud.it</i>
<b>Antimicrobials</b>	Development of materials with antimicrobial activity for the control and prevention of bacterial contamination in both industrial/productive and healthcare. Development of antimicrobial materials for use in new water disinfection processes low environmental impact	    	<b>Clara Comuzzi</b> (+39 0432558845) <i>clara.comuzzi@uniud.it</i>
<b>Biosensors</b>	Development of low-cost, green biosensors aimed at guaranteeing food safety, avoiding waste and reducing the exposure of humans and animals to chemical and biological risks. In particular, the research focuses on electrochemical devices that exploit the use of a green class of solvents called Deep Eutectic Solvents (DESs) and aptamers as recognition elements.	    	<b>Rossella Sveglij</b> (+39 0432558848)
<b>Sustainable chemistry</b>	Development of transition metals-based catalysts with traditional and advanced techniques with lower environmental impact	    	<b>Eleonora Aneggi</b> (+39 0432558840) <i>eleonora.aneggi@uniud.it</i>
<b>Sustainable chemistry</b>	Study of sustainable techniques to reduce MOAH (mineral oil aromatic hydrocarbons) contamination in vegetable oils (PNRR PhD with Unigrà). Development of sustainable biofilms with barrier properties against contaminants released from recycled paper (Cibiamo departmental project) Valorization of vegetable waste (project funded by ARSS Slovenia).	    	<b>Sabrina Moret</b> (+39 0432558146) <i>sabrina.moret@uniud.it</i>
<b>Green chemistry</b>	Green synthesis and catalytic applications of ruthenium complexes through mechanochemistry	    	<b>Daniele Zuccaccia</b> (+39 0432558819) <i>daniele.zuccaccia@uniud.it</i>
<b>Portable analytical devices</b>	The common commitment to limit the use of toxic and environmentally harmful substances and to reduce energy consumption, combined with the ever-increasing demand and need for portable analytical instrumentation, has led research towards the development of miniaturized analytical devices characterized by a reduced consumption of solvents / reagents and usable "in field" in compliance with the fundamental principles of GAC (Green Analytical Chemistry). In this context, the research activity is focused on the development of low-cost and easy-to-use miniaturized electrochemical and optical analytical devices, using simple constructive approaches based on the use of commonly used instruments (cutting plotter, office or 3D printers, open-source microcontrollers and smartphone) and using eco-friendly and readily available materials (graphite-pencil, paper and cotton). These devices have been used for the determination and quantification of analytes of agro-food and environmental interest	    	<b>Nicolò Dossi</b> (+39 0432558835) <i>nicolo.dossi@uniud.it</i>

## COLLABORATIONS WITH COMPANIES

103 Regional, domestic and foreign companies

## PUBBLICAZIONI

381 publications (31/12/2022)



1506  
UNIVERSITÀ  
DEGLI STUDI  
DI URBINO  
CARLO BO

DISPEA  
DIPARTIMENTO DI  
SCIENZE PURE E APPLICATE



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## GENERAL INFORMATION

**Università degli Studi di Urbino Carlo Bo**  
**Department of Pure and Applied Sciences**

Via S. Andrea 34 – 61029 Urbino (PU)

sito web: <https://www.uniurb.it/ateneo/person-e-strutture/dipartimenti/dipartimento-di-scienze-pure-e-applicate-dispea>

## CONTACTS

Prof. Andrea VICERÉ  
+39 0722303385

## DETAILED INFORMATION

**Staff:** 12 Full Professors

24 Associate Professors

24 Researchers

16 Structured Technicians

**Registered students:** 563 (A.A. 2021/2022)

**Post Lauream Training:** 80 enrolled in Doctorates in Research Methods in Science and Technology

13 Research fellows

**Patents:** 15

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## GENERAL INFORMATION

**Università della Calabria**

**Department of Chemistry and Chemical Technologies**

Via P. Bucci 12/C – 87036 Rende (CS)

site web: [https://www.unical.it/portale/strutture/dipartimenti\\_240/ctc/](https://www.unical.it/portale/strutture/dipartimenti_240/ctc/)

## CONTACTS

Prof.ssa Anna Maria Carmela NAPOLI

+39 0984492845

## DETAILED INFORMATION

**Staff:** 9 Full Professors

25 Associate Professors

9 Researchers

3 Structured Technicians

8 Administrative Technicians

**Registered students:** 274 (Academic year 2022/2023)

**Post Lauream Training:** 5 enrolled in doctoral programs in life science and technology

6 enrolled in doctoral programs in Translational Medicine

6 enrolled in doctoral programs in Environmental, construction and energy Sciences and Technologies

6 enrolled in doctoral programs in Physical, Chemical and Materials Sciences and Technologies.

6 Research fellows

2 fellows

**Patents:** -

## DATASHEET ICONS

 PRODUCTS

 PROPRIETARY SEARCH

 PROCESSES

 THIRD PARTY RESEARCH

 SERVICES

 TECHNOLOGIES

## R&D ACTIVITIES DETAIL

### Nutraceuticals

Extraction methods of active principles in foods and vegetables



**Lucia Bartella** (+39 0984493317)  
*lucia.bartella@unical.it*

### Environment

Preparation and characterization of gels and aerogels as insulating materials containing coordination complexes based on silver and copper.



**Francesca Scarpelli**  
*francesca.scarpelli@unical.it*

### Stoccaggio CO<sub>2</sub>

Nanostructured materials and biocompatible polymers for the separation and storage of gases, and particularly CO<sub>2</sub>



**Isabella Nicotera** (+39 0984493379)  
*isabella.nicotera@unical.it*

### Health

MS-based analytical methods for 'targeted' and 'untargeted' determination of biomolecules and secondary metabolites.



