CURRICULUM VITAE

Personal Information

Giacomo Filippini
Date of birth: **23 July 1989**, **Fossombrone (PU)**, **Italy**.

Current Position (October 2023-present): ***Assistant Professor*** (Ricercatore a tempo determinato di tipo B - RTDB) at **Università degli Studi di Trieste**, Trieste (Italy).
E-mail: gfilippini@units.it.
Account: @GiacomoFilippi1; Linkedin: [here].

Areas of Expertise

Organic Chemistry ● Photochemistry ● Asymmetric Catalysis ● Organocatalysis ● Radical Chemistry ● Materials Science ● Flow Chemistry

Research Overview

My research activity aims at designing and developing novel catalytic organic transformations which address unsolved problems in synthetic chemistry. The final goal is therefore the production of effective, inexpensive and safe catalytic systems that will find widespread use in modern organic synthesis.

1. Photocatalysis with Aromatic Compounds: Recently, aromatic compounds have emerged as a reliable class of metal-free photoredox catalysts. Indeed, the great structural variety of these compounds combined with the easy fine-tuning of their electronic properties has unlocked new possibilities for the generation of reactive intermediates under mild operative conditions.

2. Carbon Dots as Nano-Organocatalysts: Carbon nanodots (CDs) are photo-active carbon-based nanoparticles with sizes below 10 nm. Generally, CDs consist of carbon cores that are surrounded by shells containing numerous polar groups such as carboxylic acids, alcohols, and amines. Our research is focused on the study of CDs synthesis, characterization and modification for their use as (photo)catalysts in organic chemistry.

3. Catalysis Based on 2D-Materials: Metal-free 2D nanomaterials possess high appeal due to their improved cost-effectiveness and lower toxicity with respect to many inorganic structures. The outstanding electronic characteristics of some metal-free 2D semiconductors have projected them into the world of organic synthesis, where they can function as catalysts to drive the sustainable synthesis of high-value organic molecules.

Main Professional Experiences

● October 2023-present: ***Assistant Professor*** (Ricercatore a tempo determinato di tipo B - RTDB) at **Università degli Studi di Trieste**, Trieste (Italy). Web site: [here].

● April 2021-September 2023: ***Research Fellow*** (Ricercatore a tempo determinato di tipo A - RTDA) at **Università degli Studi di Trieste**, Trieste (Italy). This position was framed within the European research project ERC-EDOTS-885323-20.
supervisor: Professor Maurizio Prato**.** Web site: [here].

● November 2017-March 2021: ***Postdoctoral Researcher*** (European Research Project: PRATO-GRAPHENECORE2-H2020-785219) at CENMAT (Center of Excellence for Nanostructured Materials) of the **Università degli Studi di Trieste**, Trieste (Italy);
supervisor: Professor Maurizio Prato**.** Web site: [here].
- *Acquired knowledge:* Advanced formation in materials science, photocatalysis and nano-organocatalysis.
- *Research training:* During the period spent in the research laboratory of Professor Maurizio Prato, I worked on the development of novel catalytic organic transformations. In particular, I was involved in the design, production and characterization of new carbon-based nano-organocatalytic systems, namely carbon nitrides (see *ACS Nano*, **2021**, *15*, 3621-3630) and carbon dots (see *ACS Catalysis*, **2020**, *10*, 8090-8105). Within the Prato's group, I had the opportunity to learn how to prepare, purify and characterize these nitrogen-containing nanomaterials. In particular, these materials have been efficiently used to drive relevant organic reactions, including enantioselective transformations, under mild operative conditions (see *Sci. Adv.*, **2020**, *6*, eabc9923, *Chem*, **2020**, *6*, 3022-3037 and *ChemSusChem*, **2023**, *16*, e202202399).

Education

● November 2013-October 2017: ***Doctorate***, graduated *cum laude*.
Institute of Chemical Research of Catalonia (***ICIQ***), Tarragona (Spain);
supervisor: Professor Paolo Melchiorre. Web site: [here].
- *Defence Date*: 17 October 2017.
- *Graduation Date*: 20 November 2018 (2017-2018 academic year).
- *Acquired knowledge*: Advanced formation in organic chemistry, organocatalysis and photochemistry.
- *Research training*: During my doctoral studies in the laboratory of Professor Paolo Melchiorre, I had the opportunity to further expand my knowledge in organic chemistry. The main scientific objective of my doctoral research was to employ and combine two powerful fields of molecule activation, photochemistry and organocatalysis. Initially, I focused on the development of a metal-free photochemical strategy for the direct aromatic perfluoroalkylation of substituted phenols. In the second part of my PhD work, I was involved in the development of a photochemical enantioselective enamine mediated α-alkylation of aldehydes with α-iodo sulfones. In both transformations, in situ formed intermediates triggered the formation, after light absorption, of reactive electron-poor radicals under mild conditions, and without the need of external photocatalysts. The obtained scientific results were published (see *Tetrahedron*, **2015**, *71*, 4535-4542 and *Angew. Chem. Int. Ed.*, **2017**, *56,* 4447-4451).

● February 2015-June 2015: ***Visiting Doctorate Student***.
Institute of Chemistry-University of Graz (Austria);
supervisor: Professor Oliver Kappe. Web site: [here].
- *Acquired knowledge*: Base formation of flow-chemistry.
- *Research training*: During the four month stay in the laboratory of Professor Oliver Kappe, under the supervision of Professor David Cantillo, I was involved in the development of a photo-organocatalytic transformation under flow conditions. This collaboration provided me the possibility to learn a powerful synthetic methodology - flow chemistry - that has found many applications also in industrial processes.

● October 2011-October 2013: ***Master Degree***, graduated with honors (110 *cum laude*). Dipartimento di Chimica Industriale "Toso Montanari" - **Università di Bologna** (Italy);

supervisor: Professor Paolo Righi. Web site: [here].

