PROFESSOR CATALIN ZAHARIA

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https://www.scopus.com/authid/detail.uri?authorId=24823503300

https://www.webofscience.com/wos/author/record/B-9587-2012

https://scholar.google.com/citations?user=U2Jms5gAAAAJ&hl=en&oi=aoBrainmap

https://www.brainmap.ro/public-profile-86927

https://www.researchgate.net/profile/Catalin-Zaharia-2

1. DATE AND PLACE OF BIRTH, EDUCATION, ACADEMIC EXPERIENCE

1.1 Date and place of birth: September 27, 1978, Buzau

1.2 Studies:

2006 – PhD (Engineering sciences – *Chemical engineering*) – University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science

2006 – PhD (Cell biology) – University of Angers, Faculty of Medicine, France

2002 – Diplomate engineer (Chemical engineering) – University Politehnica of Bucharest, Faculty of Engineering in Foreign Languages, English stream, Chemical Division

1997 – Baccalaureate, "B.P. Hasdeu" National College, Buzau

1.3 Specialisations/Stages:

2010 – Postdoctoral Research Fellow - Postdoctoral programme for advanced research in nanomaterials field, NANOMAT - ID 54785, POSDRU/89/1.5/S/54785, University Politehnica of Bucharest

2004 – Doctoral research stage for 6 months - University of Angers, Faculty of Medicine, France

2004 – Training course for European FP6 projects –University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science

2003 – Training course for e-learning system implementation (Authorware) - University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science

1.4 Foreign languages:

English – C1 level according to The Common European Framework of Reference for Languages (CEFR): Learning, Teaching, Assessment; French – A2 level according to CEFR

2. ACADEMIC POSITIONS

- 2017 - present – Full Professor, National University of Science and Technology POLITEHNICA Bucharest, Faculty of Chemical Engineering and Biotechnology, Department of Bioresources and Polymer Science
- 2014 - 2017 – Associate Professor - University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science
- 2008 – 2014 – Assistant Professor – University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science
- 2005 - 2008 – Junior Professor - University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science
- 2002 – 2005 – PhD student (scholarship) - University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science
- 2004 – PhD student – University of Angers, Faculty of Medicine, Angers, France
- 2002 – 2004 – Associate didactic activity, University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Department of Bioresources and Polymer Science

3. ACADEMIC ACTIVITY

3.1 Didactic interests:

Lectures:

- Top methods for Polymers and Biopolymers Processing (master)
- Advanced Technologies for Biomaterials Processing (master)
- Settings of Biomaterials (master)
- Additives for Polymer and Biopolymers (master)
- Biopolymers and Biocomposites (bachelor)
- Biological Systems (bachelor)
- Industrial Polymeric Materials (bachelor)
- Polymer Processing (bachelor)
- Additives for Polymer Processing (bachelor)
- Biomedical Applications of Polymeric Materials (master)
- Proteins and Cell Adhesion (bachelor)

- Biotehnological and Biomedical Applications of Proteins (master)

- *Coach and speaker for THE ATHENS PROGRAMME* - The ATHENS Programme is aimed at carrying out intensive specialization courses, given at each member institution during one or two defined periods ("Sessions") of the academic year (November and March), enabling students to attend one of the courses offered by the network universities for 7 days.
- *Coach and speaker for EELISA* - The European Engineering Learning Innovation and Science Alliance (EELISA) is a consortium of ten higher education institutions (graduate engineering schools, technical and full-spectrum universities) from eight different countries in Europe with the common ambition of defining and implementing a common model of European engineer rooted in society and of bridging engineering, sciences and humanities for inclusive, sustainable and digital societies.
- Member and chair of diploma project juries – Faculty of Engineering in Foreign Languages and Faculty of Chemical Engineering and Biotechnology
- Jury member for master's dissertation – Faculty of Chemical Engineering and Biotechnology, Faculty of Medical Engineering
- Diploma supervisor for bachelor students
- Master dissertation supervisor
- Jury member in PhD defense
- Member of the PhD supervisory committee
- Member and chair of selection committees for academic and research positions

3.2 Technical interests:

Arranging and maintaining a modern laboratory for 3D Printing dedicated to student education and research activities (since 2020)

Arranging and maintaining a modern laboratory for Polymer Processing (including Polymer Recycling) dedicated to student education and research activities (since 2003)

Arranging and maintaining a modern laboratory for Biopolymers and Polymeric Biomaterials dedicated to research activities, diploma projects, and master's activities (since 2008)