**Vincenzo Lettera** (+39 0984493311)  
*vincenzo.lettera@unical.it*

### Heterocycles

Eco-compatible synthesis of high value-added heterocycles with potential biological activity



**Loredana Maiuolo** (+39 0984492853)  
*maiuolo@unical.it*

### Circular economy

Innovative processes for the valorization of waste



**Amerigo Beneduci** (+39 0984492117)  
*amerigo.beneduci@unical.it*

### Agrifood

Assessment of specific properties of foods by mass spectrometry



**Leonardo Di Donna** (+39 098449285)  
*l.didonna@unical.it*

<b>Environment</b>	Study of environmental impacts on the biology and physiology of marine plants in the Mediterranean basin	    	<b>Silvia Mazzuca</b> (+39 0984492967) <i>silvia.mazzuca@unical.it</i>
<b>Health</b>	Application of semi-quantitative expression proteomics at different stages of development, photosynthesis ecofisiology, response to biotic and abiotic stress of marine and land plants	    	<b>Silvia Mazzuca</b> (+39 0984492967) <i>silvia.mazzuca@unical.it</i>
<b>Circular economy</b>	Development and application of technological innovations for the extraction and optimization of plant fibers for the textile and fashion supply chain.	    	<b>Amerigo Beneduci</b> (+39 0984492117) <i>amerigo.beneduci@unical.it</i>
<b>Materials</b>	Synthesis and characterization of multifunctional hybrid organic-inorganic materials. Structure and properties correlation	    	<b>Nicolas Godbert</b> (+39 0984492881) <i>nicolas.godbert@unical.it</i>
<b>Environment</b>	Solid state preparation and structural studies of coordination complexes as bio-active additives for biopolymeric "active" packaging films.	    	<b>Alessandra Crispini</b> (+39 0984492888)
<b>Analytical methods</b>	Development of new analytical protocols based on microextraction techniques for the determination of pollutants in environmental matrices and biological fluids, and for the determination of markers of pathologies in biological fluids. Analytical techniques for the determination of geographical origin of foods.	    	<b>Antonio Tagarelli</b> (+39 0984493332) <i>a.tagarelli@unical.it</i>
<b>CO2 valorisation</b>	Chemical valorization of CO2 through its incorporation into organic substrates for the synthesis of high value added compounds	    	<b>Gabriele Bartolo</b> (+39 0984492815) <i>bartolo.gabriele@unical.it</i>
<b>Catalysis</b>	Development of catalytic methods for the synthesis of high value added molecules (bioactive compounds in particular)	    	<b>Gabriele Bartolo</b> (+39 0984492815) <i>bartolo.gabriele@unical.it</i>
<b>Catalysis</b>	Preparation and structural characterization through X ray diffraction, of molecular and polymeric coordination complexes as green catalysts and sensors.	    	<b>Nadia Marino</b> (+39 0984492064) <i>nadia.marino@unical.it</i>
<b>Environment</b>	Development of innovative materials and processes for the purification of water from specific pollutants, of an organic and inorganic nature.	    	<b>Amerigo Beneduci</b> (+39 0984492117) <i>amerigo.beneduci@unical.it</i>
<b>Environment</b>	Environmental monitoring of the quality of surface and groundwater	    	<b>Amerigo Beneduci</b> (+39 0984492117) <i>amerigo.beneduci@unical.it</i>
<b>Biomaterials</b>	Synthesis of biomaterials deriving from waste for the production of food films	    	<b>Paola Costanzo</b> (+39 0984492850) <i>paola.costanzo@unical.it</i>
<b>Energy</b>	PDLC, electrochromic molecules, and nanostructured semiconductors, to employ them in the design and realization of smart windows and solar cells.	    	<b>Gianni De Filpo</b> (+39 098442095) <i>gdefilpo@unical.it</i>
<b>Carbonylation</b>	Novel processes for the incorporation of CO into organic substrates for the synthesis of carbonyl compounds	    	<b>Gabriele Bartolo</b> (+39 0984492815) <i>bartolo.gabriele@unical.it</i>

<b>Environment</b>	Development and validation of innovative analytical methods: characterisation of complex matrices in clinical, food and environmental fields.	    	<b>Anna Maria Napoli</b> (+39 0984493311) <i>amc.napoli@unical.it</i>
<b>Fuel cells</b>	Design, development and characterization of polymeric, proton and anion electrolyte membranes for PEM and AEM hydrogen fuel cells	    	<b>Isabella Nicotera</b> (+39 0984493379) <i>isabella.nicotera@unical.it</i>
<b>Energy</b>	Preparation and characterization of hybrid organic-inorganic nanomaterials for plasmonic optics, therapy, diagnostic and photoconversion	    	<b>Massimo La Deda</b> (+39 0984492887) <i>massimo.ladeda@unical.it</i>
<b>Exposomics</b>	Development of analytical methods and chemical investigations in the environmental, clinical, and food sectors based on the use of environmentally friendly sample preparation strategies coupled with mass spectrometry techniques. Data analysis using chemometric techniques.	    	<b>Attilio Naccarato</b> (+39 0984492055) <i>attilio.naccarato@unical.it</i>
<b>Membranes</b>	Development of novel nanostructured membranes for applications in the field of water purification and gas separation	    	<b>Gabriele Bartolo</b> (+39 0984492815) <i>bartolo.gabriele@unical.it</i>
<b>Computational chemistry</b>	The research is based on molecular modelling of very complex systems such as biological ones to simulate energy and binding properties (quantum-mechanical methods) and conformational changes coupled to these on a longer time scale (molecular dynamics).	    	<b>Tiziana Marino</b> (+39 098844920085) <i>tmarino@unical.it</i>
<b>Batteries</b>	Development of advanced polymer electrolytes for next-generation all-solid-state lithium and post-lithium batteries	    	<b>Isabella Nicotera</b> (+39 0984493379) <i>isabella.nicotera@unical.it</i>
<b>Food</b>	Development of ambient mass spectrometry methods for the detection of active principles in food	    	<b>Fabio Mazzotti</b> (+39 0984493317) <i>fmazzotti@unical.it</i>
<b>Environment</b>	Synthesis and characterization of nanoporous materials (MOFs) for water decontamination, recover of rare metals and heterogenous catalysis.	    	<b>Donatella Armentano</b> (+39 0984493305) <i>donatella.armentano@unical.it</i>
<b>Health</b>	Sequestering ability of natural ligands towards bioavailable metals	    	<b>Emilia Furia</b> (+39 0984492831) <i>emilia.furia@unical.it</i>
<b>Molecular modelling</b>	Molecular modeling; Fundamental chemical-physical issues regarding quantum noise, chirality and group theory	    	<b>Giorgio Celebre</b> (+39 0984493321) <i>giorgio.celebre@unical.it</i>
<b>Inorganic materials</b>	Design and synthesis of inorganic complexes with luminescence, liquid crystalline, photorefractive, photoconductive, electrochromic and antitumoral properties.	    	<b>Iolinda Aiello</b> (+39 0984492892) <i>iolinda.aiello@unical.it</i>
<b>Environment</b>	Preparation and characterization of polymeric mix membranes containing nanoporous fillers for water treatment.	    	<b>Teresa Fina Mastropietro</b> (+39 0984492069) <i>teresa.mastropietro@unical.it</i>
<b>Biomaterials</b>	Advanced mass spectrometry techniques for the characterisation of biomolecules and biomaterials. Qualitative-quantitative assays.	    	<b>Donatella Aiello</b> (+39-0984493311) <i>donatella.aiello@unical.it</i>

