

PERSONAL INFORMATION



DEMETER MARIA

📍 National Institute for Lasers, Plasma and Radiation Physics
Accelerators Laboratory

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✉ maria.demeter@inflpr.ro; mariadumitrascu30@gmail.com;

Sex Female | Date of birth 12/04/1981 | Nationality Romanian

WORK EXPERIENCE

2011 – Present

Scientific Researcher 3rd, PhD/ Research&Development&Innovation

National Institute for Lasers, Plasma and Radiation Physics (INFLPR), Accelerators Laboratory (Atomiștilor Street 409, PO Box MG-36, Bucharest- Măgurele, Romania); www.inflpr.ro.

SCIENTIFIC BACKGROUND

Hydrogels for life science applications: Development of hydrogels for biomedical and agricultural applications; Radiation processing of polymeric materials; Radiation dosimetry used in industrial processing (chemical dosimetry, calorimetric, and film dosimetry systems for e-beam dose measurements); Synthesis of graphene-based composite hydrogels; Determination of the stability of silicone elastomers by e-beam radiation processing.

2008 – 2010

Assistant Researcher, INFLPR

Foodstuff and vegetal products decontamination with ionizing radiations; interaction of radiation with matter; ionizing radiation dosimetry

EDUCATION AND TRAINING

2020

Ph.D. in Chemistry at University of Bucharest, Faculty of Chemistry, Order No. 4021 of 07.04.2020

Thesis: [Superabsorbent hydrogels obtained by radiation crosslinking](#)
(Advisor: Prof. Dr. Viorica Meltzer)

2008

Master Degree/ Drugs and Cosmetics, Politehnica University of Bucharest (UPB), The Faculty of Applied Chemistry and Materials Science (FACMS)

2006

Engineer / Industrial Chemistry, UPB, FACMS

2000

Bachelor, Baccalaureate Diploma.

Constantin Brâncoveanu High School (Biology and Chemistry)

PERSONAL SKILLS

English

Listening – B1/Reading – C1/ Spoken Interaction – B2/Understanding – C1/
Writing – B2

JOB-RELATED SKILLS AND DIGITAL COMPETENCE:

- Physico-chemical characterization of organic materials by: FT-IR and FT-Raman spectrometry using Perkin-Elmer and Bruker FT-IR spectrometers (Spectrum 100 and Bruker Vertex 70); UV-Vis Spectrofotometry; Rheological analysis of polymeric materials; Film Dosimetry; Thermal analysis:

Differential Dynamic Calorimetry (DSC) and Thermogravimetry (TG), LC/MS Agilent Q-TOF LC/MS basic user.

- Microsoft Office: (Word, Excel, PowerPoint, Outlook,); Graphics and computer programs: Origin, Photoshop; FTIR Spectrometry: Spectrum 100 (Perkin-Elmer); EndNote, Mendelay, UV-Vis; Thermal analysis and kinetic analysis programs; RisoScan and CalDose software used for ALID 7 electron beam dosimetry; Software for chemical design and drawings.

ADDITIONAL INFORMATION (training and competencies):

1. IAEA Regional Workshop on the Status, **Advances and Applications of Ionizing Radiation on Biomedical Materials**, Zagreb, Croatia, 11-14 June, 2019.
2. Basic Training on LC MSD Q-TOF 1260 Infinity/6530 C Agilent Technologies (SC Agilrom Scientific SRL), 2018.
3. **IAEA Regional Meeting and Training Course:** On the Evaluation of the First Phase of the Dose Intercomparison Exercise Conducted to Improve QA/QC Procedures in Radiation Processing in the European Region, Vienna, Austria 13-15 September, 2017; On Adoption of QA/QC Methods and Procedures for Intercomparison of Radiation Dosimetry in Radiation Facilities for Process Control, Budapest, Hungary, 3-7 October, 2016; On Introducing and Harmonizing Standardized Quality Control Procedures for Radiation Technologies, Warsaw, Poland, 24-28 September, 2012.
4. Internal auditor training: SR EN ISO 17025:2005 and SR EN ISO 19011:2011, RENAR, Bucharest, 2012.
5. Summer school „Thermal Analysis and Calorimetry”, Craiova, September 2011.

