

UNIVERSITA' DEGLI STUDI DI GENOVA

AREA RICERCA, TRASFERIMENTO TECNOLOGICO E TERZA MISSIONE

SERVIZIO RICERCA

SETTORE RICERCA NAZIONALE

IL RETTORE

- Visto il Decreto Rettorale n. 6233 del 17/12/2024, con il quale è stato indetto il concorso per titoli e colloquio, per il conferimento di borsa di ricerca post-laurea, di tipo consolidator, eventualmente rinnovabile, della durata di 4 mesi, dell'importo di € 5.800 (cinquemilaottocento,00), per lo svolgimento di una ricerca sul tema "Studio di scale up del sistema estrattivo SoLVE (Solid liquid multivariable extractor)", presso il DICCA dell'Università degli Studi di Genova;;
- Visto il Decreto Rettorale n. 77 del 10/01/2025 con il quale è stata costituita la Commissione giudicatrice per il conferimento della suddetta borsa di ricerca;
- Visto il verbale della Commissione giudicatrice del concorso in parola, riunitasi in data 15/01/2025;
- Constatata la regolarità della procedura seguita;

DECRETA

Art. 1

Sono approvati gli atti del concorso di cui in premessa e la seguente graduatoria di merito:

1. Dott.ssa Maria Bolla punti 80/100

Sotto condizione dell'accertamento dei requisiti di cui al bando, è dichiarata vincitrice del concorso in parola la Dott.ssa Maria Bolla.

Genova,

IL RETTORE

(firmato digitalmente)



Maria Bolla

EDUCATION AND TRAINING

Ph.D Student (XXXVII cycle) in Security, Risk and Vulnerability, Curriculum: Risk and Resilience Engineering of Natural, Industrialized and Built Environments

Department of Civil, Chemical and Environmental Engineering, University of Genoa, Italy. [01/11/2021 – Current]

City: Genoa | Country: Italy | Thesis: Inherent Safe and Sustainable Process Design applied to Polyhydroxyalkanoates Bioproduction from Wastes

Major fields of study: Biopolymers, Valorization of Agri-Food Wastes, Inherent Safety, Risk Management.

Research period abroad

VSB Technical University of Ostrava (VSB-TUO) [20/11/2023 – 20/03/2024]

City: Ostrava | Country: Czechia

The research carried out for the PhD project was focused on the study of the flammability and explosion properties of spent coffee grounds samples.

Qualification for the profession of Industrial Engineer.

Department of Civil, Chemical and Environmental Engineering, University of Genoa, Italy. [11/2021]

City: Genoa | Country: Italy

Master's degree in Chemical and Processes Engineering.

Department of Civil, Chemical and Environmental Engineering, University of Genoa, Italy. [2019 – 2021]

City: Genoa | Country: Italy | Final grade: 110/110 cum laude | Thesis: Enrichment of PLA matrices with spent coffee grounds extracts for active food packaging application.

Internship within the Food Engineering Lab of DICCA of the University of Genoa, in collaboration with Avient (MI), and the DIFI Department of the University of Genoa.

Bachelor's degree in Chemical Engineering.

Department of Civil, Chemical and Environmental Engineering, University of Genoa, Italy. [2016 – 2019]

City: Genoa | Country: Italy | Final grade: 110/110 cum laude | Thesis: Photoreforming of hydrolysates from biomass for the production of biofuels

Internship within the Department of Chemistry of the University of Milan.

Scientific high school diploma

Liceo Scientifico L. Lanfranchi [2011 – 2016]

City: Genoa | Country: Italy | Final grade: 100/100

ACADEMIC EXPERIENCE

[11/2023 – Current]

Subject expert for the course of “Chemical and Biochemical Processes and Plants for Energy”, cod 72562, Master’s degree in Energy Engineering, University of Genoa, held by Roberta Campardelli.

[26/10/2024]

Participation in the organization activities of the workshop “Transizione energetica”, Genoa, Italy

[03/2024 – 05/2024]

Activity of teaching support for the course of “Chemical and Biochemical Processes and Plants for Energy”, cod 72562, Master’s degree in Energy Engineering, University of Genoa, held by Roberta Campardelli.

[10/2023]

Visiting period at the Chemistry Department of La Sapienza, University of Rome, Italy, with the research group of Prof. Marianna Villano. The research was focused on the characterization studies of polyhydroxyalkanoates.