- *Graduation Date*: 18 October 2013 (2012-2013 academic year).

- *Acquired knowledge*: Advanced formation in industrial chemistry.

- *Research training*: During the six month stay in the laboratory of Professor Paolo Righi, under the supervision of Professor Giorgio Bencivenni, I studied the reactivity of α,β-unsaturated ketones using aminocatalytic strategies. Specifically, an atroposelective Friedel-Crafts-type reaction between properly functionalized inden-1-ones and 2-naphthols was developed. The obtained scientific results were published (see *Org. Lett.*, **2017**, *19*, 6692-6695).

● October 2008-October 2011: ***Bachelor Degree***, graduated with honors (110 *cum laude*). Facoltà di Chimica Industriale, Dipartimento di Chimica Organica "A. Mangini" - **Università di Bologna** (Italy);
supervisor: Professor Alfredo Ricci. Web site: [here].
- *Graduation Date*: 14 October 2011 (2010-2011 academic year).
- *Acquired knowledge:* Base formation of chemistry, in particular organic chemistry and materials science.

- *Research training:* During the period spent in the research laboratory of Professor Alfredo Ricci, under the supervision of Professor Luca Bernardi, I was involved in the development of enantioselective catalytic strategies promoted by small chiral organic molecules. Specifically, I was involved in the development of the first example of an organocatalytic asymmetric Wittig reaction. The obtained scientific results were published (see *Synlett*, **2011**, *18*, 2745-2749).

● September 2003-July 2008: ***Diploma***, Mark: 100/100, **ITIS** (**E. Mattei**) of Urbino (Italy).
- *Acquired knowledge:* Base formation of chemistry. Web site: [here].

Awards and Fellowships

2011-2013: *Merit Scolarship* "Toso Montanari", Università di Bologna, Italy. This fellowship is granted to the student with the best marks.
2014: "*XXIV Rotary Award Guido Paolucci"* as the best student of the School of Sciences at the Università di Bologna in the school year 2012-2013, Bologna (Italy).
2014-2017: *Merit Scolarship* "Severo Ochoa Excellence Accreditation 2014-2018"(Spain).
2016: Awarded as one of the best speaker at "3rd US-Spain Symposium on Asymmetric Catalysis and Chemical Synthesis", Bilbao (Spain).
2022: Selected as "*Young Researcher to Watch*" by the international journal EurJOC.

2022: Best flash talk award at "E-Wispoc", Ischia (Italy).

2023: Selected as Member of the European Cultural Institute "*Accademia Marchigiana di Scienze, Lettere ed Arti*".

2024: Selected as "*2024 Nanoscale Emerging Investigator*" by the international journal Nanoscale.

2024: Recipient of the "*Giacomo Ciamician Medal*" of the Italian Chemical Society.

2024: National scientific habilitation to Associate Professorship of Organic Chemistry.

Publications in International Journals

Giacomo Filippini has authored **42 articles** in international journals with a high impact factor: *e.g.*, 1 × Chem; 3 × Angewandte Chemie; 3 × ACS Catalysis; 1 × Science Advances; 2 × ACS Nano; 1 Small; 1 × Advanced Science; 1 Chemical Science; 4 x ChemSusChem. **H factor** = **21** - His papers have attracted a total of 1210 citations (source: Scopus as of April 7, 2025). ***** : *corresponding author*.

- ***Google Scholar***, Link: [here]
- ***Orcid ID***: 0000-0002-9694-3163. Link: [here]

1. L. Gramigna, S. Duce, **G. Filippini**, M. Fochi, M. C. Franchini, L. Bernardi*****, "Organocatalytic Asymmetric Wittig Reactions: Generation of Enantioenriched Axially Chiral Olefins Breaking a Symmetry Plane", *Synlett*, **2011**, *18*, 2745-2749. Link: [here]. ****Highlighted in ChemInform.***

2. **G. Filippini**, M. Nappi, P. Melchiorre*****, "Photochemical Direct Perfluoroalkylation of Phenols", *Tetrahedron*, **2015**, *71*, 4535-4542. Link: [here]. ****Highlighted in ChemInform.***

3. **G. Filippini**, M. Silvi, P. Melchiorre*****, "Enantioselective Formal α-Methylation and α-Benzylation of Aldehydes by Means of Photo-Organocatalysis", *Angew. Chem. Int. Ed.*, **2017**, *56,* 4447-4451. Link: [here]. ****Highlighted in Synfacts.***

4. N. Di Iorio, **G. Filippini**, A. Mazzanti, P. Righi, G. Bencivenni*****, "Controlling the C(sp^3)–C(sp^2) Axial Conformation in the Enantioselective Friedel–Crafts-Type Alkylation of β-Naphthols with Inden-1-ones", *Org. Lett.*, **2017**, *19*, 6692-6695. Link: [here].

5. C. Rosso, **G. Filippini***, P.G. Cozzi, A. Gualandi, M. Prato*****, "Highly Performing Iodoperfluoroalkylation of Alkenes Triggered by the Photochemical Activity of Perylene Diimides", *ChemPhotoChem*, **2019**, *3*, 193-197. Link: [here]. ****Among the top 10% most downloaded papers January 2018 - December 2019.***

6. C. Rosso, J. D. Williams, **G. Filippini**, M. Prato, C. O. Kappe*****, "Visible-Light-Mediated Iodoperfluoroalkylation of Alkenes in Flow and Its Application to the Synthesis of a Key Fulvestrant Intermediate", *Org. Lett.*, **2019**, *21*, 5341-5345. Link: [here]. ****Highlighted in Synfacts.***

7. C. Rosso, **G. Filippini***, M. Prato*****, "Use of Nitrogen-Doped Carbon Nanodots for the Photocatalytic Fluoroalkylation of Organic Compounds", *Chem. Eur. J.*, **2019**, *25*, 16032-16036. Link: [here]. ****Selected as Hot Paper **Selected as Cover Picture***.

