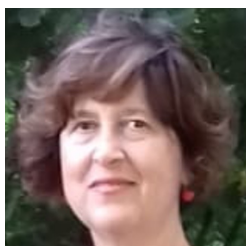




UNIVERSITÀ DEGLI STUDI DI MILANO

DIPARTIMENTO DI CHIMICA



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Office hours by appointment.

PROFESSIONAL EXPERIENCE (January 2024)

Role

2011–present time Full Professor in Industrial Chemistry, University of Milan

Previous appointments and education

2001-2011 Associate Professor in Industrial Chemistry, University of Milan

2001 “*Docent*”- in Polymer Technology at the Kunglig Tekniska Högskolan – KTH, Stockholm, Department of Polymer Technology. Appointment by an international jury.

1998-2001 Visiting Professor at KTH, Department of Polymer Technology, Stockholm, Professor Ann-Christine Albertsson.

1986-1998 Assistant Professor in Applied Chemistry, University of Brescia (I).

1985-1986 Post-doc Fellow, University of Brescia, supervisor Prof. Paolo Ferruti. Industrial research contract on the development of PVP oligomers.

1983-1984 Post-doc, University of Pisa, Prof. Francesco Ciardelli. Industrial research contract on the development of high solid paintings.

1983 Doctor degree (laurea), University of Pisa. Proff. Mauro Aglietto and Giacomo Ruggeri. Thesis title: “Synthesis of polymeric catalysts”.

Other stages abroad

June 1991

July 1990

December 1988

University of Nottingham (UK), in the frame of a "Brite Euram" EU. Professor Steen S. Davis

Gent Universität, in the frame of a "Brite Euram" EU. Professor Etienne Schacht.

Macrochem Co. – Wellesley, Massachusetts (USA), in the frame of an industrial research contract on the scale up of PVP oligomers. Carlos Samour, PhD.

October 1988

University of Keele, development of biocompatible polymers in the frame of a research programme sponsored by British Council. Professor Ruth Duncan.

RESEARCH INTERESTS

- Biodegradable and biocompatible polymers for applications in nanomedicine: a) self-assembling polymers as drug carriers; c) decoration of inorganic nanoparticles for antitumor therapy; d) as antivirale and antimalarial agents; e) as nanovectors for cellular imaging.
- Bioinspired polymers with flame-retardant activity.
- Multifunctional composite resins for the absorption of inorganic and organic pollutants from wastewater.
- Composite hydrogels as scaffolds for tissue regeneration.
- Polymers from renewable sources.

SUMMARY OF SCIENTIFIC OUTPUT (Scopus, Jan. 2024, Auth. ID:7003897117, orcid: 0000-0002-6402-2650)

Total number of research documents: 173

Total number of citations: 3788

h-index: 36

Published book chapters: 3 (+ 3 non indexed by Web of Science)

Patents: 47, from 16 original applications, 8 of which extended internationally by companies.

In addition: Encyclopedia contribution: 2 upon invitation, one of which upon invitation by UNESCO.

Presentations as invited speaker at international congresses: 23 (11 keynotes)

RECOGNITION BY PEERS

- External *referee* of Start Grant and Consolidator Applications, European Research Council (ERC) calls, 2009-2016.
- *Referee* for many peer-reviewed Journals in the field of polymer science, particularly polymers for biotechnological applications (*e.g.* Biomacromolecules, Advanced Biomaterials, Macromolecular Bioscience, Polymer etc.).

ORGANIZATION OF CONGRESSES AND SUMMER SCHOOLS

| | |
|-----------------------|---|
| 7-9 June 2023 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2023), Milan. |
| 19-21 June 2022 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2022), Milan. |
| 5-7 July 2021 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2021), virtual edition |
| 15-17 July 2020 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2020), virtual edition |
| 11 – 13 March 2019 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2019), Milan |
| 14 - 16 February 2018 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2018), Milan. |
| 15 - 16 February 2017 | Chair of the international congress “ <i>Milan Polymer Days</i> ” (MIPOL2017), Milan. |
| 14 – 19 May 2017 | Scientific committee – 8th European Summer School on “ <i>Transport phenomena in polymers and hybrid materials</i> ”, Gargnano, Italy. |
| 21 - 25 May 2017 | Scientific committee - Europolymer Conference 2017, “ <i>Polymers and additive manufacturing: from fundamentals to applications</i> ”, Gargnano, Italy. |
| 22 - 26 May 2016 | Scientific committee - Europolymer Conference 2016, “ <i>Block copolymers for nanotechnology applications</i> ”, Gargnano, Italy. |

2 - 6 May 2016

Board - XXXVII Convegno-Scuola AIM - Caratterizzazione di materiali polimerici: tecniche per polimeri fusi e allo stato solido, Gargnano, Italy.