[03/2023 – 05/2023]

Speaker for three seminars about “Wastes valorization towards the production of industrial products and energy” held for the course of “Chemical Plants for Energy”, cod 72562, Master’s degree in Energy Engineering, University of Genoa, held by Prof. Carlo Solisio.

First seminar (10 May, 2023): “Waste management towards the production of high value added-compounds and energy”.

Second seminar (17 May, 2023): “Biopolymers: a sustainable alternative to oil based plastics”.

Third seminar (24 May, 2023): “Process safety applied to biochemical processes”.

[18/03/2023]

Participation in the organization activities of the Workshop DYN-RISK: Approccio alla valutazione dinamica del rischio nel contesto industriale ed in aree portuali: innovazione e ricerca, Genoa, Italy.

[18/01/2023]

Participation in the organization activities of the workshop “MeOH come vettore energetico”, Genoa, Italy.

[11/2022]

Scientific Reviewer of Chemical Engineering & Technology.

NATIONAL & INTERNATIONAL SCIENTIFIC COLLABORATIONS

[20/11/2023 – 20/03/2024]

VSB Technical University of Ostrava (VSB-TUO), Ostrava, Czech Republic.

Study of the flammability and explosion properties of spent coffee grounds samples.

[2020]

Nanomed Lab, Department of Physics, University of Genoa.

Study of the gas permeability of biodegradable polymer films produced for active food packaging purposes **PROJECTS**

[01/2024 – Current]

Member of the research unit for the project “Vacuum monitoring system”, in collaboration with Sanitrade. The project aimed at the realization of a system capable of remotely monitoring the operation of vacuum systems on board ships. Technical-scientific manager: Prof. Patrizia Perego.

[01/2021 – 07/2024]

Collaboration for research activity (1 month/year) within the INAIL BRIC 2021 project - combined approach data-driven and experience-driven to the analysis of systemic risk in the ID3 theme: reinforcement of the capacities to respond to "exponential" changes through a dynamic and integrated approach to risk management: what we can learn from the experience and impact of COVID-19 in the industrial process sector.

The activities mainly focused on the definition of technological risk scenarios, the data collection and the development of indicators able to quantify variations in the risk associated to the energetic transition and new fuels. The activities were carried out at DICCA - Safety Group, University of Genoa. Scientific manager UO Genoa: Prof. Bruno Fabiano.

[2021 – 2022]

Member of the research unit for a project in collaboration with Piovan S.p.A.

The research activities were carried out at the laboratories of the Department of Civil, Chemical and Environmental Engineering, University of Genoa. Technical-scientific manager: Prof. Patrizia Perego.

[2022]

Member of the research unit for the H2020 Project on “Bio-based plastic packaging”, in collaboration with TICASS.

The research activities, focused on the chemical and physical properties of biodegradable plastics, were carried out at the Department of Civil, Chemical and Environmental Engineering of the University of Genoa. Technical-scientific manager: Prof. Patrizia Perego.

[06/06/2024]

Festival inVulnerabilia, Per una cultura della vulnerabilità, Genoa, Italy.

Bolla, M.* (2024), Inherent Safety Development applied to Polyhydroxyalkanoates (PHAs) Sustainable Bioproduction from Spent Coffee Grounds (SCGs). Poster Presentation.

**speaker*

[07/11/2023 – 10/11/2023]

AIV XXVI Conference about Energy Transition and Environmental Sustainability: Materials, Processes and Devices for Research and Industrial Applications, Rome, Italy.

Drago, E.*, Bolla, M., Pettinato, M., Campardelli, R., Firpo, G., Perego, P. (2023), The potential of vacuum technology for active food packaging development. Oral presentation.

**speaker*

[06/11/2023 – 08/11/2023]

EFFoST 2023, International Conference on Sustainable Food and Industry 4.0: Towards the 2030 Agenda, Valencia, Spain.

Bolla, M.*, Pettinato, M., & Perego, P. (2023), Valorization of Spent Coffee Grounds towards the Production of Polyhydroxyalkanoates. Oral Presentation.

**speaker*

[08/10/2023 – 11/10/2023]

FEx23, International Conference on Fires & Explosions in the Process Industry, Bologna, Italy.

