

PERSONAL INFORMATION Marcello Pagliero

EDUCATION AND TRAINING

- 11/2017 - 05/2021 **Doctorate in Chemical and Materials Sciences and Technologies**
 University of Genoa, Department of Chemistry and Industrial Chemistry, Genoa (Italy)
 Thesis: *New membranes for membrane distillation process.*
- Hydrophobization of ceramic membranes for membrane distillation.
 - Preparation of PVDF membranes via non solvent phase inversion: evaluation of preparation conditions on morphology and performance in membrane distillation process.
 - Evaluation of the effect of non-woven supports on the performance of hydrophobic PVDF membranes in vacuum membrane distillation process.
- 09/2012 - 03/2015 **Master's Degree in Industrial Chemistry** 110/110 cum laude
 University of Genoa, Department of Chemistry and Industrial Chemistry, Genoa (Italy)
 Thesis: *Membrane processes and module configurations for water treatment*
- Improvement of the knowledge acquired during the Bachelor's Degree, especially in the disciplines related to industrial chemistry and polymers.
- 09/2008 - 03/2013 **Bachelor's Degree in Chemistry and Chemical Technologies** 100/110
 University of Genoa, Department of Chemistry and Industrial Chemistry, Genoa (Italy)
 Thesis: *Treatment of solutions and industrial wastewaters by membrane processes.*
- Acquisition of basic knowledge in the main areas of chemistry: general and inorganic, organic, chemical-physical and analytical (also through educational workshops).
- 09/2003 - 07/2008 **Scientific High School Diploma** 74/100
 State Scientific High School G.D. Cassini, Genoa

RESEARCH EXPERIENCE

- 06/2021 - Ongoing **Research Fellowship**
 University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)
- Preparation of flat sheet PVDF membranes for vacuum membrane distillation.
 - Study of the effect of fillers on the morphology and performance of the membranes
- 08/2017- 01/2018 **External Research Collaborator**
 University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)
- Preparation and characterization of tubular polymeric membranes for osmotic distillation and membrane distillation processes.
- 11/2016 - 07/2017 **External Research Collaborator**
 University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)
- Installation, start-up and optimization of ultrafiltration and reverse osmosis pilot plant for waste water treatment.
 - Failure analysis on reverse osmosis modules used in an industrial plant (water permeability and flux recovery test, cleaning effect, fouling evaluation using SEM).

03/2016 - 10/2016

External Research Collaborator

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Application of microfiltration and reverse osmosis integrated processes to industrial wastewaters.
- Determination of the best conditions for pure water recovery.

11/2015 - 02/2016

External Research Collaborator

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Characterization of commercial microfiltration membranes using various techniques (e.g. liquid-liquid displacement porosimetry, contact angle evaluation).
- Determination of the membrane performance for distillation application.

06/2015 - 10/2015

External Research Collaborator

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Evaluation of the performance of reverse osmosis membranes exploiting both laboratory and pilot scale setups.

06/2014 - 01/2015

Experimental Thesis

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Systematic analysis of reverse osmosis commercial membranes performance.
- Evaluation of process condition on membrane performance.
- Feed and permeate analysis with different techniques (e.g. ion chromatography, UV-VIS-NIR spectroscopy).

06/2012 - 09/2012

Internship

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Lab-scale vacuum membrane distillation plant preparation.
- Commercial membrane assembly in dedicated modules.
- Performance evaluation of membrane distillation of NaCl model solution and of olive mill wastewater.

TEACHING EXPERIENCE

11/2020 – 12/2020

Laboratory assistant

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Assistance during the laboratory of the course “fondamenti di chimica e tecnologie chimiche per l'industria e per l'ambiente” (Chemistry and Chemical Technologies).

02/2019 – 06/2019

Laboratory assistant

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Assistance during the laboratory of the course “Chemistry and technology of catalysis + laboratory” (Industrial Chemistry).

10/2019 – 04/2020

Laboratory assistant

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Assistance during the laboratory of the course “chemistry and technology of catalysis + laboratory” (Industrial chemistry).
- Assistance during the laboratory of the course “Chimica fisica 1 con laboratorio” (Chemistry and Chemical Technologies).