Annex 1 - List of scientific papers published in ISI ranked journals (31) / accorded and requested Patents (3) and experience gained in other national / international programs / projects (15)

1. E. Mănăilă, I. Călina, A. Scărișoreanu, **M. Demeter**, G. Crăciun, M. Dumitru, Impact of Water Conductivity on the Structure and Swelling Dynamics of E-Beam Cross-Linked Hydrogels, *Gels*, *11*(8), 611, 2025, <https://doi.org/10.3390/gels11080611>.
2. A. Scărișoreanu, **M. Demeter**, I. Călina, M.A. Raza, Non-ionizing (UV and MW)-assisted synthesis of polymeric hydrogels for advanced tissue engineering applications, *Journal of Biomaterials Science, Polymer Edition*, *36*(14), 2052-2084, 2025, <https://doi.org/10.1080/09205063.2025.2486866>.
3. I. Călina, **M. Demeter**, A. Scărișoreanu, A. Abbas, M. A. Raza, Role of Ionizing Radiation Techniques in Polymeric Hydrogel Synthesis for Tissue Engineering Applications, *Gels*, *11*(1), 47, 2025, <https://doi.org/10.3390/gels11010047>.
4. **M. Demeter**, I. Călina, A. Scărișoreanu, M.R. Nemțanu, M. Brașoveanu, M. Micutz, M. Dumitru, Formulation, E-Beam Crosslinking, and Comprehensive Characterization of Lavender Oil-Enriched Hydrogels” *Polymers* *16*(22), 3150, 2024, <https://doi.org/10.3390/polym16223150>.
5. I. Calina, **M. Demeter**, G. Crăciun, A. Scărișoreanu, E. Mănăilă, The Influence of the Structural Architecture on the Swelling Kinetics and the Network Behavior of Sodium-Alginate-Based Hydrogels Cross-Linked with Ionizing Radiation, *Gels* *10* (9), 588, 2024, <https://doi.org/10.3390/gels10090588>.
6. **M. Demeter**, I. Calina, A. Scarisoreanu, V. Mitran, M. Popa, A. Cimpean, M.C. Chifiriuc, M. Micutz, E. Matei, B. Mitu, Biocompatible and antimicrobial chitosan/PVP/PEO/PAA/AgNP composite hydrogels: e-beam cross-linking, biodegradation and rheological behaviors, *Radiation Physics and Chemistry* *16*, 111391, 2024, <https://doi.org/10.1016/j.radphyschem.2023.111391>.
7. **M. Demeter**, A.M. Negrescu, I. Calina, A. Scărișoreanu, M. Albu Kaya, M. Micutz, M. Dumitru, A. Cimpean, Synthesis, physicochemical, and biocompatibility characteristics of multi-component

