

Ombretta Paladino

Associate Professor

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Education and training

1989

Ph.D. in Chemical Engineering

Politecnico di Torino - Torino - IT

1985

Laurea in Chemical Engineering (M.Sc.)

summa cum laude

Università di Genova - Genova - IT

Professional History

2000 - ONGOING

Associate Professor

Università di Genova - Genova - IT

Teaching - Research - Supervision of B.Sc. M.Sc. Ph.D. students and Research Fellows

1995 - 2000

Assistant Professor

Università di Genova - Genova - IT

Research - Teaching - Supervision of B.Sc. and M.Sc. students

1994 - 1996

Post-doc Research Fellow

Environ. Institute - Joint Research Centre - European Commission

Research - Projects PHATOX (Pharmaceutical Toxicology) - FIRES (Facility for Investigating Runaway Events Safely) - RTF (Resource Technology Facility)

1990 - 1994

Post-doc Research Fellow

Università di Genova - Genova - IT

Research funded by Italian Ministry of Research and Industry

Academic Appointments

2011 - 2014

Head of Programme - M.Sc. in 'Environmental and Energy Engineering'

Università di Genova - Genova - IT

Managing and planning of teaching activities - Coordination of the board of teachers.

2011 - 2012

Head of Programme – Master in “Gestione del Rischio Sanitario-Ambientale nelle Emergenze”

Università di Genova - Genova - IT

Managing and planning of teaching activities - Coordination of the board of teachers.

2007 - 2011

Head of Programme - B.Sc. and M.Sc. in 'Environmental Engineering'

Università di Genova - Genova - IT

Managing and planning of teaching activities - Coordination of the board of teachers.

Experience

2024 - 2025

Scientific Responsibility of Research Project ARKEL

Compagnia di San Paolo, LIFTT, POC Instrument

“Ark of Electrodes: Reactor for the production of multiscale heterostructured nanospinel Ni-Fe-Co Electrodes” -ID 121850; accepted for funding on the basis of a competitive call based on peer review and elevator pitch.

2022 – 2025

Scientific Responsibility of Research Project NEMESI

MASE -Ministero dell'Ambiente e della Sicurezza Energetica,
PNRR_Next Generation EU

“Nuovi Elettrodi e Membrane per Elettrolizzatori a Scala Industriale” –ID RSH2B_000002; accepted for funding on the basis of a competitive call based on peer review.

2000 – 2015

Scientific Responsibility of other Research Projects accepted for funding on the basis of competitive calls and peer review

FP5, FP6, MUR, MINAMB:

Research projects on Biogas applications and Materials for Molten Carbonate Fuel Cells (EU-ENKS-CT-2002-00647, EU-TREN/05/FP6EN/607.65034/019904, MUR-FISR,)

Research projects on Groundwater Remediation, Groundwater Quality, Risk Assessment due to Chemicals (PRIN-Italian Ministry of University and Research, Italian Ministry of Environment)

2000- ONGOING

Adviser for matters related to Environmental Crime

Italian Court of Law

Adviser about industrial hazards due to contamination of water and soils - waste disposal - operation of chemical plants, power plants - wastewater treatment plants and landfills ; - human health and ecological risk

Teaching activity

Dynamics and Control of Chemical Reactors - M.Sc. in Ingegneria Chimica e di Processo"

Environmental Risk Assessment of Chemicals - M.Sc. in Engineering for Natural Risks Management

Chemical Processes for Clean Energy - M.Sc. in Environmental Engineering

Research interests

Scale-up, dynamics and optimization of chemical, biochemical and electrochemical processes: simulation based and theoretically based scale-up; process intensification; dynamic modelling and control of chemical reactors; scale-down and optimization; on-line fault diagnosis.

Applications to green chemistry, biofuels, renewable energy production and storage, waste-to-energy; zero-liquid-discharge processes, solid-waste and waste-water treatment processes, biochemical processes.

Hydrogen Production and Energy Storage: design and synthesis of hetero-structured electro-catalysts for hydrogen production (both OER and HER, mainly AEM water electrolyzers and alkaline) and energy storage (mainly Redox Flow Batteries); scale-up of electrolyzers, fuel cells and electrochemical storage systems; design and operation of single-cell test-benches; dynamic simulation and digital twins. Research activity also in cooperation with industry.

Human Health Risk Assessment (HHRA) , Ecological Risk Assessment (ERA) and Industrial Hazard identification: from Tier I to Tier IV: investigation scenarios and collection strategies; source-pathway-receptor models; physically-based, data-based, black-box deterministic and probabilistic models for exposure assessment and risk characterization. Pollutant sources identification; modelling fate and transport of reacting chemicals (PAH, Heavy Metals, pesticides, PCBs, dioxins, particulate, emerging contaminants); modelling of groundwater pollution; field data analysis and site characterization.

Laboratory

Head of the Research Lab: Engineering of Chemical Processes (ECPLab), Savona Campus, Palazzina Marchi, ground Floor, Via Magliotto 2, 17100, Savona.

https://dicca.unige.it/laboratori/lab_chimica/ing_processi_chimici