Bolla, M.*, Pettinato, M., & Fabiano, B. (2023), Inherent Safety Development Applied to Green Processes and Energy Transition. Oral presentation.

**speaker*

[03/07/2023 – 06/07/2023]

GRICU National Congress, Ischia, Italy.

Bolla, M.*, Pettinato, M., Campardelli, R., Firpo, G., & Perego, P. (2022), PLA-based active food packaging production with antioxidant properties. Poster presentation.

**speaker*

[04/06/2023 – 07/06/2023]

ICheaP 16, International Conference on Chemical and Process Engineering, Naples, Italy.

Vairo, T., Magrì, S., Pettinato, M.*, Bolla, M., & Fabiano, B. (2023), A Dynamic Approach to Natech Risk Assessment applied to a LPG Storage Facility in a Landslides Sensitive Italian. Oral Presentation.

**speaker*

[02/2022]

International Conference on Global Alliance for Rapid Diagnostics, GARD2022.

Emanuela Drago, Maria Bolla, Pier Francesco Ferrari*, Margherita Pettinato, Roberta Campardelli, Patrizia Perego (2022). Food by-products: current and future technologies toward circularity. Oral presentation.

Roberta Campardelli*, Emanuela Drago, Maria Bolla, Margherita Pettinato, Patrizia Perego (2022). From natural sources to food packaging: a green challenge. Oral presentation.

**speaker*

ATTENDANCE AT CONGRESSES AND PHD SCHOOLS

[06/06/2024]

Festival inVulnerabilia, Per una cultura della vulnerabilità, Genoa, Italy.

[06/11/2023 – 08/11/2023]

EFFoST 2023, International Conference on Sustainable Food and Industry 4.0: Towards the 2030 Agenda, Valencia, Spain.

[08/10/2023 – 11/10/2023]

Inherent Safety Development Applied to Green Processes and Energy Transition. FEx23, International Conference on Fires & Explosions in the Process Industry, Bologna, Italy.

[04/06/2023 – 07/06/2023]

ICheaP 16, International Conference on Chemical and Process Engineering, Naples, Italy.

[08/09/2022 – 10/09/2022]

Ph.D National School of IPTA 2022 on the topic “Ingegneria di prodotto per la transizione alimentare”, Como, Italy.

[06/07/2022 – 09/07/2022]

Ph.D. National School of GRICU 2022 (Group of Chemical Engineering of the University) on the topic “Fondamenti dei Processi di Elettrochimica e loro Applicazione”, Ischia, Naples, Italy.

[03/07/2022 – 06/07/2022]

GRICU National Congress, Ischia, Italy.

[01/07/2022]

Congress “La Chirurgia Vascolare tra innovazione e tradizione”, Genoa, Italy.

[12/07/2021 – 16/07/2021]

Ph.D. International School on “Health, Safety and Environment”, VSB - Technical University of Ostrava, Ostrava-Poruba, Czech Republic.

ATTENDANCE AT WORKSHOPS AND SEMINARS

[26/10/2024]

Participation to the workshop: Transizione Energetica, AIDIC, Genoa, Italy.

[26/06/2024]

Participation to the Seminar in "Earthquake Engineering at DICCA: challenges and interdisciplinary opportunities" held by Prof. Serena Cattari, Genoa, Italy.

[03/05/2024]

Participation to the Seminar in "Evolving frontiers in energy transition: introducing Applied Physical Chemistry at UNIGE" held by Proff. Barbara Bosio, Dario Bove, Fiammetta Bianchi, Genoa, Italy.

[12/04/2024]

Participation to the international workshop: Safety and resilience challenges within the context of pandemics: experiences from industry and healthcare, Genoa, Italy.

[07/12/2023]

Participation to the Seminar in "Detailed discussion about hydrogen safety and future cooperation" held by Prof. Ernesto Salzano, Ostrava, Czech Republic.

[06/12/2023]

Participation to the Seminar in "Hydrogen Sustainability and Safety" held by Prof. Ernesto Salzano, Ostrava, Czech Republic.

[20/06/2023]

Participation to the Seminar in "New scientific advances in water and carbon dioxide co-electrolysis" held by Prof. Michel Cassir, Genoa, Italy.

[19/06/2023]

Participation to the Seminar in "Present advances in hydrogen economy" held by Prof. Michel Cassir, Genoa, Italy.