8. C. Rosso, **G. Filippini***, M. Prato*****, "Carbon Dots as Nano-Organocatalysts for Synthetic Applications", *ACS Catalysis*, **2020**, *10*, 8090-8105. Link: [here].

9. **G. Filippini***, F. Amato, C. Rosso, G. Ragazzon*****, A. Vega-Peñaloza, X. Companyó*****, L. Dell'Amico, M. Bonchio, M. Prato*****, "Mapping the Surface Groups of Amine-Rich Carbon Dots Enables Covalent Catalysis in Aqueous Media", *Chem*, **2020**, *6*, 3022-3037. Link: [here]. ****Selected as a finalist of "Premio Primo Levi 2020" of the Italian Chemical Society***.

10. M. Garrido, L. Gualandi, S. Di Noja, **G. Filippini**, S. Bosi, M. Prato*****, "Synthesis and Applications of Amino-Functionalized Carbon Nanomaterials", *Chem. Commun*., **2020**, *56*, 12698-12716. Link: [here].

11. C. K. Hui, A. Tomilov, C. Garcia, X. S. Jiang, D. M. Fash, O. M. Khdour, C. Rosso, **G. Filippini**, M. Prato, J. Graham, S. Hecht, P. Havel, G. Cortopassi*****, "Novel idebenone analogs block Shc's access to insulin receptor to improve insulin sensitivity" , *Biomedicine&Pharmacotherapy*, **2020**, *132*, 110823-110833. Link: [here].

12. **G. Filippini**, F. Longobardo, L. Forster, A. Criado, G. Di Carmine, L. Nasi, C. D'Agostino, M. Melchionna*****, P. Fornasiero*****, M. Prato*****, "Light-Driven, Heterogeneous Organocatalysts for C-C-Bond Formation Towards Valuable Perfluoroalkylated Intermediates", *Sci. Adv.*, **2020**, *6*, eabc9923. Link: [here].

13. C. Rosso, **G. Filippini**, M. Prato*****, "Use of Perylene Diimides in Synthetic Photochemistry", *Eur. J. Org. Chem.*, **2021**, 1193-1200. Link: [here]. ****Selected as Very Important Paper **Selected as Cover Picture***.

14. C. Rosso, **G. Filippini**, A. Criado, M. Melchionna*****, P. Fornasiero, M. Prato*****, "Metal-Free Photocatalysis: Two-Dimensional Nanomaterial Connection toward Advanced Organic Synthesis", *ACS Nano*, **2021**, *15*, 3621-3630. Link: [here].

15. B. Bartolomei, G. Gentile, C. Rosso, **G. Filippini***, M. Prato*****, "Turning the Light on Phenols: New Opportunities in Organic Synthesis", *Chem. Eur. J.*, **2021**, *27*, 16062-16070. Link: [here]. ****Selected as Review of the Week **Selected as Frontispiece***.

16. F. Longobardo, G. Gentile, A. Criado, A. Actis, S. Colussi, V. Dal Santo, M. Chiesa, **G. Filippini***, P. Fornasiero, M. Prato, M. Melchionna*****, "Tailored amorphization of graphitic carbon nitride triggers superior photocatalytic C-C coupling towards the synthesis of perfluoroalkyl derivatives"**,** *Mater. Chem. Front.,* **2021**, *5*, 7267-7275. Link: [here].

17. G. Gentile, C. Rosso, A. Criado, V. Gombac, **G. Filippini***, M. Melchionna*****, P. Fornasiero*****, M. Prato*****, "New Insights into the Exploitation of Oxidized Carbon Nitrides as Heterogeneous Base Catalysts"**,** *Inorganica Chimica Acta*, **2022**, *531*, 120732-120738. Link: [here].

18. C. Rosso, S. Cuadros, G. Barison, P. Costa, M. Kurbasic, M. Bonchio, M. Prato, L. Dell'Amico*****, **G. Filippini***, "Unveiling the Synthetic Potential of Substituted Phenols as Fully Recyclable Organophotoredox Catalysts for the Iodosulfonylation of Olefins", *ACS Catalysis*, **2022**, *12*, 4290-4295. Link: [here]. ****Highlighted in Organic Chemistry Portal.***

19. S. Cuadros, C. Rosso, G. Barison, P. Costa, M. Kurbasic, M. Bonchio, M. Prato, **G. Filippini***, L. Dell'Amico***,** "The Photochemical Activity of a Halogen-Bonded Complex Enables the Microfluidic Light-Driven Alkylation of Phenols", *Org. Lett.*, **2022**, *24*, 2961-2966. Link: [here].

20. A. Da Lama, B. Bartolomei, C. Rosso, **G. Filippini***, M. Montserrat Martínez*****, Luis A. Sarandeses, M. Prato*****, "New Insights into the Exploitation of BODIPY Derivatives as

Organic Photocatalysts", *Eur. J. Org. Chem.*, **2022**, e202200622. Link: [here]. ***Among the most downloaded articles during its first 12 months of publication***.

21. M. Marchi, G. Gentile, C. Rosso, M. Melchionna, P. Fornasiero*****, **G. Filippini***, M. Prato*****, "The Nickel Age in Synthetic Dual Photocatalysis: A Bright Trip Toward Materials Science, *ChemSusChem*, **2022**, *15*, e202201094. Link: [here].

22. V. Corti, B. Bartolomei, M. Mamone, G. Gentile, M. Prato*****, **G. Filippini***, "Amine-Rich Carbon Dots as Novel Nano-Aminocatalytic Platforms in Organic Synthesis", *Eur. J. Org. Chem.*, **2022**, e202200879. Link: [here]. ***Among the most downloaded articles during its first 12 months of publication***. ****This article is part of the themed collection: #NextGenOrgChem" Special Collection***.

