



Roberto Avolio

Personal Details

Name **ROBERTO AVOLIO**
Birth
Nationality
Profile **https://www.researchgate.net/profile/Roberto_Avolio Scopus Author ID: 35073493900**

Current position

12.2018 – Present Staff Researcher at the Institute for Polymers, Composites and Biomaterials of the Italian National Research Council (IPCB-CNR).

Professional experience

2013 – 2018 Fixed-term Researcher at the Institute for Polymers, Composites and Biomaterials of the Italian National Research Council (IPCB-CNR).
2010 – 2013 PostDoc at the Institute of Polymer Chemistry and Technology of the Italian National Research Council (ICTP-CNR).

Education

12.2010 Ph.D. in Materials and Structures Engineering, department of Materials Engineering and Production of the University “Federico II”, Napoli, Italy, in collaboration with the Institute of Polymer Chemistry and Technology of the Italian National Research Council (ICTP-CNR). Dissertation title: “Innovative PET – based nanostructured materials for food and beverage packaging applications”
05.2007 Master Degree with honour in Materials Engineering, University “Federico II”, Napoli, Italy.

Main research interests

Realization of polymer-based, micro- and nano- structured multiphase materials with tailored properties, through the tailoring of interfacial interactions.

Solid state spectroscopic methods (in particular NMR) for the analysis of molecular structure and dynamics in multiphase materials.

Realization of bio-based and/or biodegradable composites, combining inorganic or natural fillers with polymers and biopolymers.

Mechano-chemical processing of polymers, natural fibers and inorganic particles for structural modification and morphology control in blends and composites.

Polymer and polymer blends processing and recycling technologies.

Analysis of structure-properties relationship in polymeric materials.

International experience

- 02.2017 Visiting scientist at Adolphe Merkle Institute, Fribourg, Switzerland, in the Soft Matter Physics group (led by Prof. Ullrich Steiner). Research stay financed by the CNR Short Term Mobility program 2016.
- 05 – 06.2015
06 – 09.2013 Visiting Scientist at the Institute of Macromolecules “Prof. Eloisa Mano”, Federal University of Rio de Janeiro (IMA – UFRJ). Research stays financed by the Marie Curie Staff Exchange Project N.295262 “Vaikutus”.
- 03 – 10.2010 Visiting Ph.D. student at Max Planck Institute for Polymer Research (MPIP), Mainz, Germany, in the Polymer Spectroscopy group (led by Prof. H.W. Spiess).
- 02 – 07.2005 Exchange student (Erasmus programme) at the Industrial Engineering School of Barcelona - Technical University of Catalonia (ETSEIB-UPC), Barcelona, Spain.

Teaching activities

- 10.2015 Training course on composite materials processing and recycling, in the frame of the training course “Sviluppo di materiali e Tecnologie Ecompatibili, di Processi di Foratura, taglio e di Assemblaggio Robotizzato (STEPFAR)”. Course held at the Institute for Applied Sciences and Intelligent Systems (ISASI-CNR). Total duration 12 hours.
- 10.2015 Training course on composite materials processing and recycling, in the frame of the training course “Carrello per Atterraggio con Attuazione Intelligente (CAPRI)”. Course held at the Institute for Applied Sciences and Intelligent Systems (ISASI-CNR). Total duration 8 hours.
- 08.2013 3 days short course on Solid State NMR. Institute of Macromolecules “Prof. Eloisa Mano”, Federal University of Rio de Janeiro (IMA – UFRJ). Total duration 24 hours.
- 02 – 03.2013 Training course on the recycling of packaging materials, in the frame of the Green Packaging training project. Course commissioned by K-Makers SRL (Pontecagnano Faiano, Italy) carried out at Italtip Cartons SRL (Lacedonia, Italy). Total duration 24 hours.
- 05.2012 Training course on characterization methods for polymeric materials, in the frame of the “Materiali funzionali per il settore tessile e conciario – MATECON” PON project. Course commissioned by CRdC Tecnologie Scarl (Napoli, Italy). Total duration 18 hours.