<b>Biopolymers</b>	Synthesis of biopolymers deriving from modified cellulose for the removal of environmentally hazardous contaminants	     	<b>Antonio De Nino</b> (+39 0984492043) <i>denino@unical.it</i>
<b>Environment</b>	Research is focused on materials made of nanometric particles such as SWNT, TiO <sub>2</sub> , WO <sub>3</sub> , ZnO, with the purpose of preparing systems able to remove pollutants typically found in wastewater	     	<b>De Filpo Giovanni</b> (+39 0984492095) <i>defilpo@unical.it</i>
<b>Food</b>	Identification of allergens in fruits and its derivatives; omics (proteomic and genomic) technologies applied to agro-foods; development of physical methods for the stabilization and pasteurization of agro-foods	     	<b>Silvia Mazzuca</b> (+39 0984492967) <i>silvia.mazzuca@unical.it</i>
<b>Materials</b>	Formulation and development of new bioadditives for environmentally friendly bituminous systems to improve road pavement	     	<b>Cesare Oliviero Rossi</b> (+39 0984492045) <i>cesare.oliviero@unical.it</i>
<b>Bioactivity</b>	NMR methodologies applied to the metabolic study of natural bioactive materials of nutraceutical, pharmaceutical and cosmetic interest	     	<b>Giuseppina De Luca</b> (+39 0984493323) <i>giuseppina.deluca@unical.it</i>
<b>Hydrogen</b>	Design and fabrication of nanocomposite electrolyte membranes for PEM- and AEM-type electrolyzers (anionic and protonic polymer membrane)	     	<b>Isabella Nicotera</b> (+39 0984493379) <i>isabella.nicotera@unical.it</i>
<b>Health</b>	Modeling Hypoxia-Active Anticancer Photoagents for Light-mediated therapeutic approaches	     	<b>Marta Erminia Alberto</b> (+39 0984492105) <i>marta.alberto@unical.it</i>
<b>Energy</b>	Development of energy saving materials. Creation of devices for the control of solar radiation using electrochromic and electrofluorochromic plastic films. Experimentation with self-assembly techniques of liquid-crystalline organic semiconductors for the production of electro-optical devices, electrochemical energy storage devices	     	<b>Amerigo Beneduci</b> (+39 0984492117) <i>amerigo.beneduci@unical.it</i>
<b>Security</b>	development of new technologies and applications to ensure brand recognition, traceability and enhancement. Development of fibres, fabrics and electrochromic/supercapacitor devices with high technological value, which allow the brand to be uniquely identified and enhanced	     	<b>Amerigo Beneduci</b> (+39 0984492117) <i>amerigo.beneduci@unical.it</i>

## OTHER R&D ORGANIZATIONS

### CF- INABEC

Chemical-physics Lab for Industrial, Environmental and Cultural Heritage

**Contacts:** Giuseppe Chidichimo - [giuseppe.chidichimo@unical.it](mailto:giuseppe.chidichimo@unical.it)

**Web site:** [http://www.unical.it/portale/strutture/dipartimenti\\_240/ctc/strutture/laboratoriricerca/](http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/)

### La.Bio.PRO.VE

Laboratory of Plant Biology and Plant Proteomics

**Contacts:** Silvia Mazzuca - [silvia.mazzuca@unical.it](mailto:silvia.mazzuca@unical.it)

**Web site:** [http://www.unical.it/portale/strutture/dipartimenti\\_240/ctc/strutture/laboratoriricerca/](http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/)