23. E. Raciti, S. M. Gali, M. Melchionna, **G. Filippini**, A. Actis, M. Chiesa, M. Bevilacqua, P. Fornasiero, M. Prato, D. Beljonne*****, R. Lazzaroni*****, "Radical defects modulate the photocatalytic response in 2D-graphitic carbon nitride" *Chem. Sci.*, **2022**, *13*, 9927-9939. Link: [here]. ***Selected as Edge Article***.

24. A. Actis, M. Melchionna, **G. Filippini**, P. Fornasiero, M. Prato, E. Salvadori*****, M. Chiesa, "Morphology and Light-Dependent Spatial Distribution of Spin Defects in Carbon Nitride" , *Angew. Chem. Int. Ed.*, **2022**, e202210640. Link: [here].

25. G. Gentile, M. Marchi, M. Melchionna*****, P. Fornasiero, M. Prato, **G. Filippini***, "Use of Carbon Nitrides as Photoactive Supports in Single-Atom Heterogeneous Catalysis for Synthetic Purposes", *Eur. J. Org. Chem.*, **2022**, e202200944. Link: [here].

26. G. Gentile, M. Mamone, C. Rosso, F. Amato, C. Lanfrit, **G. Filippini***, M. Prato*****, "Tailoring the Chemical Structure of Nitrogen-Doped Carbon Dots for Nano-Aminocatalysis in Aqueous Media", *ChemSusChem*, **2023**, *16*, e202202399. Link: [here].

27. V. Corti, J. Dosso, M. Prato, **G. Filippini*,** "Photo-Induced Cascade Reactions of 2-Allylphenol Derivatives Towards the Production of 2,3-Dihydrobenzofurans", *J. Org. Chem.*, **2023**, *88*, 6008-6016. Link: [here].

28. M. Mamone, G. Gentile, J. Dosso, M. Prato, **G. Filippini***, "Direct C2–H alkylation of indoles driven by the photochemical activity of halogen-bonded complexes", *Beilstein J. Org. Chem.* **2023***, 19,* 575-581. Link: [here].

29. **G. Filippini***, J. Dosso*****, M. Prato***,** "Phenols as Novel Photocatalytic Platforms for Organic Synthesis", *Helv. Chim. Acta* **2023***, 106*, e20230005. Link: [here].

30. M. Marchi, E. Raciti, S. M. Gali, F. Piccirilli, H. Vondracek, A. Actis, E. Salvadori, C. Rosso, A. Criado, C. D'Agostino, L. Forster, D. Lee, A. C. Foucher, R. K. Rai, D. Beljonne, E. A. Stach, M. Chiesa, R. Lazzaroni, **G. Filippini***, M. Prato, M. Melchionna*****, P. Fornasiero***,** "Carbon Vacancies Steer the Activity in Dual Ni Carbon Nitride Photocatalysis", *Adv. Sci.* **2023***, 10,* 2303781. Link: [here].

31. M. Sbacchi, M. Mamone, L. Morbiato, P. Gobbo*****, **G. Filippini***, M. Prato***,** "Shining Light on Carbon Dots: New Opportunities in Photocatalysis", *ChemCatChem* **2023***,* e202300667. Link: [here]. ****Among the top 10 most-cited papers published by the journal in 2023***.

32. G. Sportelli, G. Grando, M. Bevilacqua, **G. Filippini***, M. Melchionna*, P. Fornasiero***,** "Graphitic Carbon Nitride as Photocatalyst for the Direct Formylation of Anilines", *Chem. Eur. J.,* **2023***,* e202301718. Link: [here].

33. G. Gentile, M. Morant-Giner, L. Cardo, M. Melchionna, P. Fornasiero, M. Prato, **G. Filippini***, "DoE-Assisted Development of a 2H-MoS_2-Catalyzed Approach for the Production of Indole Derivatives", *ChemSusChem*, **2023***,* e202300831. Link: [here].

34. A. Actis, M. Melchionna, **G. Filippini**, P. Fornasiero, M. Prato, M. Chiesa, E. Salvadori*****, "Singlet-triplet energy inversion in carbon nitride photocatalysts", *Angew. Chem. Int. Ed.*, **2023**, e202313540. Link: [here].

35. G. Grando, G. Sportelli, **G. Filippini***, M. Melchionna*, P. Fornasiero***,** "Graphitic Carbon Nitride Meets Molecular Oxygen: New Sustainable Photocatalytic Ways for the Oxidation of Organic Molecules", *Nano Trends,* **2023***, 4*, 100028. Link: [here].

36. G. Gentile, B. Bartolomei, J. Dosso*****, N. Demitri **G. Filippini***, M. Prato***,** "Synthesis of a Novel Tetra-Phenol π-Extended Phenazine and its Application as Organo-Photocatalyst" , *Chem. Commun*., **2024**, *60*, 602-605. Link: [here].

37. F. Mancuso, P. Fornasiero, M. Prato, M. Melchionna*****, F. Franco*****, **G. Filippini***, "Nanostructured Electrocatalysts for Organic Synthetic Transformations", *Nanoscale*, **2024**, *16*, 5926 - 5940. Link: [here]. ****This article is part of the themed collection: Nanoscale 2024 Emerging Investigators***.

38. G. Sportelli, M. Marchi, P. Fornasiero, **G. Filippini***, F. Franco*, M. Melchionna*, "Photoelectrocatalysis for Hydrogen Evolution Ventures into the World of Organic Synthesis", *Global Challenges*, **2024**, 2400012. Link: [here].

39. A. Carioscia, E. Cocco, M. E. Casacchia, G. Giuseppe, M. Mamone, G. Giorgianni, E. Incerto, M. Prato*, F. Pesciaioli*, **G. Filippini***, A. Carlone*, "Nitrogen-Rich Carbon Dots as Effective Catalysts in the 1,4-Reduction of α,β-Unsaturated Aldehydes via Ion pair Asymmetric Nano-Organocatalysis", *ACS Catalysis,* **2024**, *14*, 13429−13438. Link: [here]. ****Highlighted in Synfacts***.

