

Prof. Stefano Menichetti

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Education

1987: Full march marks and honour degree in Chemistry, University of Florence.

Work

- 2005-present: Full Professor of Organic Chemistry, Department of Chemistry 'U. Schiff', University of Florence;
- 2002-2005: Associated Professor of Organic Chemistry, Department of Organic Chemistry 'U. Schiff', University of Florence;
- 1999-2002: Associate Professor of Organic Chemistry, Department of Organic and Biological Chemistry, University of Messina;
- 1991: Postdoctoral Fellow, Department of Chemistry, University of Sheffield (UK) with C. J. M. Stirling;
- 1990-1999: Lecturer in Organic Chemistry, Department of Organic Chemistry 'U. Schiff' University of Florence-Italy;
- 1988-1990: Chemistry teacher, secondary school.
- 1987-1988: Militar service.

Teaching

Basic and advanced organic chemistry courses (2/3 for academic year) since 1994. Supervisor of more than 50 undergraduate and 9 PhD students.

Institutional responsibilities

- 2004-2010: Department delegate of the University of Florence Scientific Library Committee;
- 2010-2012: Department delegate and Presidente of the University of Florence Scientific Library Committee;
- 2010-2014: Responsible for VQR evaluation of the Department of Chemistry 'U. Schiff', University of Florence;
- 2019-2022: Member of the scientific committee of the Interdivisional Group of Organometallic Chemistry (GICO) of SCI.
- 2015-2022: President of the academic 5 years course 'Chimica e Tecnologia Farmaceutiche - (CTF)'.
- 2014-2021: Member of the Department of Chemistry 'U. Schiff' guidance and self-assessment committee.
- 2020 – present: Member of the board of the PhD in Chemical Sciences University of Florence.
- 2023 – present: Direttore of the Department of Chemistry 'Ugo Schiff' University of Florence.

Research interests

Stereocontrolled, catalytic and eco-friendly original synthetic methodologies, and their applications to the preparation of relevant compounds in medicinal chemistry and material science, are the targets of modern organic chemistry and the goals of my research group. Our research is focused on sulfur mediated stereoselective synthesis, hetero Diels-Alder reactions, preparation of new molecular bio-inspired antioxidants as well as nano-supported, and macromolecular antioxidants. In the last years our research interest has focused to the synthesis and properties of [n]heterohelicenes. Recent applications of our ability in "building-up molecules" include: 1) Design and synthesis of bioinspired chalcogen containing (poly)phenolic antioxidants able to exert a potent multi-defence antiradical activity; 2) Design and synthesis of innovative macromolecular additives suitable for the preparation of long lasting polyolefin materials with no risk of contamination in food, pharmaceutical, and biomedical packaging applications; 3) Original access to heterocycles of pharmacological relevance and preparation of new drug-conjugates for cancer targeted diagnosis and therapy; 4) Development of original procedures for the assembly of [n]heterohelicenes and helical shaped derivatives and study of their electronic and chiro optical properties; 5) Synthesis of a new

family of geometrically stable [4]heterohelicenes and the corresponding enantiopure radical cations with applications as redox switching and spin filters.

Ongoing collaborations

Antioxidants

- Prof. Jacek Ścianowski, Nicolaus Copernicus University in Torun, (Poland);
- Proff. Luca Valgimigli, and Riccardo Amorati, Department of Organic Chemistry "G. Ciamician", University of Bologna, (Italy);
- Dr. Paola Stagnaro, Institute of Chemical Sciences and Technologies (SCITEC) "G. Natta", Italian National Research Council, Genoa (Italy);
- Prof. Enrico Marcantoni, School of Chemistry, University of Camerino, (Italy);
- Dr. Teresa Iantomasi, Department of Biomedical, Experimental and Clinical Sciences "M. Serio", University of Florence (Italy).

Medicinal chemistry

- Proff. Luisa Bracci, and Chiara Falciani Department of Molecular Biology, University of Siena, (Italy);
- Proff. Piero Procacci, Gabriella Caminati, and Marco Fragai, Department of Organic Chemistry 'U. Schiff', University of Florence (Italy);

Molecular and macromolecular heterohelicenes

- Prof. Giovanna Longhi, University of Brescia (Italy);
- Prof. Claudio Villani, University 'La Sapienza', Roma, (Italy);
- Proff. Roberta Sessoli, and Matteo Mannini, Department of Organic Chemistry 'U. Schiff', University of Florence (Italy);
- Prof. Ron Naaman, Weizmann Institute of Science, Tel Aviv (Israel)

Invited Lectures (2018-2024)

