Aurelio Bifulco

CV - Personal information

Address: Naples, Italy
Nationality: Italian

Source	H-Index	i10-index	Number of publications	Number of citations
Scopus	**20**	**-**	**50**	**1122**
Google Scholar	**22**	**28**	**50**	**1266 (Since 2020: 1237)**

last access: May 2025

Scopus
https://www.scopus.com/authid/detail.uri?authorId=57190870175
Scopus ID: 57190870175
WoS
Researcher ID: AAH-8878-2021
Orcid profile
*https://orcid.org/**0000-0002-4214-5385***
Google Scholar
https://scholar.google.de/citations?user=MsOlPgMAAAAJ&hl=en
e-mail: aurelio.bifulco@unina.it
in: www.linkedin.com/in/bifulcoaurelio
UniNa (sito docenti - home page): https://www.docenti.unina.it/aurelio.bifulco

Scientific qualification and main research topics

Aurelio Bifulco has an advanced knowledge and consolidated experience in the following scientific fields (see also the publications list):

1) *Synthesis of hybrid sol-gel modified polymers for the manufacturing of composites with enhanced thermal, fire and mechanical behavior.*
2) *In-situ generation of inorganic phases in polymer matrices for the preparation of flame retarded polymeric materials.*
3) *Valorization of biowastes through sol-gel functionalization to be used as flame retardant and functional additive for the development of polymer-based composites.*

4) *Synthesis and functionalization of organic and inorganic nanoparticles to obtain flame retarded natural fabrics and superhydrophobic/icephobic polymeric surfaces.*
5) *Synthesis of recyclable and inherently flame retardant covalent adaptable networks and vitrimers.*
6) *Preparation of electrospun polymer-based materials with fire retardant properties and very low wettability.*
7) *Prediction of fire parameters of polymeric and textile materials by machine learning tools.*
8) *Synthesis of multi-stimuli responsive shape-recovery polymers and smart coatings with high transparency and flame retardant properties.*
9) *Sol-gel synthesis of mixed metal oxides to be used as catalyst for the conversion of organic compounds or flame retardant synergists for the lowering of the smoke release.*
10) *Preparation of hybrid (organic-inorganic) complexes based on semiconductors for the degradation by advanced oxidation processes of microplastics and other pollutants.*

Profile

Aurelio Bifulco is a Contract Professor of Chemistry at University of Naples Federico II (UniNa). Before that, he was a non-tenured Assistant Professor (RtDA - Examination section (GSD): 03/CHEM-06, Disciplinary Scientific Sector (SSD): Chemical Foundations of Technologies (CHEM-06/A)) in the "Department of Chemical, Materials and Production Engineering (DICMAPI)" at UniNa. His research activity is focused on sol-gel chemistry, polymer chemistry, flame retardancy, coatings, nanotechnology, catalysis, functional metal-based mixed oxides. Aurelio Bifulco also worked as PostDoc and Research Fellow at UniNa involved in several R&D projects, in collaboration with industries (Geven S.p.A., Laminazione Sottile S.p.A., Procter & Gamble S.p.A., etc.), that dealt with super-hydrophobicity, fire retardant materials and nanocomposites. He received his PhD in "Industrial Product and Process Engineering" from the "University of Naples Federico II" in 2020. He was Visiting PhD Student at "Empa - Swiss Federal Laboratories for Materials Science and Technology" St. Gallen (Switzerland), where he worked as a member of the Additive and Chemistry Group on the development of new hybrid flame retardant strategies for epoxy materials. He was Visiting PhD Student at "KU Leuven" for a school in the field of Ultrasound and Microwave Technologies. As Erasmus Student, he carried out a master's degree thesis in the Institute of Chemical Engineering at "TU Wien" conducting research on combustion and fluidized bed systems. He performed a bachelor's degree thesis in the "Department of Chemistry" at "University of Naples Federico II" studying the synthesis of liquid crystalline polymers for optical applications.
Aurelio Bifulco was member of the Erasmus Committee (10/02/2022 - 29/12/2024) and Enhancement of Knowledge Committee (25/07/2024 - 29/12/2024) of the DICMAPI (UniNa). He was also member of the Executive Committee (membro della Giunta di Dipartimento) of the DICMAPI (UniNa). This role was decreed in date 10/05/2022 and will be filled from 2022 to 2025. Aurelio Bifulco was member of the Third Mission Committee of the DICMPAI (UniNa) from 10/02/2022 to 25/07/2024.
Aurelio Bifulco is member of the Italian Chemical Society, the Italian Association of Science and Technology of Macromolecules, the International Sol-Gel Society, the European Aeronautics Science Network, the Italian Association of Calorimetry and Thermal Analysis.

Academic and professional carrier

- **05/03/2025 - to date -** Adjunct Professor (Contract Professor) of Chemistry at University of Naples Federico II. SSD: Chemical Foundations of Technologies (CHEM-06/A).
- **30/12/2021 - 29/12/2024 -** Assistant Professor (RtDA - *no-tenured researcher of type A*) at University of Naples Federico II (Department of Chemical, Materials and Production Engineering). SSD: Chemical Foundations of Technologies (CHEM-06/A).
- **01/02/2020 - 31/07/2021 -** Research Assistant (PostDoc) at University of Naples Federico II (Department of Chemical, Materials and Production Engineering) for an industrial project concerning the manufacturing of

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flame retarded bio-composites (06/2020/ASS.RIC.) SSD: Chemical Foundations of Technologies (CHEM-06/A).

- **01/02/2017 - 12/05/2020 -** PhD student in Industrial Product and Process Engineering (SSD CHEM-06/A) at University of Naples Federico II (Department of Chemical, Materials and Production Engineering). Dissertation: "Surface modifications of natural fibers and synthesis of inorganic nanoparticles for tailoring of the interphase and the flame retardancy of green composites". (Tutors: Prof. Francesco Branda (UniNa), Prof. Giulio Malucelli (PoliTo), Prof. Brigida Silvestri (UniNa), Dr. Sabyasachi Gaan (Empa)).
- **01/03/2016 - 31/01/2017 -** Research Fellow at University of Naples Federico II (Department of Chemical, Materials and Production Engineering) for an industrial project named "Interiors Multifunctional Materials (IMM)". Research topic: Synthesis and manufacturing of silica-epoxy hybrid nanocomposites for the aerospace industry.
- **01/06/2015 - 31/12/2015 -** Process Engineer at De Nigris Group (Food & Beverage Industry), SS87, 80023 Caivano, Naples. Activities: lean manufacturing tools, maintenance management, international food regulations, quality control, formulation of new recipes, drafting of laboratory reports, customer complaint management.
- **01/07/2013 - 30/11/2014 -** Erasmus Student for master thesis at Vienna University of Technology (Chemical Combustion Institute, Austria). Activities: fluidized bed systems, chemical looping combustion, reactor design process and scale-up, chemical process engineering, fluid-dynamics and process optimization. (Tutors: Prof. Fabio Montagnaro (UniNa), Dr. Roberto Solimene (Combustion Research Institute-National Research Council, IRC-CNR), Dr. Stefan Penthor (TUWien)).
- **01/11/2011 - 30/04/2012 -** Analytical Chemist at Local Health Authority ASL Napoli 3 SUD (Toxicologist). Activities: determination of common drugs of abuse in body fluids, guidelines for safe work practices, toxicological risk assessment of chemicals.