40. M. Morant-Giner*, G. Gentile, M. Prato, **G. Filippini***, "Molybdenum Disulfide-Based Catalysts in Organic Synthesis: State of Art, Open Issues and Future Perspectives", *Small*, **2024***,* 2406697. Link: [here].

41. L. Morbiato, L. Cardo, E. Sturabotti, P. Gobbo*, **G. Filippini***, M. Prato*, "Structure Matters: Tailored Graphitization of Carbon Dots Enhances Photocatalytic Performance", *ACS Nano*, **2025***, 19*, 4887−4900. Link: [here].

42. M. Mamone, G. Gentile, M. Prato*, **G. Filippini***, “Phenol-Rich Carbon Dots as Metal-Free Nano-Photocatalysts for [3+2] Cycloaddition Reactions”, *ChemSusChem*, **2025***,* DOI: 10.1002/cssc.202500521. Link: [here].

Editorials

1. G. Filippini, “Nuovi Approcci Catalitici in Sintesi Organica”, *La Chimica & L'Industria*, **2025**, Anno IX, N°1, 70-72. Link: [here].

Books & Chapters

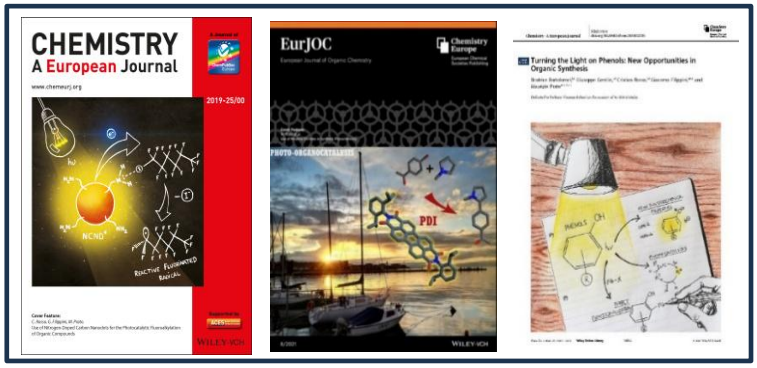
1. G. Filippini, P. Pengo, S. Bosi, G. Ragazzon, L. Pasquato, M. Prato, Chapter 8 “Engineering Functional Nanomaterials through the Amino Group” in ***Methodologies in Amine Synthesis: Challenges and Applications***, Editors: Alfredo Ricci and Luca Bernardi, Wiley-VCH, **2021**, 285-340. Link: [here].

Journal Covers & Frontispieces

1. Cover Picture: “Use of Nitrogen-Doped Carbon Nanodots for the Photocatalytic Fluoroalkylation of Organic Compounds” - *Chem. Eur. J.*, **2019**, *25*, 16032-16036. Link: [here].

2. Cover Picture: “Use of Perylene Diimides in Synthetic Photochemistry” - *Eur. J. Org. Chem.*, **2021**, 1193-1200. Link: [here].

3. Frontispiece: “Turning the Light on Phenols: New Opportunities in Organic Synthesis” - *Chem. Eur. J.*, **2021**, *27*, 16062-16070. Link: [here].



Participation in Editorial Boards of Scientific Journals

● I acted as Lead Guest Editor of the themed collection “Modern Catalytic Approaches in Organic Chemistry” of *RSC Advances*. Link: [here].

Referee for International Journals

I served as a Reviewer for **1**. *Accounts of Chemical Research*, **2**. *ACS Nano*, **3**. *Nature Communications*, **4**. *Angewandte Chemie*, **5**. *Journal of the American Chemical Society*, **6**.

Small, **7**. *ACS Catalysis*, **8**. *Chemical Science*, **9**. *ChemSusChem*, **10**. *Organic Letters*, **11**. *ACS Applied Nano Materials*, **12**. *ACS Applied Nano Materials*, **13**. *Catalysis Science & Technology*, **14**. *Chinese Journal of Chemistry*, **15**. *ChemComm*, **16**. *ChemElectroChem*, **17**. *ChemCatChem*, **18**. *Journal of Organic Chemistry*, **19**. *Heliyon*, **20**. *ChemPhotoChem*, **21**. *Energy & Fuels* and **22**. *Beilstein Journal of Organic Chemistry*, **23**. *Dalton Transactions*, **24**. *Advanced Synthesis & Catalysis*.

Research Funding

● ***Microgrants 2021*** - *Photochemical Valorization of Phenols*

Funding agency: Region Friuli-Venezia Giulia (Italy)

Total Amount: 3800 €

Role in the project: Principal Investigator

Period: July 2021 - June 2023

● ***Catalytic Valorization of Agri-Food Wastes and By-Products***

Funding agency: Phenbiox SRL (Bologna, Italy)

Total Amount: 33.744,83 €

Role in the project: Principal Investigator

Period: November 2022 - November 2024

● ***Synthetic and Structural Synergy Towards Advanced Heterogeneous Photoredox Catalysis***

Funding agency: Ministero dell'Università e della Ricerca - MUR (Italy)

Total Amount: 81.442 €

Principal Investigator: Prof. Paolo Fornasiero

Role in the project: Participant

Period: June 2023 - October 2025

● ***Microgrants 2024*** - *Use of Carbon Nitrides in Single-Atom Heterogeneous Catalysis for Synthetic Purposes*

Funding agency: Region Friuli-Venezia Giulia (Italy)

Total Amount: 3750 €

Role in the project: Principal Investigator

Period: April 2024 - March 2026

National and International Collaboration

1. **Prof. Pier Giorgio Cozzi**, University of Bologna (Italy).

