

Dario Cavallo

Associate Professor

EDUCATION AND TRAINING

2007-2010

Ph.D. in Science and Technology of Chemistry and Materials

University of Genoa

2005-2007

Master degree in Industrial Chemistry

University of Genoa

2002-2005

Bachelor degree in Industrial Chemistry

University of Genoa

PROFESSIONAL HISTORY

2021-2025

Associate Professor

Associate Professor of Industrial Chemistry

University of Genoa

2018-2021

Fixed-term researcher (type B)

RTD-B of Industrial Chemistry

University of Genoa

2013-2018

Fixed-term researcher (type A)

RTD-A of Industrial Chemistry

University of Genoa

ACADEMIC APPOINTMENTS

2025-

Teaching member of the Joint Committee of the School of Mathematical, Physical, and Natural Sciences for the Master's Degree in Sustainable Polymers and Process Chemistry (University of Genoa)

2024-

Member of the Quality Assurance Committee for the Master's Degree in Advanced Materials Science and Technology (University of Genoa)

2018-2024

Secretary of the Materials Science Degree Course Council (University of Genoa)

2017-2025

Member of the Teaching Council of the Doctoral Program in Chemical and Materials Sciences and Technologies (University of Genoa)

2020-2025

Member of the Orientation Committee of the Master's Degree in Materials Science and Engineering (later Advanced Materials Science and Technology) and the Master's Degree in Industrial Chemistry (later Sustainable Polymers and Process Chemistry) (University of Genoa)

EXPERIENCE

MAIN SEMINARS

2012

D. Cavallo, L. Balzano, G. Portale, G.W.M. Peters, G.C. Alfonso, *Probing polymer crystallization in processing conditions with synchrotron radiation*, Synchrotron Radiation in Polymer Science (SPRS5), 1st April 2012, San Francisco (U.S.A.)

2015

D. Cavallo, M.J.W. Kanters, H.J.M. Caelers, G. Portale, *Kinetics of the polymorphic transition in isotactic poly(1-butene) under uniaxial extension*, Deformation, Yield and Fracture of Polymers (DYFP), 1st April 2015, Kerkrade (The Netherlands);

D. Cavallo, L. Gardella, G.C. Alfonso, *Some aspects of nucleation in polymorphic isotactic poly(1-butene)*, New Frontiers in Polymer Crystallization (PACIFICHEM), 19th December 2015, Honolulu (U.S.A.)

2016

D. Cavallo, *“Unconventional” nucleation phenomena in semicrystalline polymers*, 14th Lahnwitzseminar on calorimetry 2016 - interplay between nucleation, crystallization and the glass transition, 5th -10th June 2016, Rostock (Germany)

D. Cavallo, *Esempi di nucleazione atipica in polimeri semicristallini: auto-nucleazione e nucleazione incrociata tra polimorfi*, XXII Congresso Associazione Italiana di scienza e tecnologia delle Macromolecole, 11th -14th September 2016, Genova (Italy)

D. Cavallo, *Crystallization of polymorphic polymers investigated with synchrotron radiation techniques*, 10th International conference on X-ray investigation of polymer structure, 6th -9th December 2016, Ustron (Poland)

2017

D. Cavallo, *Nucleation of one polymorph by another in semicrystalline polymers*, VIII International Symposium on Engineering Plastics (EP'2017), 8th -11th August 2017, Xi'an, (China)

D. Cavallo, L. Sangroniz, F. Barbieri, A. Santamaria, R.G. Alamo, A.J.Muller, *Rheology of self-nucleated poly(e-caprolactone) melts*, International Discussion Meeting on Polymer Crystallization -from classical systems to functional materials and biopolymers, 20th September 2017, Wittenberg (Germany)

2018

D. Cavallo, *What do polymers nucleate on? Heterogeneous nucleation of polymer crystals at glassy, liquid and crystalline interfaces* 15th Lahnwitzseminar on calorimetry 2018 - interplay between nucleation, crystallization and the glass transition, 4th -8th June 2018, Rostock (Germany)