Education

- **2017-2020 -** Doctor of Philosophy - PhD, Industrial Product and Process Engineering (SSD CHEM-06/A). Dissertation: "Surface modifications of natural fibers and synthesis of inorganic nanoparticles for tailoring of the interphase and the flame retardancy of green composites". (Tutors: Prof. Francesco Branda (UniNa), Prof. Giulio Malucelli (PoliTo), Prof. Brigida Silvestri (UniNa), Dr. Sabyasachi Gaan (Empa)).
- **2011-2014 -** MSc(Hons), Science and Technology of Industrial Chemistry. Master thesis: "Investigation on Interconnected Fluidized Bad Systems finalized to Chemical Looping Processes". (Tutors: Prof. Fabio Montagnaro (UniNa), Dr. Roberto Solimene (IRC-CNR), Dr. Stefan Penthor (TUWien)).
- **2007-2011 -** BSc, Industrial Chemistry. Bachelor thesis: "Copper (II) chiral complexes as components of cholesteric liquid crystals for optical applications". (Tutor: Prof. Antonio Roviello (UniNa).
- **2002-2007 -** High School Diploma, Scientific Diploma with a focus on informatics.

Language skills

- **09/07/2020 - C1 Goethe-Institut Zertifikat** at Goethe-Institut Neapel (Naples, Italy). Reference number: 1301-AC1A-0000563478.
- **02/03/2013 - English certificate B2** (Pearson – EDI, accreditation number: 500/33328/1, serial number: 23088466) released from "London Chamber of Commerce and Industry International Qualification" (Pearson Education Limited).

Awards and scholarships

- As master degree student at University of Naples Federico II, Aurelio Bifulco was selected for an **Erasmus scholarship**. Aurelio Bifulco performed his master degree thesis at **Vienna University Technology - TUWien (Austria)** from 01/10/2013 to 28/02/2014.

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Additional professional courses

- **12/01/2024, 19/01/2024 - Health, Safety and Environment Manager** (Preposto al servizio di prevenzione e protezione, Legislative Decree 81/08) - University of Naples Federico II - Department of Chemical, Materials and Production Engineering.
- **14/09/2023 - 23/11/2023 -** "Proposal Writing for European Research & Innovation Projects" organized by The Italian Ministry for Universities and Research - PON Ricerca e Innovazione 2014-2020 REACT EU.
- **2020-2021 - University course (60 CFU) in "Content and Language Integrated Learning (CLIL)".** e-Campus University (Novedrate). Duration: 1500h. Identification code (student number): 009316245. The final exam was carried out in date 14/07/2021 and the certificate was released in date 16/07/2021. Course Director: Alfonso Lovito.
- **5, 7, 9/10/2020 - University course** focused on the principles and fundamentals of the **"Legislative Decree 81/08"** - Health and safety protection and accident prevention" (ATECO 2007 MACROSETTORE 85.42). University of Naples Federico II - Department of Chemical, Materials and Production Engineering.
- **2017-2020 - University courses attended during the PhD program** (XXXII ciclo cycle) in "Industrial Product and Process Engineering" at University of Naples Federico II - Department of Chemical, Materials and Production Engineering:
  - ✓ "Advanced Mass Spectrometry Course". Prof. Piero Pucci ("University of Naples Federico II").
  - ✓ "An Introduction to Industry 4.0: Scientific and R&D Action Fields". Prof. Alessandra Caggiano ("University of Naples Federico II").
  - ✓ "FRP composites in bridge engineering". Prof. Tomasz Siwosky ("Rzeszów University of Technology", Polonia).
  - ✓ "Green Economy in Engineering Projects". Docente: Prof. Gabriella Ferruzzi ("University of Naples Federico II").
  - ✓ "Infrared, Near Infrared and Raman Spectroscopy". Docente: Prof. Pellegrino Musto ("Institute of Polymers, Composites and Biomaterials (IPCB-CNR)").
  - ✓ "Introduction to Systems Engineering". Eng. Davide Fierro ("National Institute of Astrophysics (INAF)").
- **2017-2018 - University course for the acquiring of 24CFU** in: educational psychology, educational pedagogy, chemical laboratory theory and food chemistry laboratory. University of Naples Federico II.
- **13/06/2017 - Online course** concerning the acquiring of **"EIPASS (European Informatics PASSport) 7 MODULES USER"** certificate. CERTIPASS – User code: C700300146, Certificate code: IT3EMQLPXV.
- **13/06/2017 - University course ("Corso sull'uso didattico della LIM") focused on the methodologies regarding the organization of classroom teaching activities** and the use of the interactive whiteboard. Associazione Nazionale Orientatori (CERTIPASS, EIPASS) – User code: LC00300146, Certificate code: 2857BE22. Duration: 300h.
- **01/02/2016 - 30/04/2016 - Health, Safety and Environment Manager** (Responsabile del servizio di prevenzione e protezione (RSPP)) – Section A (reference number: EB00F334/2016/0021), section B6 (reference number: EB00F334/2016/0026), section C (reference number: EB00F334/2016/0030), Safety Trainer (reference number: EB00F334/2016/0028) and "Confined Space" (reference number: 1104016001035). The "Health, Safety and Environment Manager" course was attended at Join Academy E Consulting SOC COOP. AR. L. (Centro Direzionale di Napoli Isola E7 – 80143 – Napoli – NA P.iva 07390691215).
- **05/04/2016 - Reach and CLP regulations and safety data sheets** – Section: "Health and safety protection and accident prevention" - (Roma Tre University). Duration: 8h.

Cooperation and projects

His scientific activities have been also carried out in collaboration with public and private partners:

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- University of Naples Federico II: Prof. Antonio Aronne, Prof. Massimo Durante, Prof. Francesco Marulo, Prof. Giuseppe Mensitieri, Prof. Veronica Ambrogi, Prof. Aniello Costantini, Prof. Francesco Branda, Prof. Giuseppina Luciani, Prof. Brigida Silvestri, Dr. Giuseppe Vitiello.
- Polytechnic of Turin: Prof. Giulio Malucelli.
- University of Campania "Luigi Vanvitelli": Prof. Gino Iannace, Prof. Luigi Vertuccio.
- Empa - Swiss Federal Laboratories for Materials Science and Technology: Dr. Sabyasachi Gaan, Dr. Dambarudhar Parida, Dr. Shanyu Zhaoc, Dr. Daniel Rentsch, Dr. Sandro Lehner, Dr. Wenyu Wu Klingler.
- University of Victoria, Canada: Dr. Rashid Nazir.
- Al-Balqa Applied University, Jordan: Prof. Khalifah A.Salmeia.
- Leibniz-Institut für Polymerforschung Dresden, Germany: Dr. Doris Pospiech, Dr. Dieter Jehnichen.
- Institute of Polymers, Composites and Biomaterials (IPCB): Dr. Eugenio Amendola.
- Petru Poni Institute of Macromolecular Chemistry, Romania: Dr. Cristian-Dragos Varganici, Dr. Dan Rosu, Dr. Liliana Rosu.
- Dali University, Yunnan, Dali, China: Prof. Kezhen Qi, Dr. Jingjing Zhang.
- Tongji University, Shanghai, China: Dr. Zhenyu Huang.
- University of Salerno: Prof. Liberata Guadagno, Prof. Marialuigia Raimondo.
- University of Lorraine, France: Prof. Henri Vahabi.
- Luleå University of Technology, Sweden: Dr. Rhoda Afriyie Mensah, Prof. Oisik Das.
- Beijing Institute of Technology, China: Prof. Yetang Pan.
- Texas A&M University, USA: Prof. Jaime Grunlan.
- University of Dayton Research Institute, USA: Dr. Alexander B. Morgan.
- Università di Catania: Prof. Ignazio Blanco.

