

Francesco Amato

Work experiences & Qualifications

Sep. 2021-present

Postdoctoral fellowship at "La Sapienza" University of Rome

Project title: "Synthesis, characterization and applications of Carbon-based Nanosponges"

Supervisor: Prof. R. Zannoni

Nov. 2017-Apr. 2021

PhD in Nanotechnology at the University of Trieste (Department of Chemical and Pharmaceutical Sciences)

Thesis title: "Synthesis, characterization and applications of Carbon Nanodots"

Supervisor: Prof. M. Prato

May 2016-Jan. 2017, Mar. 2017-Aug. 2017

Postgraduate scholarship at the ATeN Center UniPa (Advanced Technologies Network Center)

Project title: "Nanotechnology for the diagnostic of the cultural heritage: preparation and characterization of nanomaterials for Surface Enhanced Raman Scattering applications"

Supervisor: Prof. S. Agnello

May 2015-Nov. 2015

Postgraduate scholarship at the University of Palermo (Department of Physics and Chemistry) & Laviosa Minerals Srl

Project title: "Design, synthesis and characterization of nanohybrid systems clay/surfactant"

Supervisor: Prof. M. L. Turco Liveri

Febr. 2015-April 2015

Post-graduate training at the University of Palermo

Project title: "Synthesis and Characterization of Organoindium (III) complexes with dianionic and tetradentate Schiff Bases"

Supervisor: Prof. G. Barone

Nov. 2012-Dec. 2014

Master Degree in Chemistry at the University of Palermo. Grade: 110/110 with laude

Thesis title: "Synthesis and Characterization of triorganotin(IV) complexes of polydentate Schiff Bases"

Supervisor: Dott. M. Scopelliti

Sep. 2008-Jan. 2013

Bachelor Degree in Chemistry at the University of Palermo. Grade: 96/110

Thesis title: "Synthesis, characterization and interaction with DNA of $[\text{Fe}^{\text{III}}(\text{dipyrido}[3,2\text{-}a:2',3'\text{c}]\text{phenazine})\text{bis}(\text{glycinate})\text{ClO}_4]$ "

Supervisor: Prof. G. Barone

Dec. 2011-Mar. 2012

Academic training in Mass Spectrometry at CGA (Centro Grandi Apparecchiature) of Palermo

Sep. 2003-July 2008

High school diploma-Chemical-Biological Technician at IISS "E.Ascione", Palermo. Grade: 97/100

Language and Presentation Skills

Italian: Mother Language

English: Good, both written and oral

Job-related skills

UV-Vis, AAS, fluorescence, FT-IR, Raman and SERS spectroscopies

Mass spectrometry and thermogravimetric analysis

AFM and TEM microscopies

Synthesis and characterization of carbon-based nanomaterials

Synthesis and characterization of metal-based nanoparticles

Solid-state synthesis

Computer skills

Knowledge of the following O.S.: Windows, Linux Based and MacOS

Knowledge of the following data analysis programs: OriginLab, Scidavis, Magic Plot, Excel

Publications

1. "Understanding the nature of graphene oxide functional groups by modulation of the electrochemical reduction: a combined experimental and theoretical approach"
I. Ferrari, A. Motta, R. Zaroni, F. A. Scaramuzzo, **F. Amato**, E. A. Dalchiele, A. G. Marrani, *Carbon* **2023**, *203*, 29.
2. "Self-Healing and Reprocessable Oleic Acid-Based Elastomer with Dynamic S-S Bonds as Solvent-Free Reusable Adhesive on Copper Surface"
L. Pettazzoni, F. Leonelli, A. G. Marrani, L. M. Migneco, F. Vetica, L. Celio, V. Napoleone, S. Alfano, A. Colecchia, **F. Amato**, V. Di Lisio, A. Martinelli, *Polymers* **2022**, *14*(22), 4919.
3. "Green In Situ Synthesis of Silver Nanoparticles-Peptide Hydrogel Composites: Investigation of Their Antibacterial Activities"
R. Binaymotlagh, A. Del Giudice, S. Mignardi, **F. Amato**, A. G. Marrani, F. Sivori, I. Cavallo, E. G. Di Domenico, C. Palocci, L. Chronopoulou, *Gels* **2022**, *8*, 700.
4. "Efficient and Stable Perovskite Solar Cells Based on Nitrogen-Doped Carbon Nanodots"
S. Collavini, **F. Amato**, A. Cabrera-Espinoza, F. Arcudi, L. Đorđević, I. Kosta, M. Prato, J. L. Delgado, *Energy Technol.* **2022**, *10*, 2101059.
5. "Transfer of Axial Chirality to the Nanoscale Endows Carbon Nanodots with Circularly Polarized Luminescence"
S. Di Noja, **F. Amato**, F. Zinna, L. Di Bari, G. Ragazzon, M. Prato, *Angew. Chem. Int. Ed.* **2022**, *61*, e 202202397.

