

PERSONAL INFORMATION

Giacchino Schifino

WORK AND ACADEMIC
EXPERIENCE

January 2023 – August 2023

Visiting PhD Student - University College London - Department of Chemical Engineering, London, United Kingdom

- **Research Object:** Molecular modeling and simulations of chiral nucleation and crystal growth of perovskite nanosystems using *Ab initio* molecular dynamics and enhanced sampling approaches such as metadynamics. (Supervisor: Prof. Adriana Pietropaolo, Co-supervisor: Prof. Matteo Salvalaglio)

March 2022 – July 2022

Visiting PhD Student - European Laboratory for Non-Linear Spectroscopy (LENS), National Institute of Optics (CNR-INO), Florence, Italy

- **Research Object:** Chirality induction to linear polyfluorene derivative (poly (9,9-dioctylfluorene-2,7-diyl [PDOF]) in the solid phase using chiral solvents and circularly polarized light. (Supervisor: Prof. Adriana Pietropaolo, Co-supervisor: Prof. Paolo Foggi).

November 2019 – November
2020

Research Fellow - National Research Council, Institute of Organic Synthesis and Photoreactivity (ISOF), Bologna, Italy

- **Research Object:** Development and characterization of Polyester-Based (Bio)degradable and Biobased Polymer compounds (polymer-blend, nanocomposite) and their electrospun membranes. (Supervisor: Dr. Annalisa Aluigi)

(Project funded by Bio-based Industries Joint Undertaking, Horizon 2020 funding program)

EDUCATION

January 2021 – Ongoing

PhD Student in Life Sciences and Technologies

University of Catanzaro, Catanzaro, Italy

- The research has focused on the application of theoretical and computational chemistry techniques utilizing high-performance computing. The project centers on the Computational Design of chiral nanosystems, employing advanced sampling simulations (Metadynamics-based algorithms). The primary aim is to study the process of chiral self-assembly occurring from the molecular to the supramolecular level in hybrid and soft nanosystems. Close collaboration with experimental scientists is maintained to integrate theoretical insights with experimental observations. (Supervisor: Prof. Adriana Pietropaolo)

Qualification to practice as a professional chemist (Section A)

University of Ferrara, Ferrara, Italy

- Grade: 50/50

October 2017 – October 2019 Master's degree in Industrial Chemistry

Alma Mater Studiorum, University of Bologna, Bologna, Italy

- Grade: 103/110 - awarded 25th October 2019

Thesis: Development of electrospinning process to produce keratin/PLA/graphene oxide blend nanofibers. (Supervisor: Prof. Loris Giorgini, Co-supervisor: Dr. Annalisa Aluigi, Dr. Emanuele Treossi)

October 2013 – September 2017 Bachelor's degree in Chemistry

University of Calabria (UNICAL), Cosenza, Italy

- Grade: 96/110 - awarded 26th September 2017

Thesis: Development, characterization and testing of hydrophobic functionalized cellulose for hydrocarbons polluted water. (Supervisor: Prof. Giuseppe Chidichimo)

September 2008 – July 2013 Classical High School Degree

Liceo classico "Giuseppe Garibaldi", Castrovillari, Cosenza, Italy

- Grade: 84/100

TEACHING ACTIVITIES

November 2023 – Ongoing

Tutor of General and Inorganic Chemistry SSD CHIM/03

University of Catanzaro, Catanzaro, Italy

April 2021 – April 2022

Tutor of General and Inorganic Chemistry SSD CHIM/03

University of Catanzaro, Catanzaro, Italy

LABORATORY AND EXPERIMENTAL ACTIVITIES

March 2022 – July 2022

Visiting PhD Student

European Laboratory for Non-Linear Spectroscopy (LENS), National Institute of Optics (CNR-INO), Florence, Italy

- **Activities:** -Conducting molecular modeling and simulations utilizing quantum-mechanical and classical theories with high-performance computing; -Employing polymer characterization techniques such as FTIR, UV-Vis, Circular Dichroism (CD), and fluorescence spectroscopy; -Utilizing Linear and Circular Polarizing Filters in experimental activities.

November 2019 – November 2020

Research Fellow

National Research Council, Institute of Organic Synthesis and Photoreactivity (ISOF), Bologna, Italy

- **Activities:** -Conducted miscibility analysis of keratin and biodegradable/biobased polyesters; - Operated a pilot plant for the extraction of keratin from raw wool. Optimized process parameters for the production of polymeric membranes; -Employed various techniques for the characterization of membranes and polymer compounds, including XRD, FTIR-ATR, UV-Vis, DSC, TGA, rotational rheometer, dynamometer for tensile testing, SEM, and

TEM; -Engaged in dissemination activities within the fields of circular economy, green chemistry, and sustainable development of polymeric materials.