### Environmental Chemistry Laboratory

Environmental Chemistry Laboratory part of the research infrastructure SILA

**Contacts:** Amerigo Beneduci (0984492117) - [amerigo.beneduci@unical.it](mailto:amerigo.beneduci@unical.it)

**Web site:** <https://www.unical.it/storage/laboratories/782/>

<b>LabOrSy</b>	Laboratory of Organic Synthesis and Chemical Preparations <b>Contacts:</b> Antonio De Nino - denino@unical.it <b>Web site:</b> <a href="http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/">http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/</a>
<b>LISOC</b>	Laboratory Of Industrial And Synthetic Organic Chemistry <b>Contacts:</b> Bartolo Gabriele - b.gabriele@unical.it <b>Web site:</b> <a href="http://www.lisoc.it">http://www.lisoc.it</a>
<b>LXNMR_S.C.An.</b>	Liquid X-tal NMR Structural and Conformational-orientational Analysis <b>Contacts:</b> Giuseppina De Luca - Giuseppina.deluca@unical.it <b>Web site:</b> <a href="http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca">http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca</a>
<b>MAT-in LAB</b>	Laboratory Of Inorganic Molecular Materials <b>Contacts:</b> Giovanni De Munno - demunno@unical.it <b>Web site:</b> <a href="http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/">http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/</a>
<b>PCAM lab</b>	Physical Chemistry and Applied Materials laboratory <b>Contacts:</b> Isabella Nicotera (+39 0984493379) - isabella.nicotera@unical.it  Luigi Coppola (+39 0984492023) - luigi.coppola@unical.it  Cesare Oliviero Rossi (+39 0984492045) - cesare.oliviero@unical.it <b>Web site:</b> <a href="https://pcamlab.ctc.unical.it/">https://pcamlab.ctc.unical.it/</a>
<b>PROMOCS</b>	Molecular Design and Chemistry of Complex Systems <b>Contacts:</b> Emilia Sicilia - siciliae@unical.it <b>Web site:</b> <a href="http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca">http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca</a>
<b>QUASIORA Laboratory</b>	Laboratory for the Food Quality, Safety and Origin (laboratory of the Agrifood research network) <b>Contacts:</b> Leonardo Di Donna (+39 0984492857) - l.didonna@unical.it <b>Web site:</b> <a href="https://www.unical.it/ricerca/strutture-di-ricerca/infrastrutture/rete-ricerca-agro/">https://www.unical.it/ricerca/strutture-di-ricerca/infrastrutture/rete-ricerca-agro/</a>
<b>TRANSMED&amp;AGRIFOOD-LAB</b>	<b>Contacts:</b> Anna Napoli - amc.napoli@unical.it <b>Web site:</b> <a href="http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/">http://www.unical.it/portale/strutture/dipartimenti_240/ctc/strutture/laboratoriricerca/</a>

## COLLABORATIONS WITH COMPANIES

- CALABRA MACERI SPA
- Esserre Pharma SrL R&D Department
- EUROPAN-SUD Srl
- ITERCHIMICA S.r.l.
- JRS SILVATEAM INGREDIENTS SRL
- Politex Sas di Freudemberg Politex Srl
- POLYGLASS
- TIFQLAB SRL
- VIACHEM Srl
- VIBAC S.p.A

## PUBBLICAZIONI

- **Structural Characterization of Peripolin and Study of Antioxidant Activity of HMG Flavonoids from Bergamot Fruit** - Antioxidants Volume 11, Issue 10 October 2022, 1847
- **Preparation and characterization of silver (I) ethylcellulose thin films as potential food packaging materials** - ChemPlusChem Volume 85, Issue 3, 2020, 426
- **Effect and Mechanism of Rejuvenation of Field-Aged Bitumen Extracted from Reclaimed Asphalt Pavement Transportation** Research Procedia 69 (2023) 863–870
- **Pyrolysis and Gasification of a Real Refuse-Derived Fuel (RDF): The Potential Use of the Products under a Circular Economy Vision** Molecules 2022, 27, 8114
- **NMR Spectroscopy Applied to the Metabolic Analysis of Natural Extracts of Cannabis sativa** - Molecules 2022, 27(11), 3509



## GENERAL INFORMATION

Università di Pisa

Department of Pharmacy

Via Bonanno 33 - 56126 Pisa (PI)

sito web: <http://www.farm.unipi.it>

## CONTACTS

Prof. Maria Letizia TRINCAVELLI

+39 0502219523

## DETAILED INFORMATION

**Staff:** 15 Full Professors

33 Associate Professors

20 Researchers

**Registered students:** 1,894 (Academic year 2021/2022)

**Post Lauream Training:** 36 enrolled in doctoral programs in Science of Drug and Bioactive Substances

5 Research fellows 4 fellows

**Patents:** -

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Green solvents

Design, synthesis and characterization of ionic liquids and deep eutectic solvents, also from renewable sources, for specific uses: reaction media, extraction of added value compounds/chemicals from complex matrices, treatment and transformation of biomasses, gas capture



**Christian Silvio Pomelli** (+39

0502219314)

[christian.pomelli@unipi.it](mailto:christian.pomelli@unipi.it)

### Sugar compounds

Transformation of common sugars, such as glucose, galactose and lactose, in complex saccharides, azasugars and glycoconjugates with potential biological activity



**Felicia D'Andrea** (+39 0502219679)

[felicia.dandrea@unipi.it](mailto:felicia.dandrea@unipi.it)

### Bioactive compounds

Extraction, isolation, chemical characterization and quality control of bioactive natural products from medicinal/food plants and their by-products



**Marinella De Leo** (+39 0502219706)

[marinella.deleo@unipi.it](mailto:marinella.deleo@unipi.it)

### Bioactive compounds

Extraction, isolation, chemical characterization and quality control of bioactive natural products from medicinal/food plants and their by-products



**Alessandra Braca** (+39 0502219688)

[alessandra.braca@unipi.it](mailto:alessandra.braca@unipi.it)

### Antitumours

Development of new compounds as anticancer agents with innovative mechanisms of action for therapeutic, diagnostic, and theranostic purposes



**Concettina La Motta** (+39 0502219593)

[concettina.lamotta@unipi.it](mailto:concettina.lamotta@unipi.it)

### Bioactive compounds

Analysis of essential oils and aromas of wild, cultivated or micropropagated plants and foods derived from them



**Guido Flamini** (+39 0502219686)

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- M. De Leo, A. M. Iannuzzi, M. P. Germanò, V. D'Angelo, F. Camangi, F. Sevi, G. Diretto, N. De Tommasi, A. Braca (2021) **Comparative chemical analysis of six ancient Italian sweet cherry (*Prunus avium* L.) varieties showing antiangiogenic activity**, Food Chem., 360, 129999 (DOI: 10.1016/j.foodchem.2021.129999)
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## MORE INFO

Search for companies for joint doctoral programs (<https://dottorato.unipi.it/index.php/it/>).