National Scientific Qualification (Abilitazione Scientifica Nazionale)

- 07.2020 National Scientific Qualification as Associate Professor, scientific field 03/C2 (Industrial Chemistry).
- 11.2018 National Scientific Qualification as Associate Professor, scientific field 09/D1 (Materials Science and Technology).

Scientific activities, appointments, project coordination

- 07.2021 – Present Scientific coordinator of the Research Contract “Study and development of an innovative process for the recycling of heterogeneous waste materials in the building sector”, funded by IREOS S.p.A. in the frame of the Industrial Development Project Fondazione Ligure per lo Sviluppo Economico (FILSE) - POR FESR 2014-2020 - Asse 1 - Azione 1.2.4 - Poli di Ricerca e Innovazione. Contract prot. IPCB 1621/2021.
- 03.2021 – Present Scientific coordinator of the Research Contract “POC per la sperimentazione di processi di riciclo di materiali compositi in fibra di vetro provenienti da pale eoliche a fine vita”, funded by Enel Green Power S.p.A. Contract n. JA10063339.
- 11.2019 – Present Co-tutor of the PhD project “Mechanochemistry: Versatile and Functional Strategy for the Realization and the Recycling of Multi-Phase Materials”, University of Brescia, Department of Mechanical and Industrial Engineering.
- 07.2016 – Present Manager of the Mechano-Chemistry Laboratory at IPCB-CNR
- 10.2019 – 12.2019 Scientific reviewer for industrial R&D projects, in the frame of the Sustainable Development Fund – Smart Factory Call, funded by the Italian Ministry for Economic Development.
- 03.2019 – 04.2019 External member of the evaluation committee for the dissertation “Lignocellulosic fractions from rice and coffee husks to improve functionality of biodegradable films based on starch and poly-lactic acid” in the frame of the Doctorate programme “Food Science, Technology and Management” of the Polytechnic University of Valencia (Spain).
- 02.2017 Winner of a mobility grant, in the frame of the CNR Short Mobility Program 2016, to carry out research at the Adolphe Merkle Institute, Fribourg, Switzerland, in the Soft Matter Physics group (led by Prof. Ullrich Steiner).
- 11.2013 – 02.2017 Scientific coordination for the IPCB-CNR sub-unit of the European Project COMMON SENSE “Cost-effective sensors, interoperable with international existing ocean observing systems, to meet EU policies requirements”, 7th FP call Ocean 2013.2, grant n. 614155.

Participation to research projects

- 10.2019 – Present PRIN 2017 Project “Mussel-inspired functional biopolymers for underwater adhesion, surface/interface derivatization and nanostructure/composite self-assembly - MUSSEL”, code 2017YJMPZN.
- 09.2019 – Present PRIN 2017 Project “A technology Platform for the sustainable recovery and advanced use of Nanostructured Cellulose from Agri-food residues - PANACEA”, code 2017LEPH3M.
- 06.2017 – Present European H2020 Project “Circular Process for Eco-Designed Bulky Products and Internal Car Parts - ECOBULK”, Grant Agreement n. 730456.
- 12.2018 – Present PON 2014 – 2020 Project “Sistemi di Rilevamento dell’Inquinamento Marino da Plastiche e Successivo Recupero-Riciclo - SIRIMAP”.
- 03.2017 – Present Marie Curie Staff Exchange Project “Integrative development of smart drug-vector nanostructures for adaptive delivery to target cells