Tutoring activity

- **Thesis supervisor** of 4 Bachelor Degree students (L-27, Industrial Chemistry) at University of Naples Federico II.
- **Thesis supervisor** of 9 Bachelor Degree students (L-9, Chemical Engineering) at University of Naples Federico II.
- **Thesis supervisor** of 1 Bachelor Degree student (L-9, Naval Engineering) at University of Naples Federico II.
- **Thesis supervisor** of 1 Bachelor Degree student (L-9, Aerospace Engineering) at University of Naples Federico II.
- **Thesis supervisor** of 4 Master Degree students (LM-22, Chemical Engineering) at University of Naples Federico II.
- **Thesis supervisor** of 2 Master Degree students (LM-71, Science and Technologies of Industrial Chemistry) at University of Naples Federico II.
- **Thesis supervisor** for 3 PhD students (PhD in Industrial Products and Process Engineering) at University of Naples Federico II.

Editorial activity

- **23/01/2024 - to date - Guest Editor** for a "Research Topic" titled "Development of sustainable catalytic materials for oxidative processes" in an international peer-reviewed journal "Frontiers in Chemical Engineering" (section: Materials Processing Engineering).
- **04/05/2023 - to date - Review Editor** for an international peer-reviewed journal Frontiers in Chemistry (section: Organometallic Chemistry).
- **25/03/2024 - 30/04/2025 - Guest Editor** for a "Special Issue" titled "Hybrid O/I Sol–Gel-Derived Nanocomposites Systems for Advanced Functional Applications" in an international peer-reviewed journal "Molecules" (section: Materials Chemistry).

- **02/11/2020 - 10/05/2022 - Guest Editor** for a Special Issue titled "Surface Modifications for Advanced Polymer Composites" published on the journal "Materials" (MDPI, Switzerland).
- **18/09/2020 - 30/09/2021 - Assistant Guest Editor** for a Special Issue titled "Sol-Gel Route to Functional Materials for Bio-Fuel Production and Pollution Control" published on the journal "International Journal of Environmental Research and Public Health" (MDPI, Switzerland).

Aurelio Bifulco is also reviewer for several journals (Reactive and Functional Polymers, Polymers, Materials Chemistry and Physics, Materials Science and Engineering: B, Applied nano, Materials Today Communications, Materials, Biomolecules, Applied Surface Science, ACS Applied Materials and Interfaces, Polymer Degradation and Stability, Journal of Cleaner Production, Chemical Engineering Journal, etc.).

Project activity

Aurelio Bifulco took part at the following research and industrial projects:

- ***Since December 2021 to December 2024*** - **Reference number: PON_GREEN_RTDA_2021_24(2024)**. Title of the research project: PON "Ricerca e Innovazione" 2014-2020 (PON R&I) - Azione IV.6 – "Contratti di ricerca su tematiche Green". University of Naples Federico II - Department of Chemical, Materials and Production Engineering. Principal Investigator: Dr. Aurelio Bifulco. Supervisor of research activities: Prof. Antonio Aronne.
- ***Since March 2023 to April 2024*** - **Philip Morris International** - Title of the project: "Anti-counterfeit epoxy coatings as transparent and photoluminescent packaging component with enhanced stability, flame retardancy and mechanical behavior". University of Naples Federico II - CeSMA (Center of Advanced Measurement and Technological Services). Principal Investigator: Prof. Antonio Aronne (UniNa). Investigators: Dr. Aurelio Bifulco (UniNa), Dr. Claudio Imparato (UniNa) and Prof. Giuseppe Vitiello (UniNa).
- **"Microgravity Space Cup Team"** (2021-2022) as Supervisor to fabricate an epoxy-based support for several experiments in aerospace sector. The project was sponsored by University of Naples Federico II for students of the Aerospace Engineering course.
- **Reference number: 000008-LAMINAZIONESOTTILE2017-MENSITIERI**, University of Naples Federico II - Department of Chemical, Materials and Production Engineering. Research topic: Development of superhydrophobic and superhydrophilic paints based on nanotechnologies to be used as functional coatings for aluminum supports in the HVAC-R industrial sector. Principal Investigator: Prof. Giuseppe Mensitieri. Supervisor of research activities: Prof. Francesco Branda.
- **Reference number: DICMAPI PAC01_00119 (PAC01_00119/4 POTENZIAMENTO) "PROGETTO MITO" - INFORMAZIONI MULTIMEDIALI PER OGGETTI TERRITORIALI**, University of Naples Federico II - Department of Chemical, Materials and Production Engineering. Research topic: Multimedia Information for Territorial Objects. Supervisor of research activities: Prof. Francesco Branda.
- **Reference number: HORIZON 2020 - MINISTERO DELLO SVILUPPO ECONOMICO** - Programma Operativo Nazionale Imprese e Competitività 2014-20 - GRANDI PROGETTI R&S - SOLLETICO, University of Naples Federico II - Department of Chemical, Materials and Production Engineering. Research topic: Development of materials with enhanced thermal and soundproofing properties". Supervisor of research activities: Prof. Francesco Branda.
- **Reference number: 000008-PON03PE_00138_IMM/R_-D.CAPUTO_001_002**, University of Naples Federico II - Department of Chemical, Materials and Production Engineering, **PROGETTO PON03PE_00138 IMM RICERCA TITOLO: "INTERIORS CON MATERIALI MULTIFUNZIONALI",** PROF. DOMENICO CAPUTO (CUP B88F12000990005). Research topic: Silica/epoxy-based materials for the development of composites to be used in the aerospace industry. Principal Investigator: Prof. Domenico Caputo. Supervisor of research activities: Prof. Francesco Branda.

Aurelio Bifulco is involved in the following industrial projects:

- ***Since November 2023 - to date*** - Title of the project: "Synthesis strategies to obtain nonlinear optical materials for quantum sources". **PRIN-PNRR 2022 (national research project) - Identification code: P2022YNMCL**.

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Principal Investigator: Prof. Antonio Aronne (UniNa), Investigators: Prof. Alessandro Vergara (UniNa), Dr. Luigi Sirleto (CNR), Dr. Aurelio Bifulco (UniNa), Dr. Claudio Imparato (UniNa).

- ***Since October 2023 - to date* - Public funding/Finanziamento della Ricerca di Ateneo from the University of Naples Federico II for research activities 2022** (University of Naples Federico II) - Project Proposal EPIC - Title of the project: "Eco-sustainable production of biofuels from the conversion of sludges through hydrothermal liquefaction". Principal Investigator: Marco Balsamo (UniNa), Investigators: Dr. Aurelio Bifulco (UniNa) and Dr. Claudio Imparato (UniNa).
- ***Since 29/06/2023 - to date* - Research industrial project -** Title of the project: "Design and development of sustainable polymer-based coating for antifouling applications (Green-Coat)". University of Naples Federico II - Marine Work System S.p.A. - Principal Investigator: Prof. Antonio Aronne (UniNa). Investigators: Dr. Aurelio Bifulco (UniNa), Dr. Claudio Imparato (UniNa) and Prof. Amedeo Amoresano (UniNa). Duration: 3 years.