Technology transfer (<https://www.unipi.it/index.php/trasferimento>)



## GENERAL INFORMATION

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## CONTACTS

Prof. Fabio BELLINA

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## DETAILED INFORMATION

**Staff:** 8 Full Professors

29 Associate Professors

27 Researchers

27 Structured Technicians

13 Administrative Technicians

2 General Services

**Registered students:** 669 (Academic year 2022/2023)

**Post Lauream Training:** 50 enrolled in Doctorates in Chemical Sciences

22 Research fellows

13 fellows

**Patents:** 24

## DATASHEET ICONS



PRODUCTS



PROCESSES



SERVICES



TECHNOLOGIES



PROPRIETARY SEARCH



THIRD PARTY RESEARCH

## R&D ACTIVITIES DETAIL

### Organic synthesis

Development and application of synthetic methodologies to prepare novel chemical structures, through direct arylation reaction: evaluation of the C-H bonds reactivity of (hetero)arene systems in the direct arylation conditions and in the oxidative coupling conditions promote by metal catalysts or photoredox catalysts. Last Stage Functionalisation (LSF) of pharmaceutical interest (Hetero)arenes through C-H bond activation, in collaboration with Chiesi farmaceutici. Development of molecules for special application: synthesis of highly conjugated molecules, with distinctive optical properties, through novel highly efficient and economic approaches. Thanks to their properties those structures will be used in the area of solar and artificial light capture and transformation



**Fabio Bellina** (+39 0502219282)  
[fabio.bellina@unipi.it](mailto:fabio.bellina@unipi.it)

### Heteroaromatic compounds

Study of new methods to create Carbon-Carbon bonds or Carbon-Heteroatom bonds, through reaction catalysed by transition metal or radical reactions. Use of classical batch protocols or mechanochemical approach. Synthesis of High conjugated (Hetero)Aromatic structures for technological application, capture of CO<sub>2</sub> or harvest of light, and biological application, anti cancer activity



**Marco Lessi** (+39 0502219327)  
[marco.lessi@unipi.it](mailto:marco.lessi@unipi.it)

<b>Computational chemistry</b>	Theoretical study of solvation processes. Calculation of energy surfaces and inter-molecular potentials. Classical and quantum simulations	    	<b>Franca Maria Floris</b> (+39 0502219393) <i>francamaria.floris@unipi.it</i>
<b>Organic synthesis</b>	Development of sustainable synthetic and catalytic methodologies for C-H bond functionalization. Development of electrochemical methodologies for application in organic synthesis and catalysis. Development of catalytic methodologies for oxidative/reductive and cross-electrophilic coupling reactions in presence of Earth-abundant transition-metals. Design, synthesis and application of new ruthenium-based catalysts for olefinic metathesis. Development of new methodologies for the <sup>13</sup> C and <sup>2</sup> H labeling of pharmaceuticals	    	<b>Antonio Del Vecchio</b> (+39 0502229275) <i>antonio.delvecchio@gmail.com</i>
<b>Cultural heritage</b>	Development of analytical methods based on analytical pyrolysis, mass spectrometry and chromatography or the analysis and quantification of microplastics in environmental samples. Development of new analytical methods for the characterisation and the study of the degradation of natural and synthetic organic materials, focusing on applications in heritage science	    	<b>Jacopo La Nasa</b> (+39 0502219309) <i>jacopo.lanasa@unipi.it</i>
<b>Second skin</b>	Preparation and characterization of nanocomposite poly(dimethyl siloxane)-based films with a complete UV-blocking action (funded by AIXP)	    	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>
<b>Solventi eutettici</b>	Preparation of new eutectics as innovative solvents, for the reversible absorption of CO <sub>2</sub> and the chemical recycling of polymer waste items	    	<b>Gianluca Ciancaleoni</b> (+39 0502219351) <i>gianluca.ciancaleoni@unipi.it</i>
<b>Reaction mechanisms</b>	SPEC: spectroscopic analysis of complex systems for reaction mechanisms and speciation. Spectrophotometric, spectrofluorometric and fast kinetics (Stopped-flow, T-jump) approaches (together with electrophoresis and viscometry) are combined to get thermodynamic and kinetic information on complex systems (fluorophores/new materials; metal complexes; small molecules with biosubstrates; pollutants extraction from liquid wastes)	    	<b>Tarita Biver</b> (+39 0502219259) <i>tarita.biver@unipi.it</i>
<b>Metal drugs</b>	AIRC. "A multi-Omics approach to establish the molecular mechanisms of Anticancer Gold Compounds in the Systems Biology Era." This proposal is directed to develop new effective methodologies to determine the mechanism of action of six distinct gold compounds of large interest for medicinal chemistry that are promising experimental anticancer agents	    	<b>Alessandro Pratesi</b> (+39 0502219224) <i>alessandro.pratesi@unipi.it</i>
<b>Porous materials</b>	Development of novel solid adsorbents (metal-organic frameworks, solid amines) for gas separations, with focus on CO <sub>2</sub> capture from post-combustion flue gas and directly from air	    	<b>Marco Taddei</b> (+39 0502219602) <i>marco.taddei@unipi.it</i>
<b>Conjugated polymers</b>	Development of conjugated polymers for application in organic electronic devices and secondary metal-ion batteries	    	<b>Marco Carlotti</b> <i>marco.carlotti@unipi.it</i>