3.3 Research interests:

- Design and development of artificial cells for biomedical and biotechnological applications
- Development and application of organs-on-chips and microfluidics for biomedical research
- Micro- and nanoparticles loaded with active principles and biologically active molecules for targeted cancer therapy
- Silk biomaterials, including fibroin and sericin, for tissue engineering applications
- 3D printing, including FDM (Fused Deposition Modeling), SLA (Stereolithography), DLP (Digital Light Processing), and bioprinting
- Polymer recycling technologies, focusing on PET (Polyethylene Terephthalate), PE (Polyethylene), and PP (Polypropylene)
- Bacterial cellulose materials for wound dressing and therapeutic applications.
- Hydrogels for tissue engineering applications
- Polymer-clay composites for tissue engineering applications
- Polymeric composite materials incorporating magnetic nanoparticles
- *In vitro and in vivo assays for the evaluation of polymeric biomaterials*
- Characterization of materials using techniques such as DLS (Dynamic Light Scattering), MFI (Micro-Flow Imaging), contact angle measurements, optical microscopy, and rheometry
- Processing techniques for polymeric materials, including 3D printing, electrospinning, extrusion, and injection molding.

4. PUBLISHING ACTIVITY

Published papers (see the list):

PhD thesis: Engineering Sciences – Chemical Engineering (2006) and Biology and Medicine – Molecular Biology (2009)

title "Studies regarding the synthesis and characterisation of new biopolymers for bone implants"

7 book contributions

99 publications in peer-reviewed journals (ISI-quoted)

H-index 23 on Google Scholar; **H-index 20** on Scopus

More than 90 presentations at international scientific meetings (invited/oral/poster)

12 patents and patent proposals

1070 SCOPUS citations

Research projects (researcher):

Director of PCE project: Non-viral vectors based on polymeric nanoparticles for cancer gene therapy (NANOVEC), 27PCE/2021, 2021-2023

Partner coordinator of PED project: Screen-Printed Hybrid Electrodes for Detecting and Monitoring Lipopolysaccharides as Gram-Negative Bacteria Endotoxin Representative (TOXINSENS), 2555PED/2020, 2020-2022

Director of TE project: Design and characterization of novel biomaterials based on magnetic nanoparticles in natural silk matrix for bone tissue engineering application (BIOSILKMAG), TE 03/10.2015, principal investigator, 2015-2017

Member in the Romania's National Recovery and Resilience Plan project Advanced 3D printing strategies for designer catalysts applied to biomass conversion- I8. Development of a program to attract highly specialised human resources from abroad in research, development and innovation activities, 2023-2026

Member in the project European network for 3D printing of biomimetic mechatronic systems (EMERALD), 21-COP-0019 (F-SEE-026/06.2021)

Member in the European Network for Additive Manufacturing in Industrial Design for Ukrainian Context, 2023-1-RO01-KA220-HED-000155412, Scientific Researcher I, 2023-2024

Complex projects in CDI Partnerships (PCCDI 2018-2021): coordinator of subprojects or research team member, INTELMAT, NAPOLI, REGMED

2018-2021 - Smart materials for medical applications (INTELMAT) (leading the subproject 4 (coordinator) Design, characterization and in vitro biovalidation of nanohydrogel colloidal nanoparticles and composite nanogels, member in the subproject Development and characterization of microparticles based on thermosensitive polymers), project no. 39PCCDI/2018

2018 – 2021 - Advanced novel approaches for predictive regenerative medicine (REGMED) (leading the subproject 3 (coordinator) Cellular and molecular mechanisms in regenerative processes of the soft tissue), project no. 65PCCDI/2018

2018 – 2021 – Innovative technologies base on polymers for the obtaining of new advanced materials (NAPOLI19) (leading the subproject 5 (coordinator) New durable materials based on renewable polymers for 3D printing), project no. 40/2018

Director or partner coordinator for PNIII national projects (2014-2017)

Long time or short time expert for European Projects (POSDRU, POCU projects)

4 CeEx national projects

5 RELANSIN projects

5 CNCSIS projects

1 VIASAN project

1 CNCSIS scientific research platform (3-MN)

2 PN2 – INNOVATION 2008 projects

2 PN2 – Partnership Programme 2008 (CNMP 2008)

1 SPINOFF-project no. 281/26.11.2010

2 International Projects: EUREKA E !3523, Recovery of polyethylene terephthalate and other secondary polymers in composite and nanocomposite parts with medium and long life - R 47 /2006; MANUNET ERA-NET PROJECT, Acronym AIM CO-CO, Atoxic Inorganic Material for Coating for Cookware, 2010-2012 (No. MNT 7, 020/03.02.2010, CNMP)

5. OTHER DATA

- **Head of Department of Bioresources and Polymer Science**, Faculty of Chemical Engineering and Biotechnology, National University of Science and Technology POLITEHNICA Bucharest (2016-present)
- **Senate Member**, National University of Science and Technology POLITEHNICA Bucharest (2024-present)
- **Scientific Director**, Advanced Polymer Materials Group (2021-present), http://www.apmg.pub.ro/
- **Project Team Leader**, Advanced Polymer Materials Group (2011-present), http://www.apmg.pub.ro/
- **Head of the Laboratory of Advanced Processing Methods for Polymers and Nanomaterials**, (LMAPPN) L1M1 since 2016
- Member of the Board of the Department of Bioresources and Polymer Science, Faculty of Applied Chemistry and Materials Science, University Politehnica of Bucharest (2008-present)
- Member of the European Organ-on-Chip Society (EUROoCS, 2021)
- IUPAC AMP Member, 2023
- Member of the Group for the Promotion of Pharmaceutical chemistry in Academia (GP2A, 2020)