Participation in Conferences

Aurelio Bifulco was member of the Organizing Committee for:

- **04/09/2022 - 07/09/2022 -** 1° Congresso Nazionale della Divisione Chimica per le Tecnologie (DCT) della Società Chimica Italiana / First National Congress of Chemistry for Technologies of the Italian Chemical Society. Organized by: Università degli Studi di Napoli Federico II, University of Campania "Luigi Vanvitelli", Università degli Studi di Napoli 'Parthenope', Università degli Studi di Salerno. The conference carried out in Naples (Centro Congressi Federico II).

Aurelio Bifulco was speaker for 5 national and 12 international conferences:

- **03/06/2025 - 06/06/2025 -** Invited oral speaker at FRPM2025 - European Meeting on Fire Retardant Polymeric Materials (Universidad Politécnica de Madrid: Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos, Madrid, Spain). Title of the invited oral speech: "Effect of mixed oxides as acid catalysts in phosphine oxide epoxy-based covalent adaptable networks". During the Conference, Aurelio Bifulco was also Reviewer for the poster session and Chairman for one of the oral sessions.
- **09/12/2024 - 11/12/2024 -** Oral speaker at "XLV National Conference on Calorimetry, Thermal Analysis and Applied Thermodynamics (AICAT)" (Hotel Royal Caserta, Naples, Italy). Title of oral presentation: "Coffee waste-derived biochar as flame retardant additive for the synthesis of self-extinguishing hybrid epoxy nanocomposites".
- **08/10/2024 - 11/10/2024 -** Oral speaker at "14th EASN International Conference - Innovation in Aviation & Space towards sustainability today & tomorrow" (Concert Hall of Thessaloniki, Thessaloniki, Greece) in the section "Innovative Technology and Manufacturing Processes to Realize Structural Smart Composites". Title of oral presentation: "Multifunctional nanostructured composites containing biomass-derived functional additives".
- **08/09/2024 - 11/09/2024 -** Oral speaker at "XXV National Conference of the Italian Association of Science and Technology of Macromolecules (AIM)" (Hotel Royal Continental, Naples, Italy) in the section "Polymeric hybrid materials and nanocomposites: synthesis, characterization and their applications". Title of oral presentation: "A sustainable sol-gel approach for the preparation of self-extinguishing hybrid epoxy nanocomposites containing coffee-derived biochar".
- **01/09/2024 - 06/09/2024 -** Oral speaker at "22nd International Sol-Gel Conference" (Langenbeck Virchow Haus, Berlin, Germany) in the section "Nano- and micro-structured materials". Title of oral presentation: "Sol-gel chemistry as a facile way for the synthesis of flame retardant hybrid epoxy nanocomposites".
- **26/08/2024 - 30/08/2024 -** Oral speaker at "XXVIII National Conference of the Italian Chemical Society" (Allianz MiCo Congress Center, Milan, Italy). The theme of the event is "Chemistry Elements of Future". Title of oral presentation: "Multifunctional Shape Memory Epoxy Nanocomposites Containing Carbon Dots".
- **22/05/2024 - 23/05/2024 -** Oral speaker at "ECOFRAM 2024: International Conference on Eco-Friendly Additives and Materials" (Aimplas, Valencia, Spain) in the section "New Sustainability Approaches: End of Life

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and the Circular Economy". Title of oral presentation: "Self-extinguishing hybrid epoxy composites containing humic acid and other synergists".

- **05/09/2023 - 08/09/2023 -** Oral speaker at 13th EASN International Conference on "Innovation in Aviation & Space for opening New Horizons" (University of Salerno, Fisciano Campus, Salerno, Italy) in the section "Polymeric Composites and Processes for primary and secondary aircraft structures". Title of oral presentation: "Polymeric Composites for Secondary Aircraft Structures: Design and Development of Hybrid Si/P–Epoxy Nanocomposites".
- **26/06/2023 - 29/06/2023 -** Invited oral speaker at FRPM2023 - European Meeting on Fire Retardant Polymeric Materials (Empa Academy - Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland). Title of the keynote speech: "Aliphatic silica-epoxy systems containing DOPO-based flame retardants, bio-wastes, and other synergists". During the Conference, Aurelio Bifulco was also Reviewer for the poster session and Chairman for one of the oral sessions.
- **18/10/2022 - 21/10/2022 -** Oral speaker at 12th EASN International Conference on "Innovation in Aviation & Space for opening New Horizons" (Universitat Politecnica de Catalunya - BarcelonaTech (UPC), Barcelona, Spain) in the section "Multi-material design and function integration of composites". Title of oral presentation: "Hybrid Strategies for the Improvement of the Flame Retardancy of in-situ Silica-Epoxy Nanocomposites cured with Aliphatic Hardener".
- **16/06/2022 - 17/06/2022 -** Oral speaker at "IX Workshop AICIng 2022" (Ancona). Title of oral presentation: "PVP-based composites containing Sol-Gel nanosized SiO_2 and hybrid TiO_2 microparticles for Water Purification".
- **14/09/2021 - 23/09/2021 -** Oral speaker at "XXVII Congresso Nazionale della Società Chimica Italiana". The conference took place online. Title of oral presentation: "Hybrid Strategies for the Improvement of the Flame Retardancy of in-situ Silica-Epoxy Nanocomposites cured with Aliphatic Hardener".
- **01/09/2021 - 03/09/2021 -** Oral speaker at "11th EASN Virtual International Conference (EASN Association)" on the topic of "Innovation in Aviation & Space to the Satisfaction of the European Citizens" in the section "Design of self-responsive composites for aeronautical applications". Title of oral presentation: "Innovative self-responsive composites for aeronautical applications through Sol-Gel chemistry". The conference took place online.
- **29/09/2020 - 01/10/2020 -** Invited Lecture at the International Conference "Thermosetting Resins 2020 From Basics to Applications" organized by InnoMat GmbH (Berlin, Germany). Title of oral presentation: "Flame retardation of aliphatic epoxy resins with hybrid strategies". The conference did not take place because of the corona virus pandemy.
- **19/11/2018 - 21/11/2018 -** Oral speaker at "Merck & Elsevier Young Chemists Symposium 2018 Edition" (Rimini). Title of oral presentation: "Silica Coated Hemp Fabrics and Microfibers through a Green Ecofriendly Chemical Approach".
- **17/06/2018 - 21/06/2018 -** Oral speaker at "TOP 2018 - 9th International Conference on Times of Polymers and Composites" (Ischia). Title of oral presentation: "Flame retardancy and Mechanical Properties of Ecofriendly Coated Hemp Fabrics/Epoxy Composites".
- **13/11/2017 - 15/11/2017 -** Oral speaker at "MYCS - Merck Young Chemists Symposium 2017 Edition" (Milano Marittima). Title of oral presentation: "A Fire Retardant Strategy for Hemp Fabric/Epoxy Composites".