<b>Drug delivery</b>	Strategies development for the synthesis of bioactive molecules capable of selectively recognizing specific biomarkers. Development of smart materials for the production of drug delivery systems with controlled and "on-demand" release of active ingredient. Use of nuclear magnetic resonance (NMR) spectroscopy for the in-depth and complete study of the stereochemical, dynamic and thermodynamic characteristics of supramolecular aggregates involving from low to high molecular weight systems	    	<b>Andrea Cesari</b> (+39 0502219315) <i>andrea.cesari@unipi.it</i>
<b>Deep Eutctic Solvents</b>	Deep Eutctic Solvents: optimization of preparation by conventional heating or coaxial microwave antenna; study of density, viscosity, surface tension, thermal properties, etc., and evaluation of structure-properties relationship; study of applications in the field of extraction of high value-added components from biomass, electrodeposition, depolymerization	    	<b>Chiara Pelosi</b> (+39 0502219268) <i>chiara.pelosi@unipi.it</i>
<b>Electrochemistry</b>	Study of the redox processes of new organic, inorganic molecules and mononuclear or polynuclear organometallic transition metal complexes in water or in strictly anhydrous non aqueous solvents, under inert atmosphere. Spectroscopic characterization (UV-vis, IR, EPR) of the relatively long-lived redox intermediates and study of the reactions of the metastable products thanks to "in situ" generation in spectroelectrochemical cells	    	<b>Tiziana Funaioli</b> (+39 0502219239) <i>tiziana.funaioli@unipi.it</i>
<b>Biomimetics</b>	Synthesis and conformational studies of biomimetics with biomedical activity, in particular towards the development of new antibiotics and antitumoral molecules	    	<b>Gaetano Angelici</b> (+39 0502219227) <i>gaetano.angelici@unipi.it</i>
<b>Computational photochemistry</b>	Computational photochemistry. Methodological development. Study of molecular switches and systems of interest in pharmacology and photovoltaics	    	<b>Giovanni Granucci</b> (+39 0502219238) <i>giovanni.granucci@unipi.it</i>
<b>Functional polymers</b>	PRIN2017: functional supramolecular polymers for self-diagnostic composites ERC Mama: functional polymers with mechanochromic features. PRIN2022: luminescent solar concentrators based on recycled poly(methyl methacrylate). ENEA project: preparation of ionomers and polymeric membranes with ionic-exchange features. ENI project: preparation of oil additives with dispersion and anti-friction characteristics	    	<b>Andrea Pucci</b> (+39 0502219270) <i>andrea.pucci@unipi.it</i>
<b>Microplastics</b>	Development of innovative protocols, based on chromatographic techniques coupled with mass spectrometry (GC-MS and LC-MS), for the quantitative analysis of microplastics in environmental matrices and their degradation or leaching products. Development of protocols for the characterization of the inflammatory response of cellular systems exposed to degraded microplastic material in order to assess their impact on cardiovascular diseases. Development and validation of analytical procedures, based on chromatographic techniques coupled with mass spectrometry (GC-MS and LC-MS), for monitoring the health status of individuals through the determination of biomarkers in biological fluids such as saliva, sweat, exhaled breath, nails, plasma, and blood.	    	<b>Tommaso Lomonaco</b> (+39 0502219248) <i>tommaso.lomonaco@unipi.it</i>
<b>Composites</b>	Preparation and characterization of multifunctional composites/nanocomposites based on biopolymers, natural fibers, wastes, inorganic fillers	    	<b>Grazia Totaro</b> (+39 0502219319) <i>grazia.totaro@unipi.it</i>

<b>Nanomaterials</b>	Design, preparation and characterization of nanosystems for optoelectronics, magnetism, nanomedicine and photovoltaics	    	<b>Francesco Pineider</b> (+39 0502219313) <i>francesco.pineider@unipi.it</i>
<b>Chirality</b>	Synthesis of chiral auxiliaries starting from renewable resources and their use in enantiodiscrimination : chiral ligands for asymmetric catalysis in the preparation of API, chiral auxiliaries for the determination of the enantiomeric composition of bioactive compounds	    	<b>Anna Iuliano</b> (+39 0502219232) <i>anna.iuliano@unipi.it</i>
<b>Spectroscopy</b>	Spectroscopy applied to the study of liquid crystals, LC elastomers, memory shaped materials. Spectroscopic methods applied to food and agricultural products.	    	<b>Valentina Domenici</b> (+39 0502219215) <i>valentina.domenici@unipi.it</i>
<b>Transparent wood</b>	Preparation of transparent wood from natural wood and wood waste (VEGETAS project, Regione Toscana and Camarlinghi SpA)	    	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>
<b>Metal drugs</b>	"ACTIVATABLE Pt(IV) COMPOUNDS AS POTENTIAL ANTICANCER PRODRUGS AND NEW STRATEGIES TO OVERCOME LIMITS OF PLATINUM-BASED CHEMOTHERAPY IN COLORECTAL CANCER." "The project aims to the synthesis of new Pt(IV) complexes endowed of bioactive axial ligands starting from the oxidation of the respective Pt(II) precursors. Once the syntheses are optimized, alternative Pt complexes will be considered with the purpose of finding compounds with greater bioactivity.	    	<b>Chiara Gabbiani</b> (+39 0502219225) <i>chiara.gabbiani@unipi.it</i>
<b>SSNMR</b>	Application of solid-state NMR spectroscopy to explore the structure and dynamics of porous materials for gas separation and adsorption	    	<b>Francesca Martini</b> (+39 0502219353) <i>francesca.martini@unipi.it</i>
<b>Filler</b>	Synthesis and characterization of inorganic fillers with specific functionalities	    	<b>Grazia Totaro</b> (+39 0502219319) <i>grazia.totaro@unipi.it</i>
<b>Flow chemistry</b>	Development of new methods exploiting continuous-flow reactors for selective organic transformations, either with homogeneous catalysis or with supported systems	    	<b>Alessandro Mandoli</b> (+39 0502219281) <i>alessandro.mandoli@unipi.it</i>
<b>Analytical methods</b>	Development of analytical methods based on liquid chromatography with DAD detection or mass spectrometric detection for the characterisation of organic dyes and pigments in complex matrices (e.g. heritage objects, modern and contemporary textiles, plastic materials employed in design objects and in electronic devices). Application of LC to the characterisation of ageing/degradation products of (bioactive) organic dyes, as a result of natural or artificial ageing, also induced by electrochemical methods (cooperation with Heyrovský Institute, Prague)	    	<b>Ilaria Degano</b> (+39 0502219255) <i>ilaria.degano@unipi.it</i>
<b>GC-MS</b>	Development of analytical methods based on analytical pyrolysis, gas chromatography and mass spectrometry (Py-GC-MS) for the analysis of organic materials	    	<b>Francesca Modugno</b> (+39 0502219303) <i>francesca.modugno@unipi.it</i>
<b>Bioactive compounds</b>	Stereoselective synthesis of bio-active substances, also labelled with stable isotopes, belonging to the oxylipin and 3-amino-2-oxindole classes	    	<b>Alessandro Mandoli</b> (+39 0502219280) <i>alessandro.mandoli@unipi.it</i>