10/2018 - 05/2019

Laboratory assistant

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Assistance during the laboratory of the course “fondamenti di chimica e tecnologie chimiche per

l'industria e per l'ambiente" (Chemistry and Chemical Technologies).

- Assistance during the laboratory of the course "Chimica fisica 1 con laboratorio" (Chemistry and Chemical Technologies)

12/2017 – 05/2018

Laboratory assistant

University of Genoa, Department of Chemistry and Industrial Chemistry, Membrane&Membrane research group, Genoa (Italy)

- Assistance during the laboratory of the course "chemistry and technology of catalysis + laboratory" (Industrial chemistry).
- Assistance during the laboratory of the course "Chimica fisica 1 con laboratorio" (Chemistry and Chemical Technologies).

PERIODS ABROAD

03/2020 - 08/2020

Visiting Researcher

Complutense University of Madrid, Department of Structure of Matter, Thermal Physics and Electronics, Membranes and Renewable Energies research group, Madrid (Spain)

- Preparation of PVDF hollow fibre membranes using a double spinneret. Improvement of the preparation conditions and of the membrane characteristics.
- Investigation of the effect of several pore forming agents on the performance and morphology of unsupported polymeric membranes for direct contact membrane distillation applications.

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B2	B2	B2	B2
French	B1	B1	B1	B1	B1
Diplôme d'Etudes de Langue Française (DELF) B1					

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills ▪ Excellent communication skills acquired during the Thesis experience and work within a research group, working in groups and having to work together to achieve a result.

Organisational / managerial skills ▪ Excellent organizational and management skills acquired during the thesis work and the period of university study.

Job-related skills ▪ Wide experience on the use of membrane processes for water treatment, both on synthetic wastewaters and on real industrial wastes.
 ▪ Practical knowledge of the main techniques commonly used for membrane characterization.
 ▪ Practical knowledge of the main analytical techniques suitable for the evaluation of the membrane separation performance.
 ▪ Great expertise in assembling lab scale testing setups and different membrane modules.
 ▪ Independent working in a chemical laboratory.

Driving licence B

CONFERENCES AND PUBLICATIONS

Oral presentations

- Euromembrane 2018 – Valencia – Spain – 9th/13th July 2018.
 - *“Hydrophobic ceramic membranes for membrane distillation”*.
- IDA International Conference – Creating Resilient Solutions to Water Needs – Action4Good – Santa Margherita – Italy – 12th/14th May 2019.
 - *“Chromium removal from well water by nanofiltration process for drinkable water production”*
- 6th International Scientific Conference on Pervaporation, Vapor Permeation, Gas Separation, and Membrane Distillation – Toruń – Poland – 14th/17th May 2019.
 - *“Influence of Polymer Coagulation on the Morphology of PVDF Membranes for Distillation”*.
- MELPRO 2020 – Prague – Czech Republic – 8th/11th November 2020.
 - *“Influence of Support Characteristics on Membrane Performance in Distillation Test”*
- WOCST World Online Conference on Sustainable Technologies – 17th/19th March 2021.
 - *“Contactors membrane reactors in the process of methane dry reforming”*.
- CAMURE-11 & ISMR-10 – Milan – Italy 21st/24th March 2021.
 - *“Development of a small-scale biogas purification process by H₂S adsorption”*
 - *“Development of Pd/PSS membranes improved by ceramic barrier layers for H₂ separators and membrane reactors”*
 - *“Study on the deactivation of Ni/Al₂O₃ based catalysts in methane dry reforming”*
- NINE 2021: The 4th International Conference on Nanotechnology Based Innovative Applications for The Environment – 28th/31st March 2021.
 - *“Influence of Carbon Based Nanofillers Addition on the Properties of Microporous Layers Prepared via Phase Inversion”*