2019

D. Cavallo, Bao Wang, Alejandro J. Muller, *Self-nucleation and heterogeneous nucleation of i-PP micro-droplets in immiscible blends*, 2nd Journal of Thermal Analysis and Calorimetry Conference, 21st June 2019, Budapest (Hungary)

D. Cavallo, Bao Wang, Wen Tao, Xiuquin Zhang, Agnieszka Tercjak, Xia Dong, Dujin Wang, Alejandro J. Muller, *Nucleation of poly(L-lactide) on the surface of different fibers*, IX International Symposium on Engineering Plastics (EP'2019), 7th -10th August 2019, Yinchuan, (China)

D. Cavallo, Andrea Costanzo, Paola Lova, Roberto Spotorno, Davide Comoretto, *In-situ optical detection of polymer crystallization during 3D printing*, British Society of Rheology's Non-Newtonian Club Meeting “Rheology for Processing”, 19th September 2019, Nottingham (U.K.)

D. Cavallo, Seif Fenni, Jun Wang, Naccerdine Haddaoui, Basil Favis, Alejandro J. Muller, *Nucleation of poly(L-lactide) partially wet droplets in ternary blends with poly(butylene succinate) and poly(e-caprolactone)*, International Discussion Meeting on Polymer Crystallization, 21th October 2019, San Sebastian (Spain)

D. Cavallo, Bao Wang, *What do polymers nucleate on? Some unsettled issues in semicrystalline polymers nucleation*, International Workshop on Polymeric Materials 2019, 23rd November 2019, Setif (Algeria)

D. Cavallo, Stan Looijmans, Bao Wang, Enrico Carmeli, Martin Rosenthal, Dimitri Ivanov, Giuseppe Portale, Xiaoli Sun, Shouke Yan, Guoming Liu, *Cross-nucleation between polymorphs: kinetic and structural aspects*, 11th International conference on X-ray investigation of polymer structure, 6th December 2019, Ustron (Poland)

2022

Enrico Carmeli, Bao Wang, Alfred Menhyard, Davide Tranchida, Alejandro J. Müller, **D. Cavallo**, *Nucleation of the dispersed phase in immiscible blends*, GEP-SLAP 2022 – Three simultaneous conferences on polymers, 8th -12th May 2022, San Sebastian (Spain)



2023

D. Cavallo, Claire Mclroy, Andrea Costanzo, *Inter-layer adhesion in material extrusion 3D printing: effect of processing and molecular variables*, X International Symposium on Engineering Plastics (EP'2023), 6th August 2023, Ningbo, (China)

2024

Zakarya Baouch, Andrea Costanzo, Claire Mclroy, **D. Cavallo**, *Some factors affecting interlayer weld strength in material extrusion 3D printed amorphous and semicrystalline polymers*, American Physical Society's March Meeting 2024, 4th March 2024, Minneapolis (U.S.A.).

Zakarya Baouch, Claire Mclroy, **D. Cavallo**, *Polypropylene for material extrusion: avoiding flow-enhanced crystallization for unrestricted welding*, POLY-CHAR 2024, 31st May 2024, Madrid, (Spain)

D. Cavallo, Enrico Carmeli, Magdalena Gora, Leire Sangroniz, Davide Tranchida, Alejandro Müller, *Surface nucleation of polyethylene droplets on polypropylene matrix in immiscible blends*, International Discussion Meeting on Polymer Crystallization (IDMPC2024), 19th September 2024, Yamagata (Japan)

Zakarya Baouch, Andrea Costanzo, Claire Mclroy, **D. Cavallo**, *Some factors affecting interlayer weld strength in material extrusion 3D printed amorphous and semicrystalline polymers*, International Conference on Welding and Related Technologies 2024, 10th October 2024, Yaremche (Ukraine)