Use of perylene bisimides as photocatalysts for organic synthesis. The scientific results were published (see *ChemPhotoChem*, **2019**, *3*, 193-197).

2. **Prof. Oliver Kappe**, University of Graz (Austria).

Development of novel photochemical organic transformations under flow-conditions. The scientific results were published (see *Org. Lett.*, **2019**, *21*, 5341-5345).

3. **Prof. Gino Cortopassi**, University of California, Davis (United States of America).

Synthesis of biologically active organic molecules. The scientific results were published (see *Biomedicine&Pharmacotherapy*, **2020**, *132*, 110823-110833).

4. **Prof. Carmine D'Agostino**, University of Manchester (England).

Studying the interaction between organic substrates and the surfaces of heterogeneous photocatalysts. The scientific results were published (see *Sci. Adv.*, **2020**, *6*, eabc9923).

5. **Prof. Marcella Bonchio**, University of Padova (Italy).

Studying the formation of catalytically active intermediates on amine-rich carbon. The scientific results were published (see *Chem*, **2020**, *6*, 3022-3037).

6. **Prof. Mario Chiesa**, University of Torino (Italy).

Studying the nature of paramagnetic defects on catalytically active materials. The scientific results were published (see *Mater. Chem. Front*., **2021**, *5*, 7267-7275 and *Angew. Chem. Int. Ed.*, **2022**, e202210640).

7. **Prof. Roberto Lazzaroni**, University of Mons (Belgium).

Computational study of the photocatalytic properties of carbon nitrides. The scientific results were published (see *Chem. Sci.*, **2022**, *13*, 9927-9939).

8. **Prof. Luca Dell'Amico**, University of Padova (Italy).

Use of molecular phenols as photocatalysts for organic synthesis. The scientific results were published (see *ACS Catalysis,* **2022**, *12*, 4290-4295 and *Org. Lett.*, **2022**, *24*, 2961-2966).

9. **Prof. M. Montserrat Martínez**, University of A Coruña (Spain).

Use of BODIPY derivatives as photocatalysts for organic synthesis. The scientific results were published (see *Eur. J. Org. Chem.*, **2022**, e202200622).

10. **Prof. Eric Stach**, University of Pennsylvania (United States of America).

Use of carbon nitrides in dual photoredox catalysis. The scientific results were published (see *Adv. Sci.* **2023***,* 2303781).

11. **Prof. Enrico Salvadori**, University of Torino (Italy).

Studying the nature of paramagnetic sites on photo-catalytically active carbon nitrides. The scientific results were published (see *Angew. Chem. Int. Ed.*, **2023**, e202313540).

12. **Prof. Armando Carlone**, University of L'Aquila (Italy).

Use of amine-rich carbon dots as nano-aminocatalysts. The scientific results were published (see *ACS Catalysis,* **2024**, *14*, 13429−13438).

13. **Dr. Claudio Gioia**, University of Trento (Italy) and **Phenbiox SRL** (Bologna, Italy).

Use of lignin as photo-initiator for organic synthesis. This is an on-going collaboration.

Teaching Activities

1. Organic Chemistry - Laboratory course. Undergraduate degree in Science and Technology for Environment and Nature (2rd year undergraduate students). **University of Trieste**, AY 2021/2022, 36 hours, ca. 40 students.

2. Organic Chemistry II - Laboratory course. Undergraduate degree in Chemistry (2rd year undergraduate students). **University of Trieste**, AY 2022/2023, 48 hours, ca. 30 students.

3. Spectrometric Methods in Organic Chemistry. Undergraduate degree in Pharmaceutical Chemistry and Technology (3rd year undergraduate students). **University of Trieste**, AY 2023/2024, 48 hours, ca. 40 students.

4. Organic Chemistry II - Laboratory course. Undergraduate degree in Chemistry (2rd year undergraduate students). **University of Trieste**, AY 2023/2024, 48 hours, ca. 30 students.

5. Modern Synthetic Methods in Organic Chemistry. Course for PhD students in Chemistry. **University of Trieste**, AY 2023/2024, 8 hours, ca. 8 students.

6. Spectrometric Methods in Organic Chemistry. Undergraduate degree in Pharmaceutical Chemistry and Technology (2rd and 3rd year undergraduate students). **University of Trieste**, AY 2024/2025, 48 hours, ca. 70 students.

7. Organic Chemistry II - Laboratory course. Undergraduate degree in Chemistry (2rd year undergraduate students). **University of Trieste**, AY 2024/2025, 48 hours, ca. 40 students.

Supervised and co-Supervised Students

1. Co-supervisor Mrs. Chiara Lanfrit: MSc in Chemistry at University of Trieste, 2020. Title of the thesis: "*Synthesis, Characterization, and Application in Aminocatalysis of Carbon Nanodots*". Final Evaluation: 110/110 *cum laude*. Supervisor: Prof. Maurizio Prato.

2. Co-supervisor Mr. Michele Cesco: MSc in Chemistry at University of Trieste, 2021. Title of the thesis: "*Synthesis of Molecular Cages*". Final Evaluation: 110/110 cum laude. Supervisor: Prof. Maurizio Prato.

3. Co-supervisor Dr. Cristian Rosso: PhD in Chemistry-CHIM/06 at University of Trieste, 33th PhD cycle. Title of the thesis: "*Development of Novel Catalytic Transformations Towards Valuable Organic Intermediates*". Final Evaluation: graduated *cum laude*. Supervisor: Prof. Maurizio Prato. Next position: Postdoctoral fellow at University of Padova - Italy (advisor: Prof. Luca Dell'Amico).

4. Supervisor Mrs. Ana da Lama Vázquez: Visiting PhD student from University of A Coruña, Spain, August 2021 - November 2021.