- VAHVISTUS”, Grant Agreement n. 734759.
- 01.2016 – 12.2018 Industrial R&D Project “Ideazione e sviluppo di un innovativo sistema multifunzionale polivalente finalizzato alla valorizzazione di materiali plastici di scarto, recuperati principalmente da depositi interrati e/o discariche, ai fini di un loro riutilizzo e/o impiego in specifiche filiere” funded by Italian Ministry for Economic Development (MISE) in the frame of the PON FESR Imprese e Competitività action.
- 07.2014 – 12.2016 European Project LIFE+ “Mitigation of microplastics impact caused by textile washing processes – MERMAIDS”, code LIFE13 ENV/IT/001069.
- 09.2014 – 12.2016 R&D Project “Valorizzazione mediante tecniche di funzionalizzazione e compatibilizzazione di plastiche miste costituite da mix di poliolefine comprendenti scarti di altre plastiche post consumo e valutazione del decadimento delle loro proprietà come conseguenza del loro ripetuto utilizzo e riciclo” funded by the Italian National Packaging Consortium (CONAI) in the frame of the 2014 CNR – CONAI partnership.
- 09.2014 – 12.2016 R&D Project “Riciclo meccanico di scarti “multimateriale” post-consumo, plastica/cellulosa e plastica/alluminio, per la realizzazione di compositi a basso impatto ambientale” funded by the Italian National Packaging Consortium (CONAI) in the frame of the 2014 CNR – CONAI partnership.
- 03.2012 – 02.2016 Marie Curie Staff Exchange Project “Novel inorgano-bioorganic nanocomposites for biomedical and engineering applications - VAIKUTUS”, code PIRSES-GA-2011-295262.
- 02.2013 – 02.2016 PRIN 2010 Project “Materiali Polimerici Nanostrutturati con strutture molecolari e cristalline mirate, per tecnologie avanzate e per l'ambiente”, code 2010XLLNM3.
- 10.2013 – 09.2015 European Project (Lifelong Learning Programme) “Boat Dismantling Insight by Generating Environmental and Safety Training - Boat DIGEST”, code 2013-1-ES1-LEO05-67616
- 12.2010 – 06.2013 FIRB Project “Rete Nazionale di Ricerca sulle Nanoscienze ItalNanoNet”, code RBPR05JH2P.
- 03.2010 – 09.2012 PRIN 2008 Project “Polimeri policoniugati innovativi di tipo eumelanico da 5,6-diidrossiindoli funzionalizzati: sintesi, caratterizzazione, relazioni struttura/proprietà, applicazioni tecnologiche”, code 2008LMY5WX.
- 01.2010 – 06.2012 European Project LIFE “Management, recycling and recovery of wastes of recreational boat scrapping - BOATCYCLE”, code LIFE 08ENV/E/000158.

Editorial activity

- 08.2021 – Present Member of the Editorial Board of the journal Polymers, edited by MDI, ISSN 2073-4360, IF 4.329.
- 10.2019 – 12.2020 Guest Editor for the Special Issue “Advanced Polymer Based Materials: Production, Characterization and Applications”, Polymers, ISSN 2073-4360, IF 4.329.
- 07.2018 – 02.2019 Editor of the Special Issue “Focus Point on Microplastic Pollution:

Assessment, Effects and Mitigation Strategies”, European Physical Journal Plus, ISSN 2190-5444, IF 3.228.

05.2016 – Present Member of the Editorial Board of the journal Scientia cum Industria (edited by di Caxias do Sul University, Brazil), ISSN 2318-5279.

Organization of scientific events

- 10.2019 Scientific and Organizing Committee of the International Conference POLYCHAR 27 - World Forum on Advanced Materials, Napoli, Italy, 14 – 17 October 2019.
- 09.2019 Scientific and Organizing Committee of the 2nd International Conference on Microplastic Pollution in the Mediterranean Sea, Capri, Italy, 15 – 18 September 2019.
- 09.2017 Scientific and Organizing Committee of the 1st International Conference on Microplastic Pollution in the Mediterranean Sea, Capri, Italy, 26 – 29 September 2017.
- 09.2016 Organizing Committee of the International Conference Nanoscience & Nanotechnology N&N 2016, INFN laboratories of Frascati, Italy, 26 – 29 September 2016.

Keynote/Invited lectures

- 06.2019 Keynote lecture “Polymer/plasticizer/filler interactions in PLA based (nano) composites” at the International Conference “Applied and theory of nanostructures”, Ibn Tofail University, Kenitra, Morocco. Invitation received by the Conference Chair prof. H. Rabaa

Publications

Author of **51 research papers**, 29 conference proceedings (published in volumes with ISSN), 10 research reports, 1 book chapter.

H Index: 20, total citations 2212. Scopus Database, October 2021

Google Scholar page: <https://scholar.google.it/citations?user=bl9xdrMAAAAJ&hl=it>

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