[13/06/2023]

Participation to the international workshop: Catalysis for carbon neutrality and energy transition, Genoa, Italy.

[19/04/2023]

Participation to the Seminar in "Treatment and resources utilization of agriculture and food waste" held by Prof. Chenggang Cai, Genoa, Italy.

[16/04/2023]

Participation to the Seminar in "Chinese food waste valorization: High-added value compound extraction and encapsulation" held by Prof. Chenggang Cai, Genoa, Italy.

[12/04/2023]

Participation to the Seminar in "Introduction to the human gut microbiota and probiotics" held by Prof. Chenggang Cai, Genoa, Italy.

[18/03/2023]

Participation to the workshop: DYN-RISK: Approccio alla valutazione dinamica del rischio nel contesto industriale ed in aree portuali: innovazione e ricerca, Genoa, Italy.

[24/02/2023]

Participation to the Seminar in “La ricerca scientifica transdisciplinare diventa prodotto” held by Prof. Pier Francesco Ferrari, Genoa, Italy.

[18/01/2023]

Participation to the workshop: MeOH come vettore energetico, AIDIC, Genoa, Italy.

[25/11/2022]

Participation to the EFCE Webinar "Machine learning and data management for the estimation of fluid properties and phase equilibria".

[22/11/2022]

Participation to the EFCE Webinar "Safety and risk of energy transition".

[15/06/2022]

Participation to the INAIL Webinar "Rischi emergenti fra transizione ecologica, digitale ed eventi climatici estremi".

[10/06/2022]

Participation to the Seminar in “When zebrafish met engineering” held by Prof. Maurizio Porfiri, DICCA Seminar Series 2022, Genoa, Italy.

[27/05/2022]

Participation to the Seminar in “Ceramic Materials and the Energy Transition” held by Prof. Alessandra Sanson, DICCA Seminar Series 2022, Genoa, Italy.

[13/05/2022]

Participation to the Seminar in “3D, Unsteady, Non stationary, non Gaussian wind fields and their effects” held by Prof. Horia Hangan, DICCA Seminar Series 2022, Genoa, Italy.

[22/04/2022]

Participation to the Seminar in “Il linguaggio specialistico in letteratura, o del come suona la parola tecnica” held by Prof. Veronica Galletta, DICCA Seminar Series 2022, Genoa, Italy.

[21/04/2022]

Participation to the Seminar in “Study on hypoglycemic mechanism of Red Bayberry pomace polyphenols in vitro and in vivo” held by Prof. Chenggang Cai, Genoa, Italy.

[08/04/2022]

Participation to the Seminar in “Additive Manufacturing. A world full of opportunities and challenges!!” held by Prof. Ferdinando Auricchio, DICCA Seminar Series 2022, Genoa, Italy.

[18/03/2022]

Participation to the Seminar in “Discover and share the digital environmental value by geo-ai challenges” held by Prof. Eva Savina Malinverni, DICCA Seminar Series 2022, Genoa, Italy.

[25/02/2022]

Participation to the Seminar in “The IPCC report and sea level change” held by Prof. Aimée Slangen, DICCA Seminar Series 2022, Genoa, Italy.

[09/02/2022]

Participation to the seminar "Slow dynamics and fluctuation dissipation concepts for structural health monitoring", held by Prof. Philippe Guéguen, DICCA Seminar Series 2022, Genoa, Italy.

[05/12/2021]

Participation to the Cisap10 Webinar "Quantitative risk assessment and atypical scenarios" held by Prof. Hans J. Pasman.

[05/2021]

Participation to the course "GHG Manager Junior", University of Genoa.

[02/2021]

Participation to the course "Emergenza sanitaria da coronavirus (SARS-CoV-2) prevenzione e controllo", e-learning, University of Genoa.

[03/2019]

Participation to the course "Formazione generale sulla sicurezza e salute nei luoghi di lavoro" e-learning, University of Genoa.