5. Co-supervisor Mr. Francesco Palazzi: MSc in Chemistry at University of Trieste, 2022. Title of the Research Project: "*Use of Lignin for the Photochemical Iodoperfluoroalkylation of Olefins*". Final Evaluation: 103/110. Supervisor: Prof. Maurizio Prato.

6. Supervisor Mrs. Lesley Rodriguez: Visiting PhD student from University of Alicante, Spain, June 2023 - August 2023.

7. Co-supervisor Mr. Giuseppe Gentile: PhD student in Chemistry-CHIM/06 at University of Trieste, 36th PhD cycle. Title of the Research Project: "*Novel Materials in Catalysis: The Case of Carbon Dots, Carbon Nitrides and Molybdenum Disulfide*". Final Evaluation: graduated *cum laude*. Supervisor: Prof. Maurizio Prato. Next position: Postdoctoral fellow at University of Padova - Italy (advisor: Prof. Marcella Bonchio)

8. Co-supervisor Mrs. Martina Mamone: PhD student in Chemistry-CHIM/06 at University of Trieste, 37th PhD cycle. Title of the Research Project: "*New Photo- and Nanocatalytic Systems for Application in Organic Synthesis*". Final Evaluation: graduated *cum laude*. Supervisor: Prof. Maurizio Prato.

9. Co-supervisor Mrs. Gaia Grando: PhD student in Nanotechnology at University of Trieste, 38th PhD cycle, 2022-2025 (expected). Title of the Research Project: "*Development of Metal-Free Photocatalysts for Advanced Organic Synthesis*". Supervisor: Prof. Paolo Fornasiero.

10. Co-supervisor Mrs. Laura Morbiato: PhD student in Nanotechnology at University of Trieste, 38th PhD cycle, 2022-2025 (expected). Title of the Research Project: "*Synthesis and Applications of Carbon Dots*". Supervisor: Prof. Maurizio Prato.

11. Supervisor Mr. Riccardo Tosoratti: BSc in Chemistry at University of Trieste, 2024. Title of the thesis: "*Study of the Photocatalytic Activity of a Trisubstituted Phenol for ATRA Reactions*". Final Evaluation: 110/110 cum laude. Co-supervisor: Dr. Jacopo Dosso.

12. Co-supervisor Mr. Giacomo Molinaro: BSc in Chemistry at University of Trieste, 2024. Title of the thesis: "*Study of the Photocatalytic Activity of a Novel Tetra-Phenol Derivative*". Final Evaluation: 104/110. Supervisor: Dr. Jacopo Dosso.

13. Co-supervisor Mr. Emanuele Giuliani: PhD student in Nanotechnology at University of Trieste, 38th PhD cycle, 2022-2025 (expected). Title of the Research Project: "*New Insights Into the Production Process of Carbon Dots*". Supervisor: Prof. Maurizio Prato.

14. Co-Supervisor Mr. Remì Martina: BSc in Chemistry at University of Trieste, 2025. Title of the thesis: "*Study of the Photocatalytic Activity of a Trisubstituted Phenol*". Supervisor: Dr. Jacopo Dosso.

15. Supervisor Mr. Daniele Ciampa: BSc in Chemistry at University of Trieste, 2025. Title of the thesis: "*Use of a Phenol Derivative as Photocatalytic System for Radical Reactions*". Co-supervisor: Dr. Jacopo Dosso.

Member of Evaluation Committees

1. Member of the Commission for Admission to the PhD in Chemistry - University of Trieste and Ca' Foscari University of Venice - 38th cycle. Trieste 18-19 July 2022.

2. Examiner of Doctoral Thesis in Chemistry - University of Padova (Italy), 24/03/2023.
Candidate: Dr. Pietro Franceschi.
Supervisor: Prof. Luca Dell'Amico.

Title of the Thesis: New Photo and Electrochemical Approaches to the Construction of Complex Molecular Architectures.

Candidate: Dr. Ruggero Bonetto.
Supervisor: Prof. Andrea Sartorel.
Title of the Thesis: Novel Molecularly Designed Strategies for Artificial Photosynthesis.

Candidate: Dr. Matteo Pollastrini.
Supervisor: Prof. Alessandro Moretto.
Title of the Thesis: Bio-Inspired Foldamers: From Catalysis to Supramolecular Applications.

Candidate: Dr. Federico Begato.
Supervisor: Prof. Cristiano Zonta.
Title of the Thesis: Exploiting Chirality in Self-Assembled Molecular Cages.

3. Examiner of Bachelor Thesis in Chemistry - University of Trieste (Italy), 21/07/2023.

4. Examiner of Doctoral Thesis in Chemistry - University of Trieste (Italy), 21/09/2023.
Candidate: Dr. Claudia Maria Cafiero.
Supervisor: Prof. Paolo Pengo.
Title of the Thesis: Fluorophore-Gold Nanoparticle Constructs as Sensing Probes for Bacteria Identification.

Candidate: Dr. Veronica Vida.
Supervisor: Prof. Federico Berti.
Title of the Thesis: Development of Sensing Strategies Targeting Bioactive Phenols from Olive Oil and Coffee.

5. Examiner of Master Thesis in Pharmaceutical Chemistry and Technology - University of Trieste (Italy), 20/03/2024.

6. Examiner of Master Thesis in Pharmaceutical Chemistry and Technology - University of Trieste (Italy), 20/03/2025.

Academic Duties

1. 2024-present: Erasmus coordinator for the inter-institutional-agreement in the field of Chemistry between the University of Trieste (Italy) and the University of Graz (Austria).

2. 2024: Responsible for the visiting professor Prof. Yusuke Morisawa of the Kindai University (Osaka, Japan). This activity was framed in the context of the "*Call of the University of Trieste's centenary*".

Invited Presentations at Meetings and Symposia

1. Asymmetric Organocatalysis after the Gold Rush – Challenges and Developments at the time of the Nobel Prize, Italy (online), November 19, 2021.