Teaching activity

- **Since the A.Y. 2022-23 -** he teaches the PhD Course "Sol-gel synthesis of nanostructured functional materials", PhD in Industrial Product and Process Engineering (UniNa).
- **Since the A.Y. 2023-24 -** he teaches the Academic Course "Chemistry of eco-sustainable materials for aerospace and energy", Master's Degree Couse in Aerospace Engineering (UniNa).
- **Since the A.Y. 2021-22 -** he teaches the Academic Course "Environmental Sustainability in the Naval Transportation", Master's Degree Course in Naval Engineering (UniNa).

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- **Since the A.Y. 2021-22 -** he teaches the Academic Course "Chemistry", Bachelor's Degree Course in Mechanical Engineering and Aerospace Engineering (UniNa).
- **01/10/2020 - 09/12/2020 -** lab assistant for the Academic Course "Chemistry", Bachelor's Degree Course in Materials Science and Engineering (UniNa).
- **Since the A.Y. 2018-19 to A.Y. 2020-21 -** Teaching Fellow for the Examination Board of Chemistry in Academic Courses (SSD CHEM-06/A).

Institutional roles and participation in committees

- **18/12/2024 - Member of the Examination Committee** for the graduation of 1 bachelor student in Chemical Engineering at University of Naples Federico II.
- **01/10/2024 - Member of the Examination Committee** for the graduation of 1 bachelor student in Chemical Engineering at University of Naples Federico II.
- **23/09/2024 - 27/10/2024 - Reviewer for 3 grant proposals** concerning research projects for pre-doctoral researchers**.** Invitation to review received from the National Science Centre Poland. Panel: ST5 (Synthetic Chemistry and Materials Science). Duration: 36 months.
- **12/06/2024 -** Decreed **Scientific Director** by the Department Council (Department of Chemical, Materials and Production Engineering) for the Erasmus Traineeship program established between the company "Aimplas" (Valencia, Spain) and "University of Naples Federico II". Erasmus program for Master thesis in chemistry field.
- **20/05/2024 - Member of the Committee** for the examination of candidates (Identification: 19-2024-AR). Research project: University of Naples Federico II. Founder: Bando PRIN 2022 PNRR (D.D. n. 1409 del 14.09.2022). Title of the project: "Synthesis strategies to obtain non-linear optical materials for quantum sources " - (NLOQS)". Identification code: P2022YNMCL - Award number: E53D23016170001.
- **18/03/2024 - 02/04/2024 - Reviewer for 3 grant proposals** concerning research project for researchers holding a PhD**.** Invitation to review received from the National Science Centre Poland. Panel: ST5 (Synthetic Chemistry and Materials Science). Duration: 36 months (2 projects), 48 months (1 project).
- **25/03/2024 - Member of the Examination Committee** for the graduation of 1 master student in Chemical Engineering at University of Naples Federico II.
- **19/01/2024 - Recording Secretary (Segretario verbalizzante)** for the Department Council (Consiglio di Dipartimento) in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II).
- **20/12/2023 - Member of the Examination Committee** for the graduation of 1 bachelor student in Chemical Engineering at University of Naples Federico II.
- **13/12/2023 - Recording Secretary (Segretario verbalizzante)** for the Department Council (Consiglio di Dipartimento) in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II).
- **01/12/2023 - Member of the Committee** for the examination of candidates (Identification: BSRicerca_2023_CESMA_PHILIP_03). Research project between CEntro Servizi Metrologici e tecnologici Avanzati (CESMA) and University of Naples Federico II. Founder: Philip Morris International. Title of the project: "Transparent and photoluminescent anti-counterfeit epoxy coatings with enhanced thermal stability, flame retardancy, and mechanical behavior".
- **21/11/2023 - Recording Secretary (Segretario verbalizzante)** for the Department Council (Consiglio di Dipartimento) in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II).
- **03/10/2023 - 13/10/2023 - Reviewer for a grant proposal** concerning a research project for pre-doctoral researchers**.** Invitation to review received from the National Science Centre Poland. Panel: ST5 (Synthetic Chemistry and Materials Science). Duration: 2 years.
- **05/10/2023 - 13/10/2023 - Reviewer for a PhD (XXXVI cycle) Thesis** in "Industrial Engineering" (Curriculum: Chemical and Environmental Engineering). Invitation to review received from the Academic Board (Collegio

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dei docenti del Corso di dottorato) of University of Padua (Department of Industrial Engineering). Coordinator: Ch.mo Prof. Giulio Rosati. Title oh PhD thesis: ""Flame Retarded Polymers and Coatings: Experimental Development and Theoretical Modelling".

- **28/06/2023 - Chairman at the FRPM2023 -** European Meeting on Fire Retardant Polymeric Materials (Empa Academy - Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland). Session 8 - New Developments in Flame Retardants (chemistry, application, synergism).
- **March 2023 to October 2023 - Member of the Examination Committee** for the graduation of 2 master and 3 bachelor students (Chemical Engineering, Naval Engineering) at University of Naples Federico II.
- **10/03/2023 - Member of the Committee** for the examination of candidates (Identification: BSRicerca_2023_CESMA_PHILIP_01). Research project between CEntro Servizi Metrologici e tecnologici Avanzati (CESMA) and University of Naples Federico II. Founder: Philip Morris International. Title of the project: "Transparent and photoluminescent anti-counterfeit epoxy coatings with enhanced thermal stability, flame retardancy, and mechanical behavior".
- **12/06/2022 - Member of the Committee** for the election of Joint Committee (Commissione Paritetica) members and the Didactic Coordinator of the Chemical Engineering Degree Course.
- **31/05/2022 - Member of the Examination Committee** for the graduation of 1 master student in Chemical Engineering at University of Naples Federico II.
- **12-13/04/2022 - Member of the Committee** for the election of Executive Committee Members (membri della Giunta di Dipartimento) in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II).
- **30/03/2022 - Member of the Committee** for the election of a Full Professor in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II) to decide regarding the national scientific habilitation of tenured Assistant Professors (RtDB).
- **09/03/2022 - Member of the Committee** for the election of the technical staff working in the Department of Chemical, Materials and Production Engineering (University of Naples Federico II).

Third Mission

- **09/11/2024 - 31/12/2024 - Teaching Assistant**/Docente responsabile di due corsi in an educational guidance project (Progetto di orientamento scolastico) **Orizzonti@UniNa**. Duration: 30 hours. Location: Liceo Statale/High School NAPC39000D - L.CL.A.DIAZ, Ottaviano (Naples). Identification numbers of the courses: "30482" and "30484".
- **18-20/11/2024 - Organizer for the "Chemistry" group** (University of Naples Federico II - Department of Chemical, Materials and Production Engineering) during the event "*FUTUROREMOTO 2024 | CO-SCIENZE - XXXVIII 2024 Edition*".
- **10/04/2024 - 14/06/2024 - Teaching Assistant**/Docente responsabile di corso in an educational guidance project (Progetto di orientamento scolastico) **Orizzonti@UniNa**. Duration: 15 hours. Location: Liceo Statale/High School "Ernesto Pascal", Sant'Antonio Abate (Naples). Identification number of the course: 19148.
- **12/03/2024 -** Corresponding author for the article titled **"Nanocompositi epossidici multifunzionali contenenti punti quantici di carbonio"** in Composite Magazine (Fascicolo 2 – Maggio/Agosto 2024) – edited by Dr. Gian Battista Pècere (Centro Ricerche Editoriali Internazionali, Milan, Italy) - https://www.compositimagazine.it/
- **20/03/2024 -** Organizing member for the national project of scientific promotion "Giornata Nazionale delle Università - Università svelate" - "Federico II Svelata".
- **22/02/2024 -** "Multifunctional fire-resistant and flame-triggered shape memory epoxy nanocomposites containing carbon dots" published in Chemical Engineering Journal (https://doi.org/10.1016/j.cej.2024.149327) has been advertised on the home page (http://www.unina.it/) of University of Naples Federico II.

