

Marco Barozzi

Curriculum Vitae

Personal data

First name: Marco

Surname: Barozzi

Nationality: Italian

Social status: not married

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Career summary

After my Bachelor's degree in Chemical Engineering and my M.Sc. degree in Safety and Prevention Engineering in the Process Industry (Politecnico of Milan), I started my research activity in 2015, with a fellowship dedicated to a study on emulsion polymerizations. I then continued my activity through a Ph.D. in Computational Mathematics at the University of Insubria (completed in 2019), where I kept working in the field of research of methods dedicated to the modeling and optimization of emulsion polymerizations and started a research project on predictive models for dust explosions. After my Ph.D. I carried out my research through fellowships and grants, focusing on the study of chemical processes, with increasing attention towards sustainability and safety. Over the course of my academic career, I co-authored about 40 M.Sc. and Bachelor thesis and provided support for academic courses at the University of Insubria. I'm currently working as a fixed-term researcher at the University of Insubria in the Department of Science and High Technology, within the research group dedicated to process safety and intensification.

Scientific topics

- Dust explosions
- Risk assessment
- Reaction chemistry
- Thermo-chemical stability of chemical reactions
- Pollutant dispersion
- Mathematical modeling

Academic positions and collaborations

2021-today

Fixed-term researcher type "a" (RUTDa), Department of Science and High technology, University of Insubria (via Valleggio 9, 22100, Como (CO), Italy).
SC:09/D3, SSD: ING-IND 25

2021-today

Member of the research group Process Safety and Intensification. Department of Science and High technology, University of Insubria (via Valleggio 9, 22100, Como (CO), Italy)

2020-today

Collaboration with DEKRA Safety Italy. Main activities: vent sizing, risk assessment on chemical plants, Natech events, training courses.

2019-today

Collaboration with Risk Governance Solutions Srl. Main activities: pollutant dispersion simulations, compliance with D.Lgs 155/2010.

2019-oggi

Reviewer of the *Multidisciplinary Digital Publishing Institute (MDPI)*

2018-today

Reviewer of the *Process Safety and Environmental Protection Journal*

List of publications

- Barozzi, M., Dimauro, C., Scotton, M.S., Copelli, S., *A Comprehensive Approach to Establish the Impact of Worksites Air Emissions*, Chemical Engineering, (2022), 91, pp. 151–156
- Scotton, M.S., Barozzi, M., Copelli, S., (2022) *Detailed Reconstruction and Safety Analysis of a Pre-Seveso Accident*, Chemical Engineering Transactions, 91, pp. 157–162
- Barozzi, M., Soffientini, L., Zanon, G., ...Scotton, M.S., Copelli, S., (2022), *Advantages of the Recursive Operability Analysis in Updating the Risk Assessment*, Chemical Engineering Transaction, 90, pp. 37–42
- Copelli, S., Petrucci, N.B., Florit, F., Barozzi, M., (2022), *Increasing Safety by Shifting Semi-Batch Polymerizations into Semi-Continuous Production*, Chemical Engineering Transactions, 90, pp. 601–606
- Scotton, M.S., Barozzi, M., Derudi, M., Copelli, S. (2022). *A Mathematical Model for the Prediction of the K_{ST} for Metallic Dusts as a Function of the Particle Size Distribution*, Chemical Engineering Transactions, 2022, 90, pp. 487–492
- Barozzi, M., Scotton, M.S., Copelli, S., (2022), *Runaway Boundaries for PI Controlled Tubular Reactors*, Chemical Engineering Transactions, 90, pp. 583–588
- Barozzi M., Scotton M. S., Morosini C., Sieni E., Sgarbossa P., Sandon A., Copelli S., *Magnetically Separable Nanoparticles for Wastewater Treatment*, (2021) Chemical Engineering Transactions
- Scotton M. S., Barozzi M., Copelli S., *Recursive Operability Analysis as a tool for ATEX classification in plants managing explosive dusts*, (2021) Chemical Engineering Transactions
- Rota R., Copelli S., Scotton M. S., Barozzi M., Derudi M., (2021), *A practical tool for predicting the Minimum Ignition Energy of organic dusts*, Industrial & Engineering Chemistry Research, Vol. 60(29), 10807-10813
- Barozzi M., Contini S., Raboni M., Torretta V., Casson Moreno V., Copelli S., *Integration of Recursive Operability Analysis, FMECA and FTA for the Quantitative Risk Assessment in biogas plants: Role of procedural errors and components failures*, (2021) Journal of Loss Prevention in the Process Industries, Volume 71, 104468, ISSN 0950-4230
- Maestri, F., Copelli, S., Barozzi, M., Rota, R., *Kinetic-free discontinuous to continuous transformation of fine chemical reactions: A general experimental procedure*, (2020) Chemical Engineering Journal, 395, art. no. 125061
- Scotton, M.S., Barozzi, M., Derudi, M., Rota, R., Copelli, S. *Kinetic free mathematical model for the prediction of K_{ST} values for organic dusts with arbitrary particle size distribution*, (2020) Journal of Loss Prevention in the Process Industries, 67, art. no. 104218
- Barozzi, M., Copelli, S., Scotton, M.S., Torretta, V. *Application of an enhanced version of recursive operability analysis for combustible dusts risk assessment*, (2020) International Journal of Environmental Research and Public Health, 17 (9), art. no. 3078
- Barozzi, M., Scotton, M.S., Derudi, M., Copelli, S., *Recursive operability analysis as a tool for risk assessment in plants managing metal dusts*, (2020) Chemical Engineering Transactions, 82, pp. 43-48.

