

ERICA BERTOZZI



PhD Student | Politecnico di Torino

@ erica.bertozzi@polito.it

+39 3467886492

Turin (IT)

En.sur.e. water lab

EDUCATION

Current Visiting Ph.D. Student

Rice University

08/04/2025 – present

Houston, Texas, USA

Ph.D. Student in Civil and Environmental Engineering

Politecnico di Torino - PoliTO

01/02/2023 – present

Turin, Italy

MSc in Environmental Chemistry

Università degli Studi di Torino - UniTO

12/2019 – 04/2022

Turin, Italy

- Thesis title: "Development of photocatalytic membranes for polluted water treatment"

Alta Qualificazione - 2nd Level Master Degree SSST

Scuola di Studi Superiori Ferdinando Rosssi SSST- UniTO

10/2016 – 06/2023

Turin, Italy

SSST is a higher-education excellence institution, admitting students through a competitive national examination. The 5-year program offers multidisciplinary training, promoting collaboration among top students and preparing them for research careers. Students must meet high academic standards, complete additional courses, and finalize a thesis project in a different field. Graduates receive a degree equivalent to a second-level master's degree.

- Thesis title: "EU Projects for water management in Africa: The VicInAqua case and the installation of Recirculating Aquaculture Systems (RAS) in Lake Victoria"

Collegio Universitario Einaudi

2016 – 2022

Turin, Italy

- University Student House based on merit criteria. It provides courses and training aimed at improving hard and soft skills.

BSc in Chemistry and Chemical Technologies

Università degli Studi di Torino - UniTO

10/2016 – 12/2019

Turin, Italy

- Thesis title: "Photo-chemical transformation of molecules of environmental interest in ice"

RESEARCH

General Interests

- Wastewater reuse
- Nutrient and resource recovery
- Membrane based-processes
- Advanced oxidation processes
- Membrane functionalization

PhD Research

- General topic:** exploiting membrane processes for wastewater reuse and implementing circular economy practices in industry, with a specific focus on the recovery of valuable compounds and resources.

Supervised by Prof. Alberto Tiraferri (PoliTO).

LANGUAGE SKILLS

- Italian – Native speaker
- English – IELTS C1
- French – DELF A1

GRANTS AND AWARDS

Interfaces Against Pollution - IAP

2024

Turin, Italy

- Winner of the 3rd place of student poster award

European Membrane Society

2023

Sorrento, Italy

- Winner of the best poster award at MD-Sorrento 2023

Collegio Universitario Einaudi

2021

Turin, Italy

- Winner of 4 months scholarship in a competition based on academic merit for the assignment of contributions for the Erasmus+ projects.

Scuola di Studi Superiori Ferdinando Rossi

2016

Turin, Italy

- The SSST granted me a 5-year full scholarship, covering both university fees and housing at Collegio Einaudi, as part of the admission to its higher education program.

LAB SKILLS

Lab experiences:

- Advanced oxidation processes;
- Membrane-based processes (namely worked with MF, UF, RO, NF, MD, OMD);
- Synthesis and characterization of photoactive materials;
- Membrane surface modification and functionalization.

Analytical and instrumental competencies:

- Field sampling and **sample preparation** (extraction, clean-up, separation for compositional analysis);
- Adsorption and emission **spectroscopic techniques** (UV-Vis, fluorescence, phosphorescence) and **elemental combustion analysis** (TC, TOC, TN);
- Development of qualitative and quantitative methods, both targeted and untargeted, for **chromatographic techniques** (GC-FID, HPLC/UV-Vis), mass spectrometry (HPLC/MS, GC/MS), and atomic spectroscopy (AAS, ICP/AES, ICP/OES, ICP/MS);
- Optical and electron **microscopy** (OCT, SEM, TEM), **X-ray diffraction**, and **electroanalytical methods** (cyclic voltammetry, potentiometry).

- **Main topic during the visiting period at Rice** : enhancing membrane performance by combining electrochemical catalytic processes with membrane technologies, focusing on the design and fabrication of reactive nanofiltration membranes.

Co-supervised by Prof. Menachem Elimelech (Rice University)

MSc Research

- **Topic:** evaluation of the combined effect of nanofiltration and advanced oxidation processes for wastewater treatment. The work involved **synthesizing solar photoactive zinc-oxide materials** and **developing photocatalytic membranes** to remove emerging contaminants within the nanofiltration step. Part of the project was conducted in Aalborg (DK) over a 5-month trainee-ship.

Supervised by Prof. Paola Calza (UniTO) and co-supervised by Vittorio Boffa (Aalborg University).