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- **01/02/2024 -** Corresponding author for the article titled **"Flame retardant strategies for the synthesis of hybrid epoxy nanocomposites"** in PolyFlame (Newsletter n°28 – Février 2024) – edited by Prof. Henri Vahabi (Université de Lorraine (France) - Laboratoire MOPS, http://gcf-scf.lmops.univ lorraine.fr/).
- **19/12/2023 -** Organizer for the **webinar** regarding the national research project "Synthesis strategies to obtain nonlinear optical materials for quantum sources". **PRIN-PNRR 2022** - Identification code for the project: P2022YNMCL (see "project activity" section for more details).
- **01/03/2023 - 31/05/2023 - Teaching Assistant**/Docente responsabile di corso in an educational guidance project (Progetto di orientamento scolastico) **Orizzonti@UniNa**. Duration: 15 hours. Location: Liceo Statale/High School NAPC39000D - L.CL.A.DIAZ, Ottaviano (Naples). Identification number of the course: 4873.
- **04/09/2022 - 07/09/2022 -** Co-author for the article titled **"Chemistry for Technologies meets in Naples"** in the journal "La Chimica & l'Industria / The Chemistry and the Industry" (Publisher. PAS-SCI Srl, Italian Chemical Society / Società Chimica Italiana) to write about the First National Congress of Chemistry for Technologies of the Italian Chemical Society / 1° Congresso Nazionale della Divisione Chimica per le Tecnologie (DCT) della Società Chimica Italiana.
- **4, 8/04/2022 - Oral Speaker for an Online Workshop** "The Electrochemistry" ("L'Elettrochimica") in a jointly collaboration between the Department of Chemical, Materials and Production Engineering (University of Naples Federico II) and I.P.S.I.A. Enrico Bernardi (Padova).
- **27-29/11/2021 - Organizer for the "Chemistry" group** (University of Naples Federico II - Department of Chemical, Materials and Production Engineering) during the event "*FUTUROREMOTO 2021 | Un viaggio tra scienza e fantascienza - Transizioni – XXXVI 2021 Edition*".

Visiting Research Fellow

- **17/02/2025 - 20/02/2025 -** Visiting Researcher at Empa (Swiss Federal Laboratories for Materials Science and Technology, St. Gallen and Dübendorf, Switzerland). Group Leader of "Additives and Chemistry": Dr. Sabyasachi Gaan. Main activities: development and definition of new application for national and international research projects.
- **22/06/2023 - 25/06/2023 -** Visiting Researcher at Empa (Swiss Federal Laboratories for Materials Science and Technology, St. Gallen and Dübendorf, Switzerland). Group Leader of "Additives and Chemistry": Dr. Sabyasachi Gaan. Main activities: future works on new flame retarded vitrimer materials, exchange of students for master degree thesis (UniNa/Empa) and revision of drafting research papers for future publications.
- **18/09/2022 - 24/09/2022 -** Visiting Researcher at Polytechnique of Turin (Alessandria) to conduct experimental measurements for the study of fire, thermal and mechanical behavior of polymer-based composites containing hybrid silica- and phosphorus-based moieties.
- **26/01/2022 - 29/1/2022 -** Visiting Researcher at Empa (Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, Switzerland). Group Leader of "Additives and Chemistry": Dr. Sabyasachi Gaan. Main activities: future works on new flame retarded systems, exchange of students for master degree thesis (UniNa/Empa) and revision of drafting research papers.
- **05/02/2019 - 05/08/2019 -** Visiting PhD Student at Empa (Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, Switzerland). Supervisor: Dr. Sabyasachi Gaan (Group Leader of "Additives and Chemistry"). Main activities:
  1. Synthesis of modified epoxy hybrid resins.
  2. Flame retardant modifications of the above-mentioned resins.
  3. Study of the flame retardant behavior of the epoxy resins with instruments like Federal Aviation Regulations, cone calorimeter (ISO 5660 standard), micro scale combustion calorimeter, UL94-VB, TGA, DSC, NMR, PY-GC-MS, DIP-MS, and small scale fire tests.
  4. Mechanical analysis (tensile strenght) of epoxy samples and surface analytics of the char obtained for the epoxy resin with SEM-EDX and FT-IR.

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- **18/07/2018 - 21/07/2018 -** Visiting PhD Student at Polytechnique of Turin (Alessandria) to conduct experimental measurements for the study of fire, thermal and mechanical behavior of polymer-based composites containing hybrid silica moieties.
- **04/09/2017 - 08/09/2017 -** Visiting PhD Student at KU Leuven (Belgium) for a Summer School in "Ultrasound and Microwaves for Chemical Processing – Ultrasound & Microwave Technologies".

Skills

- Languages: Italian (mother tongue), English (pre-advanced - Cambridge Certificate B2), German (advanced level - Goethe Zertifikat C1).
- Computer skills: office, excel, visual basic, matlab, labview, simulink, aloha (chemical risk assessment), fire dynamics simulator, movarisch.
- Laboratory analytical instruments: FT-IR, DSC, TGA, HPLC, UV-Vis, PCFC, NMR, PY-GC-MS, DIP-MS, SEM-EDX, coating technologies, cone calorimeter (ISO 5660 standard), UL-94, fluidized bed technology, small-scale fire tests, Federal Aviation Regulations.
- Soft skills: leadership and public speaking, problem solving, team working, resilience and resolution oriented.

Hobbies

- Enthusiastic traveler, passionate brewer, basketball player and volunteer for Caritas.

Scientific publications

- on Italian patents

- **05/05/2022 - Bifulco, A. (Inventor and Owner) -** Granted (10/04/2024) - Antifouling and antimicrobial epoxy coatings containing hybrid titania with biomass-derived components – Rivestimento a base di resina epossidica e titania ibrida contenente derivati dalla biomassa **-** Reference number: 102022000009200.
- **05/05/2022 - Bifulco, A. (Inventor and Owner) -** Granted (10/04/2024) - Photoluminescent, super-hydrophobic and self-extinguishing epoxy coatings containing carbon quantum dots derived from biomass waste as strategic filler – Rivestimento protettivo a base di resina epossidica resistente alla fiamma, fotoluminescente, idrofobico – Reference number: 102022000009167.
- **25/10/2023 - Bifulco, A. (Inventor and Owner) -** Pending - Thermo-insulating and fire resistant composite material based on an epoxy resin containing silane functionalized titania particles – Materiale composito termoisolante e resistente alla fiamma a base di resina epossidica e particelle di titania funzionalizzate con silano – Reference number: 102023000022308.