6. "Nuclear Magnetic Resonance Reveals Molecular Species in Carbon Nanodot Samples Disclosing Flaws"
B. Bartolomei, A. Bogo, **F. Amato**, G. Ragazzon, M. Prato, *Angew. Chem. Int. Ed.* **2022**, *61*, e202200038.
7. "Effect of Electrolytic Medium in the Electrochemical Reduction of Graphene Oxide on Si(111) as Probed by XPS"
G. Marrani, A. Motta, **F. Amato**, R. Schrebler, R. Zanoni, E. A. Dalchiele, *Nanomaterials* **2022**, *12*, 43.
8. "Agarose-Based Fluorescent Waveguide with Embedded Silica Nanoparticle-Carbon Nanodot Hybrids for pH Sensing"
F. Amato, M. C. Prado Soares, T. Destri Cabral, E. Fujiwara, C. Monteiro de Barros Cordeiro, A. Criado, M. Prato, J. R. Bartoli, *ACS Appl. Nano Mater.* **2021**, *4*, 9738-9751.
9. "Mapping the Surface Groups of Amine-Rich Carbon Dots Enables Covalent Catalysis in Aqueous Media"
G. Filippini, **F. Amato**, C. Rosso, G. Ragazzon, A. Vega-Peñalosa, X. Companyó, L. Dell'Amico, M. Bonchio, M. Prato, *Chem*, **2020**, *6*, 3022-3037.
10. "Nitrogen-doped Carbon Nanodots/PMMA Nanocomposites for Solar Cells Applications"
F. Amato, M. Cacioppo, F. Arcudi, M. Prato, M. Mituo, E. G. Fernandes, M. N. P. Carreño, I. Pereyra, J. R. Bartoli, *Chem. Eng. Trans.* **2019**, *74*, 1105-1110.
11. "Luminescence Efficiency of Si/SiO₂ Nanoparticles Produced by Laser Ablation"
M. Cannas, P. Camarda, L. Vaccaro, **F. Amato**, F. Messina, T. Fiore, S. Agnello, F. M. Gelardi, *Phys. Status Solidi A* **2019**, *216*, 1800565.
12. "Enhancing the luminescence efficiency of silicon-nanocrystals by interaction with H⁺ ions"
M. Cannas, P. Camarda, L. Vaccaro, **F. Amato**, F. Messina, T. Fiore, M. Li Vigni, *Phys. Chem. Chem. Phys.* **2018**, *20*, 10445-10449.
13. "Inkjet printing Ag nanoparticles for SERS hot spots"
C. Micciché, G. Arrabito, **F. Amato**, G. Buscarino, S. Agnello, B. Pignataro, *Anal. Methods* **2018**, *10*, 3215-3223.
14. "Ag nanoparticles agargel nanocomposites for SERS detection of cultural heritage interest pigments"
F. Amato, C. Micciché, M. Cannas, F. M. Gelardi, B. Pignataro, M. Li Vigni, S. Agnello, *Eur. Phys. J. Plus* **2018**, *133*, 74.

Participation to conferences, schools and workshops

1. "The functionalization of graphene oxide as a way for the preparation of water-dispersible graphene and nanocomposites", **F. Amato**, First Symposium for Young Chemists: Innovation and Sustainability (SYNC2022), June 20-23, 2022, Roma, Italy. Oral presentation.