ORGANIZATIONAL ACTIVITIES

I have actively contributed as an organizing member to various events addressing the pivotal topics of sustainable chemistry, green chemistry, and the recycling of post-consumer (bio)plastics.

COURSES AND SUMMER SCHOOLS

5th – 7th October 2022

Course “Introduction to Python programming”

HPC DEPARTMENT - education division | Cineca Academy, Casalecchio di Reno (BO), Italy

7th – 10th September 2022

International School “Protein structure models, biophysical data and high-performance computing for drug design”

Associazione Italiana Cristallografia | University of Trieste (TS), Italy

4th – 6th April 2022

Course “High Performance Molecular Dynamics”

HPC DEPARTMENT - education division | Cineca Academy, Casalecchio di Reno (BO), Italy

17th–19th May 2021

Summer School: “Polymers and Circular Economy”

Italian Association of Science and Technology of Macromolecules (AIM), Digital form

2nd – 4th March 2021

Seminars: Multiscale Modeling of Organic and Inorganic Materials

EMMC (European Materials Modelling Council), Digital form

April 2019

Safety specific and general training in the workplace issues

Alma Mater Studiorum, University of Bologna, Bologna, Italy

PUBLICATIONS

1. **G. Schifino**, M. Fortino, A. Pietropaolo, L. Monsù Scolaro: *Chiral self-organization of TPPS₄ porphyrin assisted by molecular rotations*. Molecular Systems Design & Engineering. 2023;
2. M. Fortino, **G. Schifino**, Daniele Vitone; Fabio Arnesano, A. Pietropaolo: *The stepwise dissociation of the Zn(II)-bound Atox1 homodimer and its energetic asymmetry*. Inorganica Chimica Acta. 2023;
3. M. Fortino, **G. Schifino**, A. Pietropaolo: *Simulation workflows to predict the circular dichroism and circularly polarized luminescence of chiral materials*. Chirality. 2023;
4. **G. Schifino**, C. Gasparini, S. Drudi, M. Giannelli, G. Sotgiu, T. Posati, R. Zamboni, E. Treossi, E. Maccaferri, L. Giorgini, R. Mazzarro, V. Morandi, V. Palermo, M. Bertoldo, A. Aluigi: *Keratin/Poly(lactic acid)/graphene oxide composite nanofibers for drug delivery*. International Journal of Pharmaceutics. 2022;
5. A. Pietropaolo, A. Mattoni, G. Pica, M. Fortino, **G. Schifino**, G. Grancini: *Rationalizing the design and implementation of chiral hybrid perovskites*. Chem. 2022;
6. F. Ratto, A. Milanesi, G. Magni, S. Centi, **G. Schifino**, A. Aluigi, B. N. Khlebtsov, L. Cavigli, A. Barucci, P. Matteini, N. G. Khlebtsov, R. Pini, F. Rossi: *Electrospinnable composites for laser-activated tissue bonding and*

wound monitoring. Conference Proceedings. Optical Methods for Inspection, Characterization, and Imaging of Biomaterials V, 2021;

7. Milanese, G. Magni, S. Centi, **G. Schifino**, A. Aluigi, B. N. Khlebtsov, L. Caviglia, N. G. Khlebtsov, F. Ratto, F. Rossia, R. Pinia: *Optically activated and interrogated plasmonic hydrogels for applications in wound healing*. Journal of Biophotonics. 2020;

CONTRIBUTIONS TO CONFERENCES

1. **“Unraveling the Chiral Organization in Low-Dimensional Hybrid Perovskites”**. Congress of the Division of calabrian and sicilian sections of Italian chemical Society - SCISiCa2023. 11st - 12nd December 2023. University of Palermo. Poster Presentation
2. **“Theoretical study of the early chiral organization of low dimensional hybrid perovskites”**. European Conference on Computational and Theoretical Chemistry (CompChem 2023). 27th - 31st August 2023. Poster Presentation
3. **“Chiral self-organization of TPPS₄ porphyrin assisted by molecular rotations”**. CHIRALITY 2023 33rd International Symposium on Chirality. 24th – 27th July 2023. University of Rome La Sapienza. Poster Presentation
4. **“Theoretical study of the early chiral organization of chiral hybrid perovskite”**. Thomas Young Centre's Student Day. 26th May 2023. University College London. Poster Presentation
5. **“Quantitative predictions of the chiral self-assembling of TPPS₄ porphyrin aggregates perturbed by molecular rotations”**. Congress of the Division of calabrian and sicilian sections of Italian chemical Society - SCICaSi2022. 1st - 2nd December 2022. University of Reggio Calabria. Oral Presentation
6. **“How molecular chirality affects the supramolecular chirality in the self-assembly of TPPS₄ porphyrin aggregates”**, VII National congress of the Division of theoretical and computational Chemistry - DCTC2022. 21st – 23rd September 2022. University of Modena. Poster Presentation
7. **“Extending axial chirality in the supramolecular self-assembly of meso-tetrakis (4 sulfonatophenyl)porphyrin aggregates”**, IV ChirItaly 2022. 19th – 21st June 2022. University of Matera. Oral Presentation
8. **“Self-assembly of TPPS₄ porphyrin aggregates: axial and supramolecular chirality”**, First Symposium for YouNg Chemists: Innovation and Sustainability. 20th - 23rd June 2022. University of Rome La Sapienza. Poster Presentation
9. **“Symmetry breaking in self-assembled TPPS₄ porphyrin aggregates”**, Merck Young Chemists' Symposium 2021 (organized by the Young Group of SCI Giovani and INSTM), 22nd - 24th November, Rimini (Italy). Poster Presentation
10. **“Wool: from waste to resource”**, The Genoa Science Festival, 22nd October - 1st November 2020, Genova (Italy). Poster Presentation
11. **“Learning Circular Bioeconomy by Hands-on Science Experiments”**, X International Conference: The Future of Education, 18th-19th July 2020, Firenze. Oral Presentation and Poster Presentation
12. **“The Bio-Future Experiences”**, The Role of Science in the Transition to the Circular Bioeconomy, 3rd June, National Research Council, Bologna. Oral presentation