- Book chapter in international peer-reviewed books ***(corresponding author: *)***

1. Klingler, W. W., Gaan, S., **Bifulco, A.**, Chapter 8. Recycling of non-halogenated flame retarded epoxy thermosets and composites: chemical concepts and future perspectives; Yuan Hu, Xin Wang (Eds), Non-Halogenated Flame-Retardant Technology for Epoxy Resin Thermosets and Composites, Elsevier, Woodhead Pub Ltd, Cambridge, United Kingdom, **19 July 2024**, 19 pages. eBook ISBN: 9780443160479.
2. ***Bifulco, A.**, Gaan, S., Price, D., Horrocks, A. R., Chapter 2. Thermal Decomposition of Flame Retardant Polymers; Charles A. Wilkie, Alexander B. Morgan (Eds), Fire Retardancy of Polymeric Materials, Taylor & Francis, CRC Press, Boca Raton, US, **29 July 2024**, 25 pages. eBook ISBN: 9781003380689.
3. ***Bifulco, A.**, Chen, J., Sekar, A., Klingler, W. W., Gooneie, A., Gaan, S, Chapter 24. Recycling of Flame-Retardant Polymeric Materials State of the Art and Future Perspectives; Charles A. Wilkie, Alexander B. Morgan (Eds), Fire Retardancy of Polymeric Materials, Taylor & Francis, CRC Press, Boca Raton, US, **29 July 2024**, 23 pages. eBook ISBN: 9781003380689.

- on international peer-reviewed journals ***(corresponding author: *)***

1) Branda, F., Malucelli, G., Durante, M., Piccolo, A., Mazzei, P., Costantini, A., ... & **Bifulco, A**. (2016). Silica treatments: A fire retardant strategy for hemp fabric/epoxy composites. Polymers, 8(8), 313.

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2) **Bifulco, A**., Tescione, F., Capasso, A., Mazzei, P., Piccolo, A., Durante, M., ... & Branda, F. (2018). Effects of post cure treatment in the glass transformation range on the structure and fire behavior of in situ generated silica/epoxy hybrids. Journal of Sol-Gel Science and Technology, 87(1), 156-169.
3) **Bifulco, A**., Capasso, A., Durante, M., Piccolo, A., Mazzei, P., Costantini, A., ... & Branda, F. (2018, July). Flame retardancy and mechanical properties of ecofriendly coated hemp fabrics/epoxy composites. In AIP Conference Proceedings (Vol. 1981, No. 1, p. 020034). AIP Publishing LLC.
4) Avossa, J., **Bifulco, A**., Amendola, E., Gesuele, F., Oscurato, S. L., Gizaw, Y., ... & Branda, F. (2019). Forming nanostructured surfaces through Janus colloidal silica particles with nanowrinkles: A new strategy to superhydrophobicity. Applied Surface Science, 465, 73-81.
5) Del Sorbo, G. R., Truda, G., **Bifulco, A**., Passaro, J., Petrone, G., Vitolo, B., ... & Branda, F. (2019). Non monotonous effects of noncovalently functionalized graphene addition on the structure and sound absorption properties of polyvinylpyrrolidone (1300 kDa) electrospun mats. Materials, 12(1), 108.
6) Passaro, J., Russo, P., **Bifulco, A**., De Martino, M. T., Granata, V., Vitolo, B., ... & Branda, F. (2019). Water resistant self-extinguishing low frequency soundproofing polyvinylpyrrolidone based electrospun blankets. Polymers, 11(7), 1205.
7) **Bifulco, A**., Silvestri, B., Passaro, J., Boccarusso, L., Roviello, V., Branda, F., & Durante, M. (2020). A New Strategy to Produce Hemp Fibers through a Waterglass-Based Ecofriendly Process. Materials, 13(8), 1844.
8) Ciaburro, G., Iannace, G., Passaro, J., **Bifulco, A**., Marano, A. D., Guida, M., ... & Branda, F. (2020). Artificial neural network-based models for predicting the sound absorption coefficient of electrospun poly (vinyl pyrrolidone)/silica composite. Applied Acoustics, 169, 107472.
9) **Bifulco, A**., Parida, D., Salmeia, K. A., Nazir, R., Lehner, S., Stämpfli, R., ... & Gaan, S. (2020). Fire and mechanical properties of DGEBA-based epoxy resin cured with a cycloaliphatic hardener: Combined action of silica, melamine and DOPO-derivative. Materials & Design, 193, 108862.
10) **Bifulco, A**., Parida, D., Salmeia, K. A., Lehner, S., Stämpfli, R., Markus, H., ... & Gaan, S. (2020). Improving flame retardancy of in-situ silica-epoxy nanocomposites cured with aliphatic hardener: Combined effect of DOPO-based flame-retardant and melamine. Composites Part C: Open Access, 2, 100022.
11) **Bifulco, A**., Marotta, A., Passaro, J., Costantini, A., Cerruti, P., Gentile, G., ... & Branda, F. (2020). Thermal and fire behavior of a bio-based epoxy/silica hybrid cured with methyl nadic anhydride. Polymers, 12(8), 1661.
12) Costantini, A., Venezia, V., Pota, G., **Bifulco, A**., Califano, V., & Sannino, F. (2020). Adsorption of cellulase on wrinkled silica nanoparticles with enhanced inter-wrinkle distance. Nanomaterials, 10(9), 1799.
13) Passaro, J., **Bifulco, A**., Marulo, F., Costantini, A., & Branda, F. (2020, October). Innovative Electrospun Polyvinylpyrrolidone Based Materials For Soundproofing. In INTER-NOISE and NOISE-CON Congress and Conference Proceedings (Vol. 261, No. 6, pp. 59-63). Institute of Noise Control Engineering.
14) Imparato, C., Passaro, J., **Bifulco, A**., Branda, F., Pirozzi, D., & Aronne, A. (2021). Development of Hybrid Titanium Oxide-based Systems for the Surface Stabilization of Reactive Oxygen Radicals. Chemical Engineering Transactions, 84, 139-144.
15) Branda, F., **Bifulco, A**., Jehnichen, D., Parida, D., Pauer, R., Passaro, J., ... & Durante, M. (2021). Structure and Bottom-up Formation Mechanism of Multisheet Silica-Based Nanoparticles Formed in an Epoxy Matrix through an In Situ Process. Langmuir, 37(29), 8886-8893.
16) Venezia, V., Matta, S., Lehner, S., Vitiello, G., Costantini, A., Gaan, S., ... & ***Bifulco, A**. (2021). Detailed Thermal, Fire, and Mechanical Study of Silicon-Modified Epoxy Resin Containing Humic Acid and Other Additives. ACS Applied Polymer Materials, 3(11), 5969-5981.
17) Pota, G., **Bifulco, A**., Parida, D., Zhao, S., Rentsch, D., Amendola, E., ... & Costantini, A. (2021). Tailoring the hydrophobicity of wrinkled silica nanoparticles and of the adsorption medium as a strategy for immobilizing lipase: An efficient catalyst for biofuel production. Microporous and Mesoporous Materials, 328, 111504.
18) Roviello, V., **Bifulco, A**., Colella, A., Iucolano, F., Caputo, D., Aronne, A., & Liguori, B. (2022). Suitability and Sustainability of Anti-Graffiti Treatments on Natural Stone Materials. Sustainability, 14(1), 575.