- Member of the European Society of Biomaterials (ESB, 2007)
- Member of the Romanian Society of Biomaterials (SRB, 2002)
- Member of the Chemical Romanian Society (SchR, 2007)
- Member in the Scientific Committee of Bucharest Polymer Conference (BPC 2018, 2021)
- Conference Chair of the 3rd International Conference on Bioengineering and Polymer Science, 7-10 June 2023, Bucharest, Romania
- Member of the Organizing Committee of the International Conference on Chemistry and Chemical Engineering RICCCE (2007, 2009, 2013, 2015 in Romania)
- Member in the Scientific Committee of the International Conference on Chemistry and Chemical Engineering RICCCE (2017, 2019, Romania)
- Expert for the evaluation of the National Research Projects
- Coordinator of the foreign student programme for the Faculty of Applied Chemistry and Materials Science (FILS, 2009)
- Coordinator of the practical activity of the FILS students (English stream, 2nd year of study, 2009)
- Socrates Teaching Staff Mobility, University of Patras, Greece (19-30 May 2008)

Board Member and Peer Review

- Editorial Board Member of Discover Polymers, Springer Nature, https://link.springer.com/journal/44347/editors
- Editorial Board Member of Current Green Chemistry, Bentham Science, https://www.eurekaselect.com/journal/141/editorial-board
- Guest Editor for Wiley, Journal of Applied Polymer Science and Macromolecular Chemistry and Physics
- Reviewer Board of Polymers (IF 4.7)
- Reviewer Board of Gels (IF 5.0)
- Guest Editor for Materials (IF 3.1)
- Guest Editor for Applied Sciences (IF 2.5)
- Topic Editor for Frontiers in Pharmacology (IF 4.4)
- Reviewer for the international journals (selection): *Journal of Polymer Research, Scientific Reports, Polymers, Pharmaceutics, Materials, Molecules, Materials Science and Engineering C, Applied Sciences, Gels, Nanomaterials, Membranes, Bioengineering, Carbohydrate Polymers, Polymer, Gels, Sustainability, Acta*

Biomaterialia, Polymer, Journal of Applied Polymer Science, Cell proliferation, Ceramics International, Macromolecules, Surface Coating and Technology, Journal of Nanotechnology, ACS Applied Materials & Interfaces, Cellulose

International cooperation:

1) Academician Prof. Aristidis Tsatsakis, Director of Laboratory of Toxicology, Medical School, University of Crete, 71003 Heraklion, Greece, Highly Cited Researcher 2020 and 2021 in the field of Pharmacology – Toxicology
2) Prof. Rafael Luque, DSFP Chair Professor at King Saud University, Saudi Arabia, International Distinguished Scientist and Rectoral Advisor at Universidad ECOTEC (Ecuador) and Project Director and Head of the B4 lab at the National University of Science and Technology POLITEHNICA Bucharest (Romania), 2018, 2019, 2020, 2021 and 2022 Highly Cited Researcher
3) Prof. Kelly Velonia, Department of Materials Science and Technology, University of Crete, University Campus Voutes-Chemistry Building, 70013 Heraklion, Crete, Greece
4) Prof. Alexandru Vlad, Institute of Condensed Matter and Nanoscience (IMCN), Molecules, Solid and Reactivity (MOST), Université Catholique de Louvain, Place L. Pasteur, 1, 1348 Louvain-la-Neuve, Belgium
5) Dr. Gabor Sziebig - SINTEF Manufacturing (SINTEF), Trondheim, Norway
6) Prof. Maria Helena Godinho – New University of Lisbon | NOVA, Centre of Materials Research (CENIMAT), Head of Soft and Biofunctional Materials Group at CENIMAT
7) Prof. Giulio Malucelli, Materials Science and Technology, DISAT-Department of Applied Science and Technology, Politecnico di Torino, Italy
8) Prof. Yaroslav O. Mezhuev, Institute of Chemistry and Problems of Sustainable Development, Mendeleev University of Chemical Technology of Russia, Moscow 125047, Russia
9) Prof. Maurice N. Collins, Bernal Institute, University of Limerick, Ireland
10) Dr. Fernanda Zamboni, Postdoctoral Research Fellow, Queensland University of Technology, Faculty of Engineering, School of Mech., Medical & Process Engineering, Centre for Biomedical Technologies and the Translational Research Institute (TRI), Australia.

CONTACT:

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