



Dr. Marius-Mihai ZAHARIA

Scientific Researcher

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Research topics

Polymer and organic synthesis, synthesis and characterization of ion-exchangers with different functionalities, applications of the ion exchangers in water purification and medical field, synthesis and characterization of composite materials based on CaCO₃, synthesis of composites obtained by layer-by-layer deposition of polyelectrolytes on various solid surfaces, toxicity determination, environmental and toxicological chemistry, biochemical tests, photocatalysis, data computing and tests on plants and microorganisms, knowledge on anaerobic treatment of wastewater using an anaerobic baffled reactor, volatile fatty acids determination, operating anaerobic baffled reactor for the treatment of high strength wastewater. Trained to use the following instruments: HPLC system (*UltiMate 3000SD HPLC System, Thermo Scientific; Agilent 1100 HPLC System from Agilent Technologies*), FT-IR spectrophotometer (*Jasco 660 plus*), FTIR-ATR (*IR Tracer-100 FT-IR spectrometer (Shimadzu Corporation, Japan)* equipped with a GladeATR module (*PIKE Technologies, USA*), UV-Vis spectrophotometer (*Libra S35 PC*), spectrofluorimetric (*SMF25, Kontron*), X-ray diffraction (*Rigaku Miniflex 600 diffractometer*), GC-TCD (Gas Chromatography Thermal conductivity detector), Morphology G3 (*Malvern Instruments, Malvern, UK*), Mütek Particles Charge Detector (*PCD 03, Mütek GmbH*), Atomic Absorption Spectrometry (AAS) ContrAA 800 Spectrometer (*Analytik Jena, Germany*).

Scientific research

Author and co-author of 27 ISI articles (9 in Q1 zone and 15 in Q2 zone), 17 articles in proceedings, 37 oral communications, 32 posters, 1 patent, 4 awards (best oral presentation, 2 best poster award and UAIC Excellence awards for PhD thesis), member in 8 research national grants, 1 international PNRR project and **DIRECTOR** for 1 national grant (PN-III-P1-1.1-PD-2019-0286, Wastewater Heavy ion metals decontamination with Ion Exchange Resins: TARNița closed mine pollution case, Acronym: WHIERTARN, 2019-2022), 274 citations (HI = 11).

Visibility

<https://www.webofscience.com/wos/author/record/1737732>;

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Relevant publications

1. M-M Zaharia, F. Bucatariu, A.-L. Vasiliu, M. Mihai, **Versatile Zwitterionic Beads for Heavy Metal Ion Removal from Aqueous Media and Soils by Sorption and Catalysis Processes**, *ACS Appl. Polym. Mater.*, 5 (2023) 8183-8193, **Q1** (IF₂₀₂₂ = 6.2). DOI: [10.1021/acsapm.3c01375](https://doi.org/10.1021/acsapm.3c01375)
2. M.-M. Zaharia, F. Bucatariu, A.-L. Vasiliu, M. Mihai, **Stable and reusable acrylic ion-exchangers. From HMIs highly polluted tailing pond to safe and clean water**, *Chemosphere*, 304 (2022) 135383, **Q1** (IF₂₀₂₁ = 8.943). DOI: [10.1016/j.chemosphere.2022.135383](https://doi.org/10.1016/j.chemosphere.2022.135383)
3. M.-M. Zaharia, C.-A. Gheorghita, M.-A. Trofin, F. Doroftei, I. Rosca, M. Mihai, **Multifunctional composites of zwitterionic resins and silver nanoparticles for point-of-demand antimicrobial applications**, *Mater. Chem. Phys.*, 275 (2022) 125225, **Q2** (IF₂₀₂₁ = 4.778). DOI: [10.1016/j.matchemphys.2021.125225](https://doi.org/10.1016/j.matchemphys.2021.125225)
4. M.-M. Zaharia, A.-L. Vasiliu, M.-A. Trofin, D. Pamfil, F. Bucatariu, S. Racovita, M. Mihai, **Design of multifunctional composite materials based on acrylic ion exchangers and CaCO₃ as sorbents for small organic molecules**, *React. Funct. Polym.*, 166 (2021) 104997, **Q1** (IF₂₀₂₁ = 4.966). DOI: [10.1016/j.reactfunctpolym.2021.104997](https://doi.org/10.1016/j.reactfunctpolym.2021.104997)
5. M.-M. Zaharia, F. Bucatariu, F. Doroftei, D.-F. Loghin, A.-L. Vasiliu, M. Mihai, **Multifunctional CaCO₃/polyelectrolyte sorbents for heavy metal ions decontamination of synthetic waters**, *Colloids Surf. A*, 613 (2021) 126084, **Q2** (IF₂₀₂₁ = 5.518). DOI: [10.1016/j.colsurfa.2020.126084](https://doi.org/10.1016/j.colsurfa.2020.126084)