TEACHING EXPERIENCE

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|---------------------|---|
| 2014 – present time | <p>“<i>Macromolecular chemistry/Lab</i>”, 6 credits, Bachelor degree in Industrial Chemistry. “<i>Polymer Chemistry</i>”, 6 credits, Master Degree in Industrial Chemistry, course held in English. PhD course in Industrial Chemistry.</p> |
| 2010 -2014 | <p>“<i>Polymer Chemistry/Lab</i>”, 6+3 credits, Master Degree in Industrial Chemistry. “<i>Bionanotecnologie</i>”, 3 credits, Master Degree in Industrial in Industrial Biotechnology.</p> |
| 2001-2013 | “ <i>Industrial Chemistry/Lab</i> ”, 6+3 credits, Bachelor degree in Industrial Chemistry. |
| 2001 – 2010 | “Research Doctorate School in BIOMolecular Sciences (BIOS)”, University of Pisa. |
| 2016 | Member of the committee of the “PhD School in Medical Nanotechnology”, University of Milan. |
| 2020 | PhD course in Industrial Chemistry, 2 cfu, “ <i>Fundamentals of polymers science – polymer degradation and stability</i> ” |
| 2021 | PhD course in Industrial Chemistry, 1 CFU, “Plastics, myths and truths of an environmental emergency” |
| 2004-2008 | Coordinator of the PhD course in Industrial Chemistry, 1 CFU, “Polymers for the protection of cultural heritage” |
| 1998 – 2001 | “ <i>Polymer Teknologi/Lab</i> ”, 2+4 credits, Master Degree in Polymer Teknologi, KTH, Stockholm |
| 1990 - 1997 | “ <i>Polymeric biomaterials</i> ”, 1 credit, Master Degree in Bioteknologi, KTH, Stockholm “ <i>Polymer Chemistry</i> ” and “ <i>Technology of materials and applied chemistry</i> ” Master degree courses in Mechanical Engineering and Civil Engineering, University of Brescia (I). |

Supervisor of PhD thesis or specialization schools

| | |
|------------------------|--|
| 2008, 2016, 2019, 2022 | Supervisor of PhD thesis in Industrial Chemistry, University of Milan. |
| 2004, 2007, 2008, 2002 | Supervisor of PhD thesis Bios School, University of Pisa. Supervisor of PhD thesis in Polymer Teknologi, KTH Stockholm. |
| 2002 | Supervisor of PhD thesis – intermediate level, (“ <i>Licentiat</i> ”), KTH Stockholm. |
| 2001 e 2002 1997 | Thesis supervisor for the specialization school in Polymer Science “Giulio Natta”, Brescia, I. |

CURRENT INSTITUTIONAL RESPONSIBILITIES

- Member of the National Scientific Habilitation Committee (MUR) for the Industrial Chemistry area.
- Member of the advisory committee of the Department of Chemistry 2014-2017, 2021- present time.
- Member of the board of the PhD course in Industrial Chemistry, University of Milan, since 2010.

FUNDED GRANTS IN THE PAST 5 YEARS

| Project title | Funding source | Period | Role |
|---|--------------------|-------------------|------------------------|
| Eco-friendly, washing-durable FLAME-RETARDANT finishing for cotton fabrics by COvalent grafting of α -amino acid-derived polyamidoamines (FLARECO) | MUR | 2022 | Coordinator |
| Multifunctional polymers for special applications | INSTM | 2018-present time | Scientific Responsible |
| Biodegradable antibacterial polymers for water purification | Industrial project | 2018 | Scientific Responsible |
| Amphoteric polyamidoamines as innovative tools to selectively direct antimalarial drugs towards <i>Plasmodium</i> -infected red blood cells | Fondazione Cariplo | 2014-2017 | Co-ordinator |

PREVIOUSLY FUNDED PROJECTS

Co-ordinator or scientific responsible of European projects

- 2005 Co-ordinator of the three-year FP6-2005 STREP project: "Development of an innovative, cost-effective technology to produce halogen-free, high-performance flame retarded polyolefins". University of Milan.
- 2005 Scientific responsible of the FP6-2003-SME-CRAFT industrial project: "Customised nanocomposites based on rubber matrices for high demand applications". University of Milan.
- 1998 Scientific co-responsible of the Brite Euram project: "Integration of conventional polymers with ceramic nanoparticles to produce structural composites with enhanced performances", KTH Stockholm.
- 1998 Scientific co-responsible of the FAIR project: "Biodegradable polyesters from 1,3-propanediol and succinate produced by fermentation of re-growing resources", KTH Stockholm.
- 1998 Scientific co-responsible of the Brite Euram project: "Biocompatible flexible polymer alloys based on polyesters from renewable resources for mass-consumer application involving contact with human fluids and tissues", KTH Stockholm.

Scientific responsible of several **PRIN (Italian University and R&D ministry)** projects (or ex 40%): years **1994, 1995, 1996 e 2002**.

National Research Council (CNR): scientific responsible of two PF-MSTA projects in **1997**.

INSTM: two-year "PRISMA" project, **2004**. Progetto INSTM – Regione Lombardia two-year project, **2011**. Three-year Nutek (SE) project (**1999**) and two-year TFR (SE) project (**2000**).