2025

Zakarya Baouch, Katalée Jariyavidyanont, Lisa Moni, Leire Sangroniz, Elmar Pösel, Alejandro Müller, René Androsch, **D. Cavallo**, *Polymorphic crystallization of thermoplastic polyurethanes*, 11th International Symposium on Engineering Plastics (EP2025), 3rd -6th August 2025, Harbin (China)

SCIENTIFIC RESPONSIBILITY FOR RESEARCH PROJECTS ACCEPTED FOR FUNDING ON THE BASIS OF COMPETITIVE CALLS INVOLVING PEER REVIEW

National research projects

2023

Role: Principal Investigator

Project scheme: Progetti di ricerca di rilevante interesse nazionale (PRIN 2022)

Project title: "0DeF3 – Zero-defect Fused Filament Fabrication"

Funding agency: MUR – Ministero Università e Ricerca

Length: 01/10/2023-01/10/2025

European research projects

2020

Role: Research unit leader

Project scheme: H2020-MSCA-EID

Project title: "REPOL – Characterization, compatibilization, processing and properties of REcycled POLyolefins"

Funding agency: European Research Council

Length: 01/01/2020-31/12/2024

2018

Role: Partner e work package leader

Project scheme: H2020-MSCA-RISE

Project title: "BIODEST – Synthesis, characterization, structure and properties of novel BIODEgradable POLyesters"

Funding agency: European Research Council

Length: 01/01/2018-31/12/2021

International research projects

2024

Role: Member of the local research unit

Project scheme: INTERREG ITALIA- FRANCIA MARITTIMO 2021-2027

Project title: "PLASTRON – riuso della PLAstica dal mare usando la manifattura additiva come Strategia per le sfide delle filiere del TuRismO e la resilieNza delle imprese"

Funding agency: Fondo Europeo per lo Sviluppo Regionale

Length: 01/01/2024-31/12/2026

2019

Role: Co-proposer

Project scheme: Royal Exchange Scheme Grant

Project title: "Flexible vs. stiff polymers for 3D printing: understanding crystallization for enhanced properties"

Funding agency: Royal Society

Length: 01/01/2019-01/01/2020

2018

Role: Project leader

Project scheme: DPI- Polyolefin Technology Area

Project title: "PROFIT – augment the macroscopic PROperties of i-PP composites by controlling the microscopic Fiber-matrix Interactions via Transcrystallization"

Funding agency: Dutch Polymer Institute

Length: 01/05/2018-01/05/2021

University research projects

2024

Role: Principal investigator

Project Scheme: Curiosity driven

Project title: i-SPOOL: in-situ optical detection of polymer crystallization during 3D printing

Funding agency: University of Genoa

Length: 01/11/2022-01/11/2024

Projects for synchrotron beamtimes

2007-2025

Part of the research activity is carried out through experiments (primarily X-ray diffraction) at international synchrotron radiation laboratories. Access to these facilities is granted by dedicated scientific committees, following submission of the project idea. **Winner of over 60 projects at various European synchrotrons** (ESRF - Grenoble; SOLEIL - Paris; DESY - Hamburg; BESSY - Berlin).

2011-2013

Post-doc researcher at Eindhoven University of Technology, Department of Mechanical Engineering, affiliated to Dutch Polymer Institute (Eindhoven, The Netherlands)

2011

Visiting scientist at CSIC, Institute of Polymer Science and Technology (Madrid, Spain)

2008-2009

Visiting Ph.D. at Eindhoven University of Technology, Department of Mechanical Engineering (Eindhoven, The Netherlands)

2018-2025

Member of the “Editorial Advisory Board” and later **“Academic Editor”** of the scientific journal “Polymer Crystallization” (Wiley-Hindawi)

2018-2025

Member of the “International Advisory Board” of the scientific journal “Chinese Journal of Polymer Science” (Springer)