1. XVIII International Symposium on Selected Problems of Chemistry of Acyclic and Cyclic Heteroorganic Compounds, Czestochowa, Poland, November 22, 2018: "Synthesis and selected properties of heterohelicenes: A new twist on our chemistry".
2. 21th International Symposium Advanced in the Chemistry of Heteroorganic Compounds, Lodz, Poland, November 23, 2018: "Synthesis and selected properties of heterohelicenes: A new twist on our chemistry".
3. 14th International Conference on the Chemistry of Selenium and Tellurium (ICCST-14), Cagliari, Italy, June 3-7, 2019: "Selenium nucleophiles and Sulfur electrophiles: An exciting synthetic combination"
4. 20th Symposium "Scientific Days of the Consortium CINMPIS" Messina 7-8 september 2021: "Synthesis of [n]heterohelicenes: A modern twist in our chemistry".
5. XIIIth International Mini-Symposium 'Cycloaddition Reactions – Theory and Practice' The Jena-Lodz 'Institutspartnerschaft' Workshop. December 10, 2021: "Synthesis of thia-bridged triarylamine[4]-heterohelicenes: A modern twist in our chemistry".
6. 29th International Symposium on the Organic Chemistry of Sulfur – ISOCS29 – Guelph –Canada July 17-22, 2022 "Thia-Bridged Triarylamine[4]Helicenes: Sulfur Synergism for Stereoselective Synthesis and Smart Materials".
7. 10th Workshop of the Selenium and Sulfur Redox and Catalysis Network - WSeS-10 - November 25-26 2022, Niterói, Rio de Janeiro, Brazil: "Selenium nucleophiles and Sulfur electrophiles: An exciting synthetic combination".
8. 15th International Conference on the Chemistry of Selenium and Tellurium - ICCST-15 - November 28 - December 02, 2022 - Florianópolis, Brazil "Chalcogens synergism in organic synthesis: A case study"
9. 14th Spanish-Italian Symposium on Organic Chemistry (SISOC-XIV) held from the 25th to the 27th of February 2024 in Torino (Italy). "Thia-Bridged Triarylamines: A Peculiar Example Of Helical Shaped Molecules"

Bibliometrics/scientific activity/awards

More than 165 publications on peer review international journals and 3 Patents. Last ten years average IF = 4.13. Scopus H index = 33, total citations = 3400. Google Scholar H index = 34, total citations = 3730.

Member of the Editorial Board of Antioxidants, Member of the Editorial Board of Bioconjugate Chemistry.

Referee for Organic Letters, Journal of Organic Chemistry, Chemistry a European Journal, Advanced in Synthesis and Catalysis, Organic and Biomolecular Chemistry, European Journal of Organic Chemistry, Synthesis, Antioxidants, Bioconjugate Chemistry, and many others.

2012-present: Member of the Scientific International Committee of the International Symposium of the Organic Chemistry of Sulfur (ISOCS).

Winner of the CINMPIS (Consorzio Interuniversitario Nazionale di ricerca in Metodologie e Processi Innovativi di Sintesi) 2020 award for 'Innovation in Organic Synthesis'.

Main Research Grants and awards since 2010

- 2025-2027: National grant MUR PRIN2022 project "Smart [n]heterohelicenes: enantioselective synthesis, circularly polarized luminescence, redox switching, and functionalized polymers" - SMART HELIX (80.000 €)
- 2021-2023: Grant awarded by WisTa Laboratories Ltd. "*Investigation and design of novel small molecules for the treatment of Alzheimer's Disease*" (60.000 €);
- 2020-2022: Grant awarded by Regione Toscana "*Pancreas tumor early detection: sulfated glycans as new markers: PANCREAS ED*" (76.000 €);
- 2020: Grant awarded by Eni SpA "*Politionati e studio di stabilità*" (58.000 €);
- 2019: Grant awarded by Eni SpA: "*Sintesi di politionati a diverso numero di atomi di zolfo*" (24.000 €);
- 2017-2019: Grant awarded by Ente Cassa di Risparmio di Firenze "*New therapeutic perspectives for osteoporosis: Natural and synthetic bio-inspired polyphenolic antioxidants in the prevention and treatment of osteoporosis*" (10.000 €);
- 2016-2017: Grant awarded by Istituto Toscano Tumori (ITT) "*Exploiting cancer selectivity of neurotensin branched peptides. Validation and preclinical analysis of selective cancer theranostics and nanoparticles*" (65.000 €);
- 2014-2015: Grant awarded by Ente Cassa di Risparmio di Firenze: "*Sintesi di nuovi derivati solforati e selenati derivati da polifenoli naturali, anche estratti da sanse e acque di vegetazioni olearie, per il trattamento di patologie associate a stress ossidativi*" (9.000 €);
- 2013-2014: Grant awarded by Boehringer Ingelheim Pharmaceuticals, Inc. "*Development of parallel synthesis amenable synthetic methodologies*" (90.000 €);
- 2012-2014: National grant MIUR PRIN2010-2011 project "*Oxidative and free radical processes: new aspects and applications for developing melanin-inspired biopolymers and antioxidants of biomedical and technological relevance - PROxi*" cod. 2010PFLRJR_007 (83.000 €);
- 2010-2011: Grant awarded by CARIPOLO "*Polymeric Additives with Covalently Bonded Stabilizers (PACk-BOSs): Design and preparation of lasting polyolefin films with no risk of food contamination and degradation*" (70.000 €).