<b>Heterometallic complexes</b>	Synthesis and characterization of heterometallic complexes containing lanthanides and d transition metals, for applications in material chemistry and/or bioinorganics	      	<b>Simona Samaritani</b> (+39 0502219261) <i>simona.samaritani@unipi.it</i>
<b>Microplastics</b>	Methodologies for quantifying microplastics, impact assessment in marine and lake ecosystems, environmental remediation strategies, study of environmental degradation processes and of interaction with living organisms. New unfluorinated products for the hydrophobic and oleophobic surface modification of paper suitable for use as packaging materials and for disposable items as a replacement for plastic materials	      	<b>Valter Castelvetro</b> (+39 0502219256) <i>valter.castelvetro@unipi.it</i>
<b>Polymers</b>	Development of biocompatible and bioactive polymeric materials for biological tissue growth/regeneration and controlled drug release. Additive Manufacturing (3D Printing) and electrospinning of polymers and polymeric matrix composites	      	<b>Dario Puppi</b> (+39 0502219333) <i>dario.puppi@unipi.it</i>
<b>Sustainability</b>	PRA_2022_58 (2022-2024): The project aims at developing and optimising new applications of microwave (MW) irradiation for the treatment of complex samples, exploiting the specificity of MW heating mechanism, which allows a high reaction efficiency while reducing processing time. The project exploiting MW heating to develop and optimise different protocols to treat extremely complex matrices, for the extraction, hydrolysis, and recovery of specific analytes or high value products. In particular, we will treat matrices such as soil and water samples for the analysis of persistent organic pollutants, contaminants of emerging concern (CECs), microplastics and microfibers; biopolymers for the detection of amino acids, monosaccharides and fatty acids; plant biomass for the extraction of lignin and high value products, and poultry feathers for the recovery of keratin	      	<b>Jeannette J. Lucejko</b> (+39 0502219303) <i>jeannette.lucejko@unipi.it</i>
<b>SSNMR</b>	Application of Solid state NMR techniques to study the structural and dynamic properties of pharmaceuticals. Application of Solid state NMR techniques to study the structural and dynamic properties of materials for energy (e.g. photovoltaics) and environment	      	<b>Marco Geppi</b> (+39 0502219289) <i>marco.geppi@unipi.it</i>
<b>Unimere micelles</b>	Synthesis via controlled polymerization of amphiphilic random copolymers and study of their self-assembling behaviour in water for potential application in drug delivery and catalysis (PRIN 2022)	      	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>
<b>Computational chemistry</b>	Computational chemistry. Electronic correlation. Intermolecular forces. Quantum Monte Carlo. DMRG. Methodological developments	      	<b>Claudio Amovilli</b> (+39 0502219399) <i>claudio.amovilli@unipi.it</i>
<b>Biocatalysis</b>	Enantioselective biotransformations for the synthesis of fine chemicals. Immobilization of enzymes for in batch and continuous flow reactions	      	<b>Antonella Petri</b> (+39 0502219279) <i>antonella.petri@unipi.it</i>
<b>Prevention</b>	Synthesis of non-peptidic small molecules for the prevention of neurodegenerative diseases	      	<b>Rosarita D'Orsi</b> (+39 0502219266) <i>rosarita.dorsi@gmail.com</i>

<b>Algorithms</b>	Development of fast algorithms and numerical techniques to computer molecular properties with multiscale methods. Software development within the Gaussian and CFOUR codes for the simulation of molecular properties and processes	    	<b>Filippo Lipparini</b> (+39 0502219269) <i>filippo.lipparini@unipi.it</i>
<b>Metallic complexes</b>	Synthesis of metal complexes for pharmacological and catalytic applications and their speciation in aqueous solution via IR, NMR and UV-Vis	    	<b>Lorenzo Biancalana</b> (+39 0502219223) <i>lorenzo.biancalana@unipi.it</i>
<b>Carbonylative reactions</b>	The research is focused on organometallic chemistry directed towards organic synthesis and in particular on carbonylative cross coupling reactions applied to the synthesis of carbonylated heterocyclic compounds and their use in solar cells devices and optoelectronics. Carbon monoxide moiety can be introduced as CO gas or by means of surrogates based on simple organic molecules such as HCOOH, CHCl <sub>3</sub> , oxalyl chloride, CO <sub>2</sub> and metal carbonyls	    	<b>Laura Antonella Aronica</b> (+39 0502219274) <i>laura.antonella.aronica@unipi.it</i>
<b>Organic synthesis</b>	Development of new protocols for the synthesis of heterocyclic compounds via transition metals-promoted reactions; preparation of organic fluorophores for colourless luminescent solar concentrator (LSC) devices; synthesis and chiroptical characterization of chiral organic π-conjugated materials with outstanding chiroptical features; development of green and sustainable strategies in Palladium-catalyzed coupling reactions	    	<b>Gianluigi Albano</b> (+39 0502219277) <i>gianluigi.albano@unipi.it</i>
<b>Antibiovegetative coatings</b>	Photopolymerized films as protective coatings for marine antifouling and wood applications (funded by Mafon SpA)	    	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>
<b>Biomass</b>	Development of analytical tools mainly based on pyrolysis and mass spectrometry (Py-GC/MS, EGA-MS) to characterise lignocellulosic biomass and to study its reactivity under pyrolysis and co-pyrolysis conditions	    	<b>Erika Ribechini</b> (+39 0502219305) <i>erika.ribechini@unipi.it</i>
<b>Green Hydrogen</b>	Design, preparation and characterization of anion-exchange membrane and ionomers for water electrolysis for water electrolysis and green hydrogen production (funded by Enapter srl, PNRR PE2)	    	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>
<b>Polymers</b>	Synthesis and characterization of polyesters and co-polyesters from bio-based monomers for specific purpose	    	<b>Grazia Totaro</b> (+39 0502219319) <i>grazia.totaro@unipi.it</i>
<b>Bio-based materials</b>	Preparation and functionalization of crystalline nanocellulose. Processes to isolate nanocellulose (nanocrystals or nanofibers) from biomass. For the preparation of nanocellulose, enzymatic or acid hydrolysis of the starting cellulose pulps are preferred. Application of nanocellulose in various fields of materials science, in particular in paper consolidation and in the field of materials for photonics and electronics. Extraction and characterization of lignin materials and their application in optoelectronics and materials science	    	<b>Alessandra Operamolla</b> (+39 0502219342) <i>alessandra.operamolla@unipi.it</i>
<b>Batteries</b>	Design, preparation and characterization of innovative polymeric membranes for redox flow batteries (funded by GES srl)	    	<b>Elisa Martinelli</b> (+39 0502219354) <i>elisa.martinelli@unipi.it</i>