Oral Communication: **Carbon Dots as Nano-Organocatalysts for Synthetic Applications.**

2. From Homogeneous Catalysis to Surface Organometallic Chemistry and Single Atom Catalyst, Accademia Nazionale dei Lincei, - Rome (Italy), May 30-31, 2024.
- Oral Communication: **Tailored Nitrogen-Doped Carbon Dots as Nano-Organocatalysts in Aqueous Media.**
- Poster Communication: **Tailored Nitrogen-Doped Carbon Dots as Nano-Organocatalysts in Aqueous Media.**

3. XXVIII National Congress of the Italian Chemical Society: "Chemistry Elements of Future" - Milan (Italy), August 26-30, 2024.
Oral Communication: **New Catalytic Approaches Towards the Synthesis of Organic Compounds.**

Participation at Conferences

1. ICIQ's 10th Anniversary Scientific Symposium, July 16-18, 2014.
Institute of Chemical Research of Catalonia (ICIQ) - Av. Països Catalans 16 – 43007 Tarragona (Spain).

2. 40th "A. CORBELLA" INTERNATIONAL SUMMER SCHOOL ON ORGANIC SYNTHESIS – ISOS 2015 Gargnano (BS), Palazzo Feltrinelli, June 14-18, 2015.
Oral Communication: **Photochemical Direct Perfluoroalkylation of Phenols.**

3. 3rd US-Spain Symposium on Asymmetric Catalysis and Chemical Synthesis
Bilbao 26-27 May, 2016.
Oral Communication: **Photochemical Enantioselective Alkylation of Aldehydes with α-Iodo Sulfones.**

4. 11th Spanish-Italian Symposium on Organic Chemistry SISOC-XI, Donostia-San Sebastián (Spain), 13-15 July, 2016.
- Poster Communication: **Photochemical Enantioselective Alkylation of Aldehydes with α-Iodo Sulfones.**
- Oral Communication: **Photochemical Enantioselective Alkylation of Aldehydes with α-Iodo Sulfones: Formal Enantioselective Methylation of Aldehydes.**

5. ICIQ PhD Day 2017, June 15-16, 2017.
Institute of Chemical Research of Catalonia (ICIQ) - Av. Països Catalans 16 – 43007 Tarragona (Spain).
- Oral Communication: **Enantioselective Formal α-Methylation and α-Benzylation of Aldehydes by Means of Photo-Organocatalysis**

6. 20th European Symposium on Organic Chemistry (ESOC 2017), July 2-6, 2017, Köln (Germany).
- Poster Communication: **Enantioselective Formal α-Methylation and α-Benzylation of Aldehydes by Means of Photo-Organocatalysis.**

7. E-Wispoc 2019: European Winter School on Physical Organic Chemistry, January 27-1 February, 2019, Bressanone (Italy).
- Poster Communication: **Water-Soluble Nitrogen-Doped Carbon Nanodots as Efficient Aminocatalysts for Organic Synthesis.**

8. Workshop on Low-Dimensional Materials, July 21-23, 2019, Donostia-San Sebastián (Spain).
- Oral Communication: **Catalytic Application of Nitrogen-Doped Carbon Nano Dots (NCNDs) in Organic Synthesis.**

9. XXXIX Convegno Nazionale della Divisione di Chimica Organica, CDCO Torino 2019, September 8-12, Torino (Italy).
- Oral Communication: **Highly Performing Iodoperfluoroalkylation of Alkenes Triggered by the Photochemical Activity of Perylene Diimides.**

10. Chemistry for Everyday Life, September 1-6, 2020, Camerino (Italy).

11. "I Giovani e la Chimica in Friuli-Venezia Giulia", September 30, 2021, Trieste (Italy).
- Oral Communication: **Photocatalytic Radical Perfluoroalkylation of Organic Compounds.**

12. "Ischia Advanced School of Organic Chemistry (IASOC)", September 23-26, 2022, Ischia (Italy).

13. "E-Wispoc", Ischia (Italy), 26-30 September, 2022.
- Poster Communication: **Tailored Nitrogen-Doped Carbon Dots as Nano-Organocatalysts in Aqueous Media.**
- Oral Communication: **Tailored Nitrogen-Doped Carbon Dots as Nano-Organocatalysts in Aqueous Media.**

14. PHOTOCAT24 School of Photochemistry: from Photocatalysis to Photobiology, Padova (Italy), 2-7 June, 2024.
- Poster Communication: **Light-Driven Alkylation of Phenols: Scope, Mechanistic Insights and Applications in Organophotoredox Catalysis.**

15. 5° ChirItaly 2025, Monteortone (Italy), 10-12 March, 2025.
- Oral Communication: **Amine-Rich Carbon Dots as Novel Nano-Aminocatalytic Platforms in Organic Synthesis**.

Memberships of Scientific Societies

● 2015-present: Member, Italian Chemical Society

● 2023-present: Member of the European Cultural Institute "*Accademia Marchigiana di Scienze, Lettere ed Arti*". Web site: [here].

Personal Skills

● *Mother tongue:*

- Italian

● *Other language(s)*:

- English language ability at the level B1 (CEFR).
- Basic knowledge of Spanish.

● *Organizational/managerial skills*:

- Ability to plan the research activity in cooperation with the other group members.
- Personnel management skills.

● *Job-related skills*:
- Literature research.
- Treatment of toxic chemical compounds.
- Organic synthesis.
- Synthesis of carbon-based nanostructures.
- Catalysis, photocatalysis and nano-catalysis.
- Purification and analytical skills.
- Characterization of organic compounds.
- Characterization of carbon-based nanostructures.
- Analytical instruments: NMR, HPLC-UV, Polarimeter, IR, GC-MS.

● *Computer skills*:

Good command of:
- Microsoft Office
- MestreNova
- Windows
- Chem-Draw

● *Driving license*: B

Dr. Giacomo Filippini