2. "The carboxylation of Graphene Oxide. A DFT study", R. Di Pasquale, **F. Amato**, A. Motta, A. G. Marrani, R. Zanoni, First Symposium for Young Chemists: Innovation and Sustainability (SYNC2022), June 20-23, 2022, Roma, Italy. Co-author in the poster presentation.
3. "Insights on graphene oxide reactivity via XPS, Raman and UV-Vis spectroscopy", L. Giaccari, **F. Amato**, A. Motta, R. Zanoni, A. G. Marrani, First Symposium for Young Chemists: Innovation and Sustainability (SYNC2022), June 20-23, 2022, Roma, Italy. Co-author in the poster presentation.
4. Participation in the International School of Chemistry, September 01-06, 2020, Camerino, Italy.
5. "Synthesis, characterization and applications of Carbon Nanodots", Annual Workshop of the PhD program in Nanotechnology, January 22, 2020, Trieste, Italy. Oral presentation.
6. "Synthesis, characterization and optoelectronic applications of Silicon dioxide@Carbon Nanodots hybrids", **F. Amato**, J. R. Bartoli, M. Prato, 15th Brazilian Polymer Conference (CBPol), October 27-31, 2019, Bento Gonçalves-RS, Brasil. Co-author in the poster presentation.
7. "Synthesis and Applications of Nitrogen-Doped Carbon Dots with Blue Fluorescence", M. Cèsar Soares, J. R. Bartoli, **F. Amato**, M. Cacioppo, F. Arcudi, M. N. P. Carreño, I. Pereyra, E. Fujiwara, C. K. Suzuki, M. Prato, XVIII Brazil MRS Meeting 2019, September 22-26, Balneário Camboriù, Brasil. Co-author in the poster presentation.
8. Participation in the School of Nanomedicine, October 11-13, 2019, Trieste, Italy.
9. "The Surface properties of Carbon Nanodots", **F. Amato**, G. Ragazzon, M. Prato, Workshop on Low-Dimensional Materials, July 22-23, 2019, San Sebastián, Spain. Oral presentation.
10. Participation in the "Modena Award 2019" symposium, May 3, 2019, Padova, Italy.
11. "Carbon Nanodots-based hybrids for Oxygen Reduction Reaction", **F. Amato**, L. Đorđević, F. Arcudi, G. Valenti, L. Meng, F. Paolucci, M. Prato, E-WISPOC, January 29-February 1, 2019, Bressanone, Italy. Poster presentation.
12. "Synthesis, characterization and applications of Carbon Nanodots", Annual workshop of the PhD program in Nanotechnology, January 22, 2019, Trieste, Italy. Oral presentation.
13. "Metodologie da stampa a getto d'inchiostro per la fabbricazione di substrati SERS", C. Miccichè, G. Arrabito, **F. Amato**, G. Buscarino, S. Agnello, B. Pignataro, Convegno congiunto delle Sezioni Calabria e Sicilia 2019 della Società Chimica Italiana, March 1-2, 2019, Palermo, Italy.
14. Participation in the "XXII International conference on Organic Synthesis", September 16-21, 2018, Florence, Italy.

15. "Antibacterial and antitumoral activities of new organotin(IV)-Schiff bases derivatives", M. Scopelliti, **F. Amato**, R. Alduina, P. Cancemi, S. Rubino, XVII Workshop on PharmacoBioMetallics, February 16-17, 2018, University of Naples "Federico II", Italy. Co-author in the poster presentation.
16. "Streptomyces coelicolor extracellular vesicles", T. Faddetta, S. Castelli, **F. Amato**, C. Miccichè, G. Nasillo, G. Buscarino, D. Chillura Martino, S. Agnello, A. Palumbo Piccionello, G. Gallo, A. M. Puglia, XXXII SIMGBM Congress-Microbiology 2017, September 17-10, 2017, Palermo, Italy.
17. Workshop on analytical data and limit values in Chemistry, October 20, 2010, Palermo, Italy.

Academic training

Course on Transmission Electron Microscopy analysis (TEM) at the department of Life Sciences, University of Trieste, 30 hours.

Tutoring activity

1. *Co-advisor* in the master thesis of Mr. A. Bogo, "Synthesis, purification and characterization of chiral Carbon Dots". Master degree in Chemistry, University of Trieste, July 2021.
2. General Chemistry with laboratory and elements of Organic, Bachelor's degree program in Geology, University of Trieste, 35 hours.
3. Advanced Organic Chemistry, degree program in Chemistry and Pharmaceutical Technologies (CTF), University of Trieste, 2 hours.

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