13. **“The UrBIO-Future, *project*”**, Focus on the transition toward a sustainable and circular development (organized by Friuli-Venezia-Giulia region), 23rd-24th January 2020, Udine, Italy. *Oral presentation and Poster Presentation*

PERSONAL SKILLS

Native Language Italian

Other languages

	COMPREHENSION		SPOKEN		WRITTEN PRODUCTION
	Listening	Reading	Interaction	Oral Production	
English	B2	B2	B2	B2	B2
French	A1	A1	A1	A1	A1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user Common European Framework of Reference for Languages

Technical Skills Laboratory instrumentation: DSC, TGA, FTIR-ATR, UV-Vis, XRD, SEM, rotational rheometer; Using of batch reactors (bench-scale); Good knowledge of electrospinning technology; Knowledge and ability to apply international standards (ISO and ASTM); Knowledge of statistical techniques for experimental data analysis.

Informatic Skills Proficient in visualization software, including Gaussview, XYZViewer, Molden, Mercury and VMD; Excellent command of operating systems: MacOSX, Unix, Linux, and Windows, along with proficiency in their associated tools; Competent in Bash and AWK scripting; Solid understanding of Python and Jupyter notebook for programming and data analysis; Proficient in using Gnuplot and Origin for graphical and data analysis; Extensive knowledge of ImageJ and GIMP₂ for digital image processing; Competent in using ChemOffice and ChemDraw for chemical structure drawing; Familiarity with text editing in LaTeX; Expertise in Microsoft Office suite; Proficient in using internet clients, including browsers, search engines, and email programs.

Soft Skills Demonstrated ability to quickly grasp new concepts and adapt flexibly to diverse situations; Strong communication skills, ensuring efficient and effective interaction with others; Capable of working independently as well as collaboratively within a team; Openness to travel and explore new environments; Proficient in stress management, maintaining composure in challenging situations; Proactive and pragmatic problem-solving approach, addressing issues with a solution-oriented mindset.

AWARDS AND GRANTS

1. Principal investigator of the HPC project “CHIRKIN” 100 thousand core hours under M100 supercomputing (HP10C5LY08)
2. Participant of the HPC project “CHIRLDHP” 80 thousand core hours under

- M100 supercomputing (HP10BMWIDK, PI Prof. Adriana Pietropaolo)
3. Participant of the HPC project “MOLCHIR” 1,44 million core hours under M100 supercomputing (HP10BMWIDK, PI Prof. Adriana Pietropaolo)
 4. Participant of the HPC project “Sym-Brk” 32 thousand core hours under M100 supercomputing (HP10CXR5CS, PI Dr. Mariagrazia Fortino)

 5. Winner of Best Poster Award for the poster presented at First Symposium for YouNg Chemists: Innovation and Sustainability. June 20th June - 23rd June 2022
 6. Winner of the travel fellowship award to congress of European Conference on Computational and Theoretical Chemistry (CompChem 2023). 27th August – 31st August 2023
 7. Winner of the participation grant to congress of the Division of calabrian and sicilian sections of Italian chemical Society - SCICaSi2022. December 1st - 2nd 2022
 8. Winner of the participation grant to VII National congress of the Division of theoretical and computational Chemistry - DCTC2022. September 21st – 23rd 2022
 9. Winner of the “Call for Players 2021 — IDEA Innovation - Development – UniBO”, University of Bologna, Italy

Driving License A2, B

Catanzaro, 01st January 2024

Signature