<b>Pharmaceutical products</b>	Consulting activity and scientific support to the industrial production of active pharmaceutical ingredients (API)	  	<b>Alessandro Mandoli</b> (+39 0502219282) <i>alessandro.mandoli@unipi.it</i>
<b>Computational chemistry</b>	Software development for the simulation of molecular properties and processes. Development of computational models for the simulation of light-activated processes in photoresponsive proteins. Computational modeling of energy and charge transfer processes in excitonic systems	  	<b>Benedetta Mennucci</b> (+39 05022192903) <i>benedetta.mennucci@unipi.it</i>
<b>Nanomaterials</b>	Nanocomposite semi-transparent films based on poly(dimethyl siloxane) as sunscreen filters with total UVA and UVB absorption, for skin application that are easily removable for single-use applications, to be used as protective devices for people suffering from genetic pathologies that cause hypersensitivity to solar radiation	  	<b>Valter Castelvetro</b> (+39 0502219256) <i>valter.castelvetro@unipi.it</i>
<b>Metallic compounds</b>	Inorganic and organometallic synthesis, including under inert atmosphere. Anhydrication and purification of solids. Solid state and solution characterization (analytical techniques; IR, NMR and UV spectroscopy). Applications in catalysis and medicine	  	<b>Fabio Marchetti</b> (+39 0502219245) <i>fabio.marchetti@unipi.it</i>

## OTHER R&D ORGANIZATIONS

<b>Chema S.r.l.</b>	<p>UNIFI Spin-off: it proposes innovative solutions in Italy and abroad in the fields of applied research, technology transfer and specialist advice in the chemical, environmental and chemical industries.</p> <p><b>Contacts:</b> Valentina Domenici (+39 3772990144) - <a href="mailto:info@chemasrl.it">info@chemasrl.it</a></p> <p><b>Web site:</b> <a href="http://www.chemasrl.it">http://www.chemasrl.it</a></p>
<b>Metitech S.r.l.</b>	<p>Metitech wants to bring innovative solutions to the market for the monitoring of chemical parameters, through the development of sensors and the design of low-cost, portable, easy to use and possibly connected devices for remote data transfer. Metitech intends to respond to the concrete needs of its customers by providing devices that exploit combinations of innovative technologies and materials capable of combining the quality of chemical parameter measurements with ease of use, durability of the materials and the possibility of integrating and digitizing the information obtained</p> <p><b>Contacts:</b> Andrea Bonini (+39 3294052046) - <a href="mailto:andrea.bonini@metitech.net">andrea.bonini@metitech.net</a></p>
<b>Spin-PET S.r.l.</b>	<p>Spin-off UNIFI: it is an innovative company born from university research. As a spinoff of the University of Pisa, maintaining its own characteristics of originality, uniqueness and scientific/technological solidity, it carries out activities in the field of new polymer materials</p> <p><b>Contacts:</b> Francesco Ciardelli (+39 0887274832) - <a href="mailto:ciardelli@spinpet.it">ciardelli@spinpet.it</a></p> <p><b>Web site:</b> <a href="http://www.spinpet.it/wp-site/it/">http://www.spinpet.it/wp-site/it/</a></p>

## COLLABORATIONS WITH COMPANIES

- AIMagn
- AMBIENTE LAB S.R.L.
- AOUN
- BRUKER ITALIA S.r.l
- CROMOLOGY
- GR3N Italia
- I&S Srl
- INEOS
- INOVYN
- Labservice
- Lucart SpA
- MILESTONE Srl
- Pangaia GradoZero srl
- PIRELLI TYRE S.p.A
- RINASCENZA TOSCANA
- SIMS SRL
- TCA Spa
- Tecnocreo srl
- TRE ZETA GROUP SRL

## PUBBLICAZIONI

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- M.Meucci, S.Haveriku, M.Badalassi, C.Cardelli, G.Ruggeri, A.Pucci (2022). **Effect of Polyolefin Elastomers' Characteristics and Natural Magnesium Hydroxide Content on the Properties of Halogen-Free Flame-Retardant Polyolefin Composites**, *Micro*, 2, 164. doi: 10.3390/micro2010011.
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## MORE INFO

Series of lectures entitled "The chemist in the modern society" - <https://www.dcci.unipi.it/1030-chimico-societa-moderna-2022.html>

PhD programs involving industries - <https://dscm.dcci.unipi.it>



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