INDUSTRIAL PROJECTS

- 2023 6-month project funded by PROMETEON
- 2018 6-month project funded by NIPPON GOSHEI
- 2014 12-month project funded by TINTORIA JACCHETTI on the "Valorization of sericine wastes"
- 2004 6-month project funded by FRESENIUS HEMOCARE (MO) "Synthesis of hydrophilic / hydrophobic graft copolymers as hydrophilic coatings of filters based on polyethylene terephthalate".

- 2002 6-month project funded by MEDIOLANUM FARMACEUTICI (MI) "Synthesis of hydrogels based on polyvinylpyrrolidone-PLGA copolymers".
- 1997 12-month project funded by LASTRA (BS), "Development of new materials as coating plate for offset printing"
- 1996 6-month project funded by VIDEOCOLOR (RM), "Synthesis and characterization of materials based on polyvinylpyrrolidone"

RECENT PUBLICATIONS (2021-January 2024)

1. J. Alongi, R. Aad, P. Ferruti, E. Ranucci. Enhancing the flame resistance of cotton by exploiting the interaction between calcium chloride and an aspartic acid-derived polyamidoamine. *Cellulose* **2024**, 31, 623; DOI: 10.1007/s10570-023-05599-6.
2. J. Alongi, R. Aad, A. Manfredi, F. Carosio, P. Ferruti, E. Ranucci. Use of calcium chloride to enhance the efficacy of polyamidoamines as flame retardants for cotton. *Polym. Degradat. Stabil.* **2023**, 215, 110428; DOI: 10.1016/j.polymdegradstab.2023.110428.
3. A. Beduini, A. Domenico, F. Carosio, A. Manfredi, E. Ranucci, P. Ferruti, J. Alongi. On the suitability of phosphonate-containing polyamidoamines as cotton flame retardants. *Polymers* **2023**, 15, Article number 1869; DOI: 10.3390/polym15081869.
4. P. Ferruti, J. Alongi, E. Barabani, A. Manfredi, E. Ranucci. Silk/polyamidoamine membranes for removing chromium vi from water. *Polymers* **2023**, 15, Article number 1871; DOI: 10.3390/polym15081871.
5. V. Pifferi, E. Ferrari, A. Manfredi, P. Ferruti, J. Alongi, E. Ranucci, L. Falciola. Nanosponges by the oxo-Michael polyaddition of cyclodextrins as sorbents of water pollutants: the o-toluidine case. *Environ. Sci. Pollut. Res.* **2023**, 30, 6592; DOI: 10.1007/s11356-022-22501-2.
6. F. Maggi, A. Manfredi, F. Carosio, L. Maddalena, J. Alongi, P. Ferruti, E. Ranucci. Toughening polyamidoamine hydrogels through covalent grafting of short silk fibers. *Molecules*, **2022**, 27, 7808; DOI 10.3390/molecules27227808.
7. N. Mauro, G. Giammona, E. Ranucci, P. Ferruti. Synthesis of biocompatible and biodegradable polyamidoamines microgels via a simple and reliable statistical approach. *Materials*, **2022**, 15, 7280; DOI: 10.3390/ma15207280.
8. S. Treccani, A. Manfredi, G. Raffaini, E. Ranucci, L-Arginine-derived polyamidoamine oligomers bearing at both ends β -cyclodextrin units as pH-sensitive curcumin carriers. *Polymers*, **2022**, 14, 3193; DOI: 10.3390/polym14153193.
9. J. Alongi, A. Costantini, P. Ferruti, E. Ranucci. Evaluation of the eco-compatibility of polyamidoamines by means of seed germination test. *Polym. Degradat. Stabil.* **2022**, 197, 109854; DOI: 10.1016/j.polymdegradstab.2022.109854.
10. P. Arosio, D. Cicolari, A. Manfredi, F. Orsini, A. Lascialfari, E. Ranucci, P. Ferruti, D. Maggioni. Nanosized t1 mri contrast agent based on a polyamidoamine as multidentate Gd ligand. *Molecules* **2022**, 27, 174; DOI: 10.3390/molecules27010174.
11. C. Forte, J. Alongi, A. Beduini, S. Borsacchi, L. Calucci, F. Carosio, P. Ferruti, E. Ranucci. The thermo-oxidative behavior of cotton coated with an intumescent flame retardant glycine-derived polyamidoamine: A multi-technique study. *Polymers* **2021**, 13, 4382; DOI: 10.3390/polym13244382.
12. A. Beduini, F. Carosio, P. Ferruti, E. Ranucci, J. Alongi Polyamidoamines Derived from Natural α -Amino Acids as Effective Flame Retardants for Cotton. *Polymers*, **2021**, 13, 3714, DOI:10.3390/polym13213714.
13. M. Marcioni, J. Alongi, E. Ranucci, M. Malinconico, P. Laurienzo, P. Ferruti, A. Manfredi "Semi-crystalline hydrophobic polyamidoamines: a new family of technological materials?" *Polymers*, **2021**, 13, 1018, DOI:103390/polym13071018.