2018-2025

Member of the “Editorial Board-Section Polymer Physics and Theory” of the scientific journal “Polymers” (MDPI)

Scientific Advisory Board member of the following conferences:

2024

International Discussion Meeting on Polymer Crystallization (Yamagata, Japan)

2019

International Discussion Meeting on Polymer Crystallization (San Sebastian, Spain)

2019

2nd Journal of Thermal Analysis and Calorimetry Conference (Budapest, Hungary)

2019

International Workshop on Polymeric Materials (Setif, Algeria)

Guest Editor of some Special Issues related to polymer science:

2020

Polymer Crystallization Research in Europe (Polymer Crystallization, Wiley)

2021

Special Issue to honor the achievements of Prof. Alejandro Muller in Polymer Crystallization (Polymers, MDPI)

PRIZES AND ACCOLADES FOR SCIENTIFIC ACTIVITY, INCLUDING MEMBERSHIP OF ACADEMIES

2023

Chinese Academy of Science President's International Fellowship Initiative for Visiting Scientist 2023: Winner of a fellowship for a visiting scientist position at Institute of Chemistry of the Chinese Academy of Sciences of Beijing, in the group "Polymer Morphology and Processing" (Prof. Dujin Wang)

2017

Recipient of the "Fondo di Finanziamento per le Attività di Ricerca di Base" from MIUR, thanks to the publication achievements

2012

Best poster prize category "Polymer Physics&Theory" at the conference "Dutch Polymers Days 2012 (Lunteren, NL)" for the contribution: D. Cavallo, T.B. van Erp, G.W.M. Peters, L.E. Govaert, Mechanical performance of i-PP: the effect of cooling rate.

2012

Sponsorship to the conference registration fee: "4th International Conference on Polyolefin Characterization", (The Woodlands, Texas, USA) from Dutch Polymer Insititute

PARTICIPATION IN THE CREATION OF NEW BUSINESS ENTITIES (SPIN-OFFS), DEVELOPMENT, USE AND COMMERCIALISATION OF ACADEMIC PATENTS

2017-2025

Principal investigator of over 29 **scientific research projects for companies** in the polymer materials or chemical/engineering sectors.

2021

Patent PCT/IB2022/060579 Process for the production of polymethylmethacrylate comprising gadolinium oxide nanoparticles in high concentration
Inventors: B. Bottino, G. Testera, A. Caminata, M. Pallavicini, A. Marini, D. Peddis, S. Slimani, D. Cavallo, S. Vicini
Patent holders: INFN e UniGE

OTHER EXPERIENCES

2013-2025

Supervisor of 7 PhD theses, 30 Master's theses and 13 Bachelor's theses

2017-2025

Supervisor of the activity of 8 scholarship holders or research fellows, who worked on academic and industrial projects

2025

Member of the organizing committee for the workshop:

"Material extrusion 3d printing: from fundamentals to applications" in the framework of the project PRIN2022 "Zero defect Fused Filament Fabrication", held in Genoa the 25th July 2025.

The day featured 12 speakers from academia and industry and over 80 attendees, including PhD and Master's students.

[2023](#)

Organizer of the short PhD school:

“Short school on Polymer rheology and processing for mechanical recycling” in the framework of the project Marie-Curie EID “REPOL”, held Genoa the 13th April 2023.

The day featured four national and international speakers and the presence of over 50 doctoral and master's degree students.

[2010, 2012, 2014, 2018](#)

Member of the organizing committee of international scientific conferences:

“Polymer Crystallization Under Conditions Relevant to Processing” (2010, 2012)

“Recent advances and new perspectives in polymer crystallization” (2014)

“Polymer Crystallization” (2018)

These conferences, held in Genoa, have provided important opportunities for researchers from around the world to meet and discuss polymer crystallization. The various editions have seen the participation of over 70 scientists, mostly from abroad (about 80% of the total), from both academic and industrial laboratories.