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19) Branda, F., Passaro, J., Pauer, R., Gaan, S., & **Bifulco, A.** (2022). Solvent-Free One-Pot Synthesis of Epoxy Nanocomposites Containing $Mg(OH)_2$ Nanocrystal–Nanoparticle Formation Mechanism. Langmuir, 38(18), 5795–5802.
20) Tescione, F., Tammaro, O., **Bifulco, A**., Del Monaco, G., Esposito, S., Pansini, M., ... & Costantini, A. (2022). Silica Meets Tannic Acid: Designing Green Nanoplatforms for Environment Preservation. Molecules, 27(6), 1944.
21) Imparato, C., **Bifulco, A**., Silvestri, B., & Vitiello, G. (2022). Recent advances in endocrine disrupting compounds degradation through metal oxide-Based nanomaterials. Catalysts, 12(3), 289.
22) Passaro, J., Imparato, C., Parida, D., ***Bifulco, A**., Branda, F., & Aronne, A. (2022). Electrospinning of PVP-based ternary composites containing SiO2 nanoparticles and hybrid TiO_2 microparticles with adsorbed superoxide radicals. Composites Part B: Engineering, 238, 109874.
23) ***Bifulco, A**., Varganici, C. D., Rosu, L., Mustata, F., Rosu, D., & Gaan, S. (2022). Recent advances in flame retardant epoxy systems containing non-reactive DOPO based phosphorus additives. Polymer Degradation and Stability, 200, 109962.
24) Varganici, C. D., Rosu, L., **Bifulco, A.,** Rosu, D., Mustata, F., & Gaan, S. (2022). Recent advances in flame retardant epoxy systems from reactive DOPO–based phosphorus additives. Polymer Degradation and Stability, 202, 110020.
25) Branda, F., Parida, D., Pauer, R., Durante, M., Gaan, S., Malucelli, G., & ***Bifulco, A.** (2022). Effect of the Coupling Agent (3-Aminopropyl) Triethoxysilane on the Structure and Fire Behavior of Solvent-Free One-Pot Synthesized Silica-Epoxy Nanocomposites. Polymers, 14(18), 3853.
26) ***Bifulco, A.**, Imparato, C., Gaan, S., Malucelli, G., & Aronne, A. (2023, June). Hybrid Strategies for the Improvement of the Flame Retardancy of in-situ Silica-Epoxy Nanocomposites cured with Aliphatic Hardener. In Journal of Physics: Conference Series (Vol. 2526, No. 1, p. 012037). IOP Publishing.
27) Imparato, C., **Bifulco, A.**, Malucelli, G., & Aronne, A. (2023). Solids containing Si-OP bonds: is the hydrolytic sol-gel route a suitable synthesis strategy?. Journal of Sol-Gel Science and Technology, 1-26.
28) ***Bifulco, A.**, Avolio, R., Lehner, S., Errico, M. E., Clayden, N. J., Pauer, R., ... & Imparato, C. (2023). In Situ P-Modified Hybrid Silica–Epoxy Nanocomposites via a Green Hydrolytic Sol–Gel Route for Flame-Retardant Applications. ACS Applied Nano Materials, 6(9), 7422-7435.
29) Zhang, J., **Bifulco, A.**, Amato, P., Imparato, C., & Qi, K. (2023). Copper indium sulfide quantum dots in photocatalysis. Journal of Colloid and Interface Science, 638, 193-219.
30) Klingler, W. W., ***Bifulco, A.**, Polisi, C., Huang, Z., & Gaan, S. (2023). Recyclable inherently flame-retardant thermosets: Chemistry, properties and applications. Composites Part B: Engineering, 258, 110667.
31) Passaro, J., ***Bifulco, A.**, Calabrese, E., Imparato, C., Raimondo, M., Pantani, R., ... & Guadagno, L. (2023). Hybrid Hemp Particles as Functional Fillers for the Manufacturing of Hydrophobic and Anti-icing Epoxy Composite Coatings. ACS Omega, 8(26), 23596–23606.
32) **Bifulco, A.**, Casciello, A., Imparato, C., Forte, S., Gaan, S., Aronne, A., & Malucelli, G. (2023). A machine learning tool for future prediction of heat release capacity of in-situ flame retardant hybrid $Mg(OH)_2$-Epoxy nanocomposites. Polymer Testing, 127, 108175.
33) Amato, P., Fantauzzi, M., Sannino, F., Ritacco, I., Santoriello, G., Camellone, F. M., Imparato, C., **Bifulco, A.**, …& Aronne, A. (2024) Indirect daylight oxidative degradation of polyethylene microplastics by a bio-waste modified TiO_2-based material. Journal of Hazardous Materials, 463, 132907.
34) Imparato, C., Bonifazzi, M. M., D'Errico, G., **Bifulco, A.**, Tammaro, O., Esposito, S., ... & Pirozzi, D. (2024). Dark and sunlight-driven dye degradation over a TiO_2–dibenzoylmethane hybrid xerogel. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 684, 133148.
35) ***Bifulco, A.**, Imparato, C., Climaco, I., Battegazzore, D., Perrella, M., Vitiello, G., ... & Malucelli, G. (2024). Multifunctional fire-resistant and flame-triggered shape memory epoxy nanocomposites containing carbon dots. Chemical Engineering Journal, 484, 149327.

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36) ***Bifulco, A.**, Imparato, C., Passaro, J., Malucelli, G., Gaan, S., & Aronne, A. (2024, March). Sol-gel Chemistry Approaches for the Manufacturing of Innovative Functional Composites for the Aerospace Sector. In Journal of Physics: Conference Series (Vol. 2716, No. 1, p. 012035). IOP Publishing.
37) **Passaro, J.**, Bifulco, A., Guadagno, L., Aronne, A., Cimino, F., & Russo, P. (2024, March). Eco-friendly composites with specific functional properties. In Journal of Physics: Conference Series (Vol. 2716, No. 1, p. 012042). IOP Publishing.
38) ***Bifulco, A.**, Chen, J., Sekar, A., Klingler, W. W., Gooneie, A., & Gaan, S. (2024). Recycling of flame retardant polymers: Current technologies and future perspectives. Journal of Materials Science & Technology, 199, 156-183.
39) Imparato, C., Finocchio, E., Campisi, S., Bigica, M., Gervasini, A., **Bifulco, A.**, ... & Aronne, A. (2024). Insight into titanium and zirconium phosphate-based materials for reactive surfaces. Materials Today Chemistry, 38, 102126.
40) Carbone, S., Drigo, N., Huang, K., Lehner, S., Jovic, M., ***Bifulco, A.**, ... & Gaan, S. (2024). Developing flame retardant solutions for partially aromatic polyamide with phosphine oxides. Materials & Design, 243, 113080.
41) Li, Q., Song, X., Pan, Y. T., Sun, J., **Bifulco, A.**, & Yang, R. (2024). Dual function of carboxymethyl cellulose scaffold: A one-stone-two-birds strategy to prepare double-layer hollow ZIF-67 derivates for flame retardant epoxy composites. Journal of colloid and interface science, 674, 445-458.
42) ***Bifulco, A.**, Bartoli, M., Climaco, I., Franchino, M. C., Battegazzore, D., Mensah, R. A., ... & Imparato, C. (2024). Coffee waste-derived biochar as a flame retardant for epoxy nanocomposites. Sustainable Materials and Technologies, 41, e01079.
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