SUPERVISION FOR THE STUDENTS LABORATORY ACTIVITIES

[03/2024 – 10/2024]

Laboratory support and co-supervision for the thesis of Gaia Campanini, "Bioproduction of Polyhydroxybutyrate from Spent Coffee Grounds: Impact of Operational Conditions with a focus on Cost-Effective Carbon Sources", 2024. Master's Degree in Chemical and Processes Engineering, Department of Civil, Chemical and Environmental, University of Genoa. Supervisors: Prof. Patrizia Perego, Prof. Margherita Pettinato. Co-supervisor: Dr. Maria Bolla

[03/2023 – 03/2024]

Laboratory support for the thesis of Iacopo Zangani, "Optimization of the growth conditions for the production of polyhydroxyalkanoates by *Cupriavidus necator* using spent coffee oil as substrate", 2024, Bachelor's Degree in Biotechnology, Department of Experimental Medicine, University of Genoa. Supervisors: Prof. Patrizia Perego, Prof. Margherita Pettinato.

[11/2022 – 03/2024]

Laboratory support for the thesis of Pietro Bergaglio, "Valorization of spent coffee grounds through polyhydroxyalkanoates bioproduction in *Cupriavidus necator*, a human-safe, zero-waste and eco-friendly process", 2024, Bachelor's Degree in Biotechnology, Department of Experimental Medicine, University of Genoa. Supervisors: Prof. Patrizia Perego, Prof. Margherita Pettinato.

[07/2022 – 06/2023]

Laboratory support for the thesis of Soulef Boukkaz, "Valorization of spent coffee grounds towards the production of polyhydroxyalkanoates by *Cupriavidus necator* DSM 545", 2023, Master's Degree in Applied and Experimental Biology, Department of Earth, Environment and Life Science, University of Genova. Supervisors: Prof. Patrizia Perego, Prof. Marina Pozzolini. Co-supervisor: Prof. Chiara Cervetto.

[03/2022 – 10/2022]

Laboratory support and co-supervision for the thesis of Agnese Gamberini, Chiara Repetto, "Biodegradable engineered vascular prostheses: a validation comparative study in bioreactor", 2022, Master's Degree in Chemical and Processes Engineering, Department of Civil, Chemical and Environmental, University of Genoa. Supervisors: Prof. Patrizia Perego, Prof. Jan Oscar Pralits, Prof. Pier Francesco Ferrari. Co-supervisor: Dr. Maria Bolla.

PUBLICATIONS

[2023]

Potential Use of PLA-Based Films Loaded with Antioxidant Agents from Spent Coffee Grounds for Preservation of Refrigerated Foods

Pettinato, M., Bolla, M., Campardelli, R., Firpo, G., & Perego, P., 2023, *Foods*, 12, 4167, doi: 10.3390/foods12224167.

[2023]

Inherent Safety Development Applied to Green Processes and Energy Transition

Bolla, M., Pettinato, M., & Fabiano, B., 2023, Chemical Engineering Transactions, 104, 151-156, doi: 10.3303/CET23104026.

[2023]

Nuove tecnologie per il packaging alimentare sostenibile

Bolla, M., Drago, E., Pettinato, M., Perego, P., Firpo, G., Campardelli, R., 2023, Food Hub Magazine.

[2023]

A Dynamic Approach to Natech Risk Assessment applied to a LPG Storage Facility in a Landslides Sensitive Italian

Vairo, T., Magrì, S., Pettinato, M., Bolla, M., & Fabiano, B., 2023, Chemical Engineering Transactions, 89, 289-294, doi: 10.3303/CET2399049.

DIGITAL SKILLS

Excellent knowledge of the main command of Microsoft Office tools / Good digital knowledge of Matlab/Simulink / Good digital knowledge of Aspen Plus / Basic digital knowledge of Python / Basic digital knowledge of Comsol / Basic digital knowledge of Ansys Fluent / Basic digital knowledge of SimaPro / Basic digital knowledge of UniSim / Basic digital knowledge in C language / Basic digital knowledge of CAD 2D, Microstation

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 READING C1 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

ORGANISATIONAL SKILLS

Excellent organizational skills and ability to organize and respect the deadlines

Excellent team working skills

Excellent skills in working under pressure

Good time management

Excellent ability in the use of laboratory equipment and chemicals.

DRIVING LICENCE

Driving Licence: B

HOBBIES AND INTERESTS

Music

I studied classical guitar, musical theory and solfeggio at the "Accademia Musicale Teresiana" in Arenzano (GE) from 2004 to 2008 and at the middle school musical specialty from 2008 to 2011.

In compliance with the law D.LGS. no. 196 dated 30/06/2003 and the EU Regulation 2016/679, I authorize to use and process the personal details contained in this document.

Genoa, 31/12/2024