- Copelli, S., Barozzi, M., Scotton, M.S., Fumagalli, A., Derudi, M., Rota, R. *A predictive model for the estimation of the deflagration index of organic dusts*, (2019) *Process Safety and Environmental Protection*, 126, pp. 329-338
- Barozzi, M., Ragazzi, M., Copelli, S., Torretta, V., Conti, F., Rada, E.C., Cioca, L.I., Rizzini, D., *Modelling the source term for pollutants generated from galvanic cells*, (2019) *Environmental Engineering and Management Journal*, 18 (4), pp. 907-920
- Copelli, S., Barozzi, M., Petrucci, N., Casson Moreno, V., *Modeling and process optimization of a full-scale emulsion polymerization reactor*, (2019) *Chemical Engineering Journal*, 358, pp. 1410-1420
- Copelli, S., Barozzi, M., Fumagalli, A., Derudi, M., *Application of a Gaussian model to simulate contaminants dispersion in industrial accidents*, (2019) *Chemical Engineering Transactions*, 77, pp. 799-804
- Copelli, S., Barozzi, M., Maestri, F., Rota, R., *Safe optimization of potentially runaway reactions: From fedbatch to continuous stirred tank type reactor*, (2018) *Journal of Loss Prevention in the Process Industries*, 55, pp. 289-302
- Copelli, S., Dente, M., Bozzano, G., Barozzi, M., *Simplified modeling and main constitutive parameters estimation for industrial emulsion copolymerization processes*, (2018) *Chemical Engineering Journal*, 335, pp. 988-1003
- Copelli, S., Barozzi, M., Maestri, F., Rota, R., *Safe intensification of potentially runaway reactions: From semibatch to continuous processes*, (2017) *Chemical Engineering Transactions*, 57, pp. 1687-1692
- Copelli, S., Croci, S., Fumagalli, A., Derudi, M., Rota, R., Barozzi, M., *Runaway problems in unsteady state tubular reactors*, (2016) *Chemical Engineering Transactions*, 53, pp. 85-90

Attendance at conferences and seminars

2022- GRICU (Ischia, IT)

Poster: *Experimental Study on VOCs Production during High Monomer Content Emulsion Polymerizations*

2022- ISHPMIE (Braunschweig, DE)

Speaker: *Learning From the Past: The Importance of Risk Assessment in Aluminium Dust Processes*

2022- Loss Prevention 17 (Prague, CZ)

Speaker: *A comprehensive approach to establish the impact of worksite air emissions*

2022 – CISAP 10

Speaker: *A comprehensive approach to establish the impact of worksite air emissions*

2021, 28 Jun – API (Villa Toeplitz, Varese, IT)

Speaker: *2009. Explosion and Fire in a Resin Manufacturing Site*

2021, 23-26 May – ICHEAP 15 (virtual conference)

Speaker: *Magnetically Separable Nanoparticles for Wastewater Treatment*

Chairman of the session *Separation technology and transfer*

2019, 16-19 Jun – Loss Prevention 16 (Delft, NL)

Speaker: *Application of a Gaussian model to simulate contaminants dispersion in industrial accidents*

2019, 30 Jun -3 Jul – GRICU 2019 (Palermo, IT)

Poster: *Valutazione del Rischio e della Sostenibilità di un Impianto a Biogas mediante Analisi di Operabilità Ricorsiva Avanzata*

2019, 7 May – Convegno di Calorimetria (32° edizione) (Milan, IT)

2018, 13-14 Dec – MMCEB 2018 (Villa Toeplitz, Varese, IT)

Speaker: *Simulation of Runaway Phenomena in Controlled Plug Flow Reactors*

Research activities

13/2/2023-3/3/2023

Visiting researcher

Hosting University: Purdue University, Lafayette, Indiana (US)

2021-2022

Research grant: *Adattamento di procedure di analisi di rischio per la valutazione specifica di eventi NaTech*, University of Insubria, Department of Science and High Technology (Italy)

2020-2021

Fellowship: *Intensificazione di Processi di Polimerizzazione in Emulsione ad Elevata Viscosità: Passaggio della Modalità di Sintesi da Discontinua a Continua in Reattori Tubolari*, University of Insubria, Department of Science and High Technology (Italy)