PUBLICATIONS

- **Bertozi, E.**, Craveri, L., Malaguti, M., Ricceri, F., Carone, M., Riggio, V., Tiraferri, A. (2024). Concentration of phycocyanin and coffee extracts in aqueous solutions with osmotically-assisted membrane distillation. *Separation and Purification Technology*, 330, 125360. DOI
- Meo, R. R., Craveri, L. **Bertozi, E.**, Malaguti, M., Tiraferri, A., Morciano, M., Fasano, M. (2025). Systematic exploration of direct solar absorption potential to enhance direct contact membrane distillation. *Desalination*, 606, 118740. DOI
- Brocchetto, G., Sciscenko, I., Craveri, L. **Bertozi, E.**, Malaguti, M., Coxa, M., Tiraferri, A., Vione, D. (2025). Combination of Membrane-Based Pre-Treatment Techniques and Heterogeneous Photocatalysis to Obtain High-Quality Effluents from Produced Water. *Molecules*, 30(12), 2532. DOI
- Hong, S., Di Vincenzo, M., Tiraferri, A., **Bertozi, E.**, Górecki, R., Davaasuren, B., Li, X., Nunes, S. P. (2024). Precision ion separation via self-assembled channels. *Nature Communications*, 15(1), 3160. DOI

Book of abstracts

- Boffa, V., Magnacca, G., Deganello, F., Coelho, F. E. B., Candelario, V. M., Giovagnoni, A., **Bertozi, E.** and Calza, P. (2022, November). Synergistic integration of photocatalytic and thermocatalytic nanoparticles with graphene oxide in nanofiltration membranes for water depollution. In *Euromembrane 2022*. BoA link
- Gaggero, E., Calza, P. **Bertozi, E.**, Paganini, M.C., Cerrato, E. and Lopez-Munoz, M.J. Photocatalytic removal of organic contaminants and mercury from aqueous solutions, in *Proceedings of the Merck Young Chemists' Symposium 2021*, Ed. G. Annunziato, et. al., ISBN: 978-88-94952-25-4, 43, 2021, Rome. BoA link

WORK EXPERIENCES

Metropolitan City of Turin

Waste Management, Remediation and Safety of Production Sites Offices

📅 07/2022 - 10/2022 📍 Turin, Italy

- **Main tasks:** environmental technician for the activities of the Technological Risk Plants Office and of the Cross-border Waste Transport Office.

Digital Facilitator

📅 10/2020 - 12/2021 📍 Turin, Italy

- **Main tasks:** Manage online platforms, organize events, update the website, and create social media content for the MSc in Environmental Chemistry program and the Department of Chemistry.

Teaching Assistant - Canadian Island English School

📅 06/2015 - 07/2015 📍 Florence, Italy

- **Main task:** English teachers' assistant in Summer Camps daily activities for children aged 3-6 years.

CONFERENCES

NAMS 2025

📅 17-21/05/2025 📍 Nashville, TN, USA

- **Oral presentation** titled "Turning Aquaculture Waste into Fertilizer and Clean Water: Optimizing Membrane Distillation for N and P Recovery".

Interface Against Pollution - IAP

📅 15-18/09/2024 📍 Prague, Czech Republic

- **Poster** titled "Valorization of spent coffee grounds as soil amendment and valuable bio-additives".

Euromembrane24

📅 08-12/09/2024 📍 Prague, Czech Republic

- **Oral presentation** titled "Optimization of direct contact membrane distillation for simultaneous recovery of phosphorus and nitrogen from Aquaculture wastewater".

MD-Sorrento2023

📅 24-26/04/2023 📍 Sorrento, Italy

- **Poster** titled "Concentration and recovery of phycocyanin and caffeine from aqueous solutions with osmotically-assisted membrane distillation".

OTHER ACTIVITIES

Student Rep - MSc

📅 2021-2023 📍 Turin, Italy

- Students' Representative for the MSc in Environmental Chemistry.

Student Rep - Collegio Einaudi

📅 2020-2021 📍 Turin, Italy

- Students' Representative for the Collegio Einaudi (Valentino Student House).

Student Rep - SSST

📅 2018-2021 📍 Turin, Italy

- Students' Representative for the SSST - Scientific Committee for the Class of Government and Natural Science.

RIASISSU

📅 2018-present 📍 Italy

- Member of the Italian Network of Students of Schools and Institutes of Higher University Studies, an educational-cultural association that brings together students of Italian Schools and Institutes of Excellence Higher University Studies.

Staff Member - Forum Ferdinando Rossi

📅 2017-2020 📍 Turin, Italy

- Member of the Organizing Committee of the Forum Ferdinando Rossi, an association that organizes events within the University, promoting the debate around current issues of our society.