Posters

- Euromembrane 2018 – Valencia – Spain – 9th/13th July 2018.
 - *“Characterization of porous PTFE membranes and their potential application in osmotic distillation”*.
- GIC DiChIn XX Congresso Nazionale di Catalisi - XX Congresso Nazionale della Divisione di Chimica Industriale – Milan – Italy – 2nd/5th September 2018.
 - *“Inorganic membrane silanization for the preparation of hydrophobic macroporous separation interfaces or microporous silicamembranes”*.
- 5th European Congress of Applied Biotechnology – Florence – Italy – 15th/19th September 2019.
 - *“Use of fungi in a Membrane-aerated Biofilm reactor”*.
- 14th International Conference on Catalysis in Membrane Reactors – Eindhoven – The Netherlands – 8th/11th July 2019.
 - *“Development of a membrane-aerated mycofilm reactor for wastewater treatment at a laboratory-scale”*.
- HYPOTHESIS XV – Cape Town – South Africa – 3rd/6th May 2020
 - *“Dry reforming of methane in catalytic rhodium-based membrane reactors”*.
- SCI2021 – XXVII Congresso Nazionale della Società Chimica Italiana – 14th/23rd September 2021.
 - *“Preparation of hydrophobic porous membranes for membrane distillation using pore forming agents”*.
 - *“Nitrification process for ammonia removal in biological reactor aerated with porous polymeric membranes”*.

Courses

- 35th European Membrane Society Summer School “*From Fundamental Concepts Towards Commercialization of Membranes*”. University of Twente – Enschede – The Netherlands – 24th/29th June 2018.

- SINCHEM Winter School 2020 “*Horizons in Sustainable Chemistry and Bio-based Polymers*”. University of Bologna – Bologna – Italy – 4th/6th February 2020.

Journal articles

- “Novel hydrophobic PVDF membranes prepared by nonsolvent induced phase separation for membrane distillation”. **M. Pagliero**, A. Bottino, A. Comite, C. Costa. *Journal of membrane science* 596, 117575. (2020).
- “Hydrogen Sulfide Adsorption by Iron Oxides and Their Polymer Composites: A Case-Study Application to Biogas Purification”. C. Costa, M. Cornacchia, **M. Pagliero**, B. Fabiano, M. Vocciante, A. P. Reverberi. *Materials* 13, 4725. (2020).
- “Silanization of tubular ceramic membranes for application in membrane distillation”. **M. Pagliero**, A. Bottino, A. Comite, C. Costa. *Journal of membrane science* 601, 117911. (2020).
- “Treatment of Olive Mill Wastewater through Integrated Pressure-Driven Membrane Processes” A. Bottino, G. Capannelli, A. Comite, C. Costa, R. Firpo, A. Jezowska, **M. Pagliero**. *Membranes* 10, 334. (2020).
- “Hollow fibre polymeric membranes for desalination by membrane distillation technology: A review of different morphological structures and key strategic improvement”. **M. Pagliero**, M. Khayet, **C. García-Payo**, L. García-Fernández. *Desalination* 516, 115235. (2021).
- “Effect of support on PVDF membranes for distillation process”. **M. Pagliero**, A. Comite, O. Soda, C. Costa. *Journal of membrane science* 635, 119528. (2021).
- “Laboratory scale evaluation of fertiliser factory wastewater treatment through membrane distillation and reverse osmosis”. M. Tagliabue, J. Tonziello, A. Bottino, G. Capannelli, A. Comite, **M. Pagliero**, F. Boero, C. Cattaneo. *Membranes* 11, 610. (2021).
- “Influence of carbon based nanofillers addition on the properties of microporous layers prepared via phase inversion”. A. Comite, C. Costa, **M. Pagliero**, J. Perrone, I. Rizzardi. *Chemical Engineering Transactions* 84, 127– 132. (2021).

Book chapters

- Book chapter: “Wastewater treatment by membrane distillation”, A. Comite, C. Costa, **M. Pagliero**, in “*Current Trends and Future Developments on (Bio-) Membranes*”. Eds: A. Basile, A. Comite, Elsevier (2020).

Memberships European Membrane Society Member n° 395148.

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