2018-2020

Fellowship: *Studio dell'impatto degli effetti diffusivi radiali all'interno di reattori tubolari*, University of Insubria, Department of Science and High Technology (Italy)

2015

Fellowship: *Ottimizzazione, scale-up ed analisi di rischio di processi di polimerizzazione in emulsione ed emulsione*, University of Insubria, Department of Science and High Technology (Italy)

Education

2018

PhD in Computer Science and Computational Mathematics (XXXI Cycle)
University of Insubria, Como (Italy)

PhD Thesis: *Application of Method of Lines in Chemical Engineering problems.*

2014

M.Sc. in Safety and Prevention Engineering in Process Industry (LM-26),
Polytechnic University of Milan, Milan (Italy)
Grade 110/110

2011

Degree in Chemical Engineering
Polytechnic University of Milan, Milan (Italy)
Grade 110/110

2008

High School Diploma: *Liceo Scientifico progetto Brocca*, Liceo Scientifico Vittorio
Sereni (Luino (VA) - Italy)
Grade 93/100

Awards

2022

Top reviewer 2021 for the Process Safety and Environmental Protection Journal

11/5/2011

Honor student "Giuseppe Biardi", Polytechnic University of Milan

Courses

2022-2023

Inquinamento e trattamento dell'aria (Pollution and air treatment) (ING-IND 25), Second cycle degree in "Ingegneria per l'ambiente e sostenibilità dei luoghi di lavoro", University of Insubria, Varese (Italy).

Analisi e controllo dei processi chimici (ING-IND 25), bachelor degree in "Chimica e chimica industriale", University of Insubria, Como (Italy).

2021-2022

Inquinamento e trattamento dell'aria (Pollution and air treatment) (ING-IND 25), Second cycle degree in "Ingegneria per l'ambiente e sostenibilità dei luoghi di lavoro", University of Insubria, Varese (Italy).

Supporting Teaching Experiences

2021-2022

Integrative lessons and seminars for the course *Principles of industrial processes and plant safety (ING-IND25)*, Second cycle degree in "Molecular and industrial biotechnology", University of Insubria, Varese (Italy).

Integrative lessons and seminars for the course *Ingegneria di sicurezza, affidabilità e sicurezza (ING-IND25)*, bachelor degree in "Ingegneria per la sicurezza, lavoro e ambiente", University of Insubria, Varese (Italy).

2020-2021

Integrative lessons and seminars for the course *Principles of industrial processes and plant safety (ING-IND25)*, Second cycle degree in "Molecular and industrial biotechnology", University of Insubria, Varese (Italy).

Integrative lessons and seminars for the course *Ingegneria di sicurezza, affidabilità e sicurezza (ING-IND25)*, bachelor degree in "Ingegneria per la sicurezza, lavoro e ambiente", University of Insubria, Varese (Italy).

Integrative lessons and seminars for the course *Analisi e controllo dei processi chimici (ING-IND25)*, bachelor degree in "Chimica e chimica industriale", University of Insubria, Varese (Italy).

2019-2020

Integrative lessons and seminars for the course *Industrial process and principles of plant security regulation (ING-IND25)*, Second cycle degree in "Molecular and industrial biotechnology", University of Insubria, Varese (Italy).

Integrative lessons and seminars for the course *Ingegneria di sicurezza, affidabilità e sicurezza (ING-IND25)*, bachelor degree in "Ingegneria per la sicurezza, lavoro e ambiente", University of Insubria, Varese (Italy).

2017-2018

Tutoring for the course *Analisi A*, Degree in "Ingegneria Sicurezza Lavoro e Ambiente", University of Insubria, Varese (Italy).

Tutoring for the course *Analisi B*, Degree in "Ingegneria Sicurezza Lavoro e Ambiente", University of Insubria, Varese (Italy).

2016-2017

Tutoring for the course *Analisi A*, Degree in "Ingegneria Sicurezza Lavoro e Ambiente", University of Insubria, Varese (Italy).

Tutoring for the course *Analisi B*, Degree in "Ingegneria Sicurezza Lavoro e Ambiente", University of Insubria, Varese (Italy).

2015-2016

Tutoring for the course *Analisi B*, Degree in "Ingegneria Sicurezza Lavoro e Ambiente", University of Insubria, Varese (Italy).

Tutoring for the course *Affidabilità e Sicurezza nell'Industria di Processo*, Degree in Chemical Engineering, Polytechnic University of Milan

Language skills

Italian: Mother tongue

English: UK, TOEFL Certificate Grade 89/120

Software skills

Microsoft package

MATLAB

CALPUFF

latex

Autorizzo il trattamento dei miei dati personali presenti nel cv ai sensi dell'art. 13 del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali" e dell'art. 13 del GDPR (Regolamento UE 2016/679).

28/9/2022

Marco D'Amico