- collagen-based hydrogels developed by e-beam irradiation, *Journal of Functional Biomaterials* 14(9), 454, 2023, <https://doi.org/10.3390/jfb14090454>.
8. E. Manaila, **M. Demeter**, I.C. Calina, G. Craciun, NaAlg-g-AA Hydrogels: Candidates in Sustainable Agriculture Applications, *Gels*, 9(4), 316, 2023, <https://doi.org/10.3390/gels9040316>.
 9. G. Craciun, I. C. Calina, **M. Demeter**, A. Scarisoreanu, M. Dumitru, E. Manaila, Poly (Acrylic Acid)-Sodium Alginate Superabsorbent Hydrogels Synthesized by Electron Beam Irradiation Part I: Impact of Initiator Concentration and Irradiation Dose on Structure, Network Parameters and Swelling Properties, *Materials*, 16(13), 4552, 2023, <https://doi.org/10.3390/ma16134552>.
 10. **M. Demeter**, A. Scărișoreanu, I. Călina, State of the Art of Hydrogel Wound Dressings Developed by Ionizing Radiation, *Gels*, 9(1), 55, 2023, <https://doi.org/10.3390/gels9010055>.
 11. **M. Demeter**, I. Călina, A. Scărișoreanu, M. Micutz, M. Albu Kaya, Correlations on the Structure and Properties of Collagen Hydrogels Produced by E-Beam Crosslinking, *Materials*, 15(21), 7663, 2022, <https://doi.org/10.3390/ma15217663>.
 12. **M. Demeter**, I. Călina, A. Scărișoreanu, M. Micutz, E-Beam Cross-Linking of Complex Hydrogels Formulation: The Influence of Poly(Ethylene Oxide) Concentration on the Hydrogel Properties, *Gels*, 8(1), 2022, <https://doi.org/10.3390/gels8010027>.
 13. H. Hayrabolulu, **M. Demeter**, M. Cutrubinis, M. Sen. Radiation synthesis and characterization of xanthan gum hydrogels, *Radiation Physics and Chemistry*, 188, 109613, 2021, <https://doi.org/10.1016/j.radphyschem.2021.109613>.
 14. I. Calina, **M. Demeter**, A. Scarisoreanu, V. Satulu, B. Mitu, One Step e-Beam Radiation Cross-Linking of Quaternary Hydrogels Dressings Based on Chitosan-Poly(Vinyl-Pyrrolidone)-Poly(Ethylene Glycol)-Poly(Acrylic Acid), *International Journal of Molecular Sciences*, 21(23), 9236, 2020, <https://doi.org/10.3390/ijms21239236>.
 15. **M. Demeter**, V. Meltzer, I. Calina, A. Scarisoreanu, M. Micutz, M. G. Kaya Albu. Highly elastic superabsorbent collagen/PVP/PAA/PEO hydrogels crosslinked via e-beam radiation, *Radiation Physics and Chemistry*, 174, 108898, 2020, <https://doi.org/10.1016/j.radphyschem.2020.108898>.
 16. A. Neacsu, D. Gheorghe, C. Marinescu, **M. Demeter**, V. Tecuceanu, Thermochemical study of some e-beam irradiated guanidine derivatives compounds, *Revista de Chimie*, 71(5), 506 – 521, 2020
 17. **M. Demeter**, I. Calina, C. Vancea, M. Şen, M.G. Albu Kaya, E. Mănăilă, M. Dumitru, V. Meltzer, E-beam processing of collagen-poly(N-vinyl-2-pyrrolidone) double-network superabsorbent hydrogels: structural and rheological investigation, *Macromolecular Research*, 27(3), 255-267, 2019, <https://doi.org/10.1016/j.radphyschem.2020.108898>.
 18. D. Aksüt, **M. Demeter**, I. Calina, M. Şen, Effect of radiation on mechanical properties of phenyl-vinyl-methyl-polysiloxane (PVMQ) elastomers cured with peroxide and Type I and Type II coagents, *Radiation Physics and Chemistry*, 158, 148-152, 2019, <https://doi.org/10.1016/j.radphyschem.2019.02.025>.
 19. D. Aksüt, **M. Demeter**, I. Calina, M. Şen, Effect of radiation on vinyl-methyl-polysiloxane and phenyl-vinyl-methyl-polysiloxane elastomers cured with different co-agents: Comparative study of mechanical and relaxation properties, *Radiation Physics and Chemistry*, 158, 87 – 93, 2019, <https://doi.org/10.1016/j.radphyschem.2019.01.024>.
 20. M. Şen, H. Hayrabolulu, P. Taşkın, M. Torun, **M. Demeter**, M. Cutrubinis, O. Güven, Radiation induced degradation of xanthan gum in aqueous solution, *Radiation Physics and Chemistry*, 144, 189-193, 2018, <https://doi.org/10.1016/j.radphyschem.2017.08.014>.
 21. I. Calina, M. Demeter, C. Vancea, A. Scarisoreanu, V. Meltzer, E-beam radiation synthesis of xanthan-gum/carboxymethylcellulose superabsorbent hydrogels with incorporated graphene oxide, *Journal of Macromolecular Science, Part A: Pure and Applied Chemistry*, 55(3), 260-268, 2018, <https://doi.org/10.1080/10601325.2018.1424552>.

22. **M. Demeter**, I. Călina, C. Vancea, T.P. Paneva, E.G. Koleva, L.St. Koleva, Modelling of e-beam crosslinking of composite hydrogels, *Electrotechnica & Electronica*, 53 (7-8), 224 – 228, 2018.
23. **M. Demeter**, M. Virgolici, C. Vancea, A. Scarisoreanu, M. G. Albu Kaya, V. Meltzer, Network structure studies on γ -irradiated collagen-PVP superabsorbent hydrogels, *Radiation Physics and Chemistry*, 131, 51-59, 2017, <https://doi.org/10.1016/j.radphyschem.2016.09.029>.
24. I. Calina, **M. Demeter**, E. Badita, E. Stancu, A. Scarisoreanu, C. Vancea, Reduction of freestanding graphene oxide films using continuous wave laser, *Romanian Reports in Physics*, 69 (2), 504, 2017.
25. A. Scarisoreanu, F. Scarlat, E. Stancu, E. Badita, **M. Dumitrașcu**, C. Vancea, R. Popa, Absorbed dose to water and air kerma results for measurements carried out in an oncology radiotherapy laboratory, *Romanian Reports in Physics* 69, 605, 2017.
26. F. Scarlat, N. Verga, A. Scarisoreanu, E. Badita, **M. Demeter**, E. Stancu, C. Vancea, Fl. Scarlat, Absorbed dose determination in conventional and laser-driven hadron clinical beams using electrical charge measurements, *Romanian Reports in Physics*, 68 (1), 210–219, 2016.
27. M. Şen, H. Hayrabolulu, P. Taşkın, M.Torun, **M. Demeter**, M. Cutrubinis, O. Güven, Radiation induced degradation of xanthan gum in the solid state, *Radiation Physics and Chemistry*, 124, 225–229, 2016, <https://doi.org/10.1016/j.radphyschem.2015.10.005>.
28. M.D. Stelescu, E. Manaila, G. Craciun, **M. Dumitrașcu**, New green polymeric composites based on hemp and natural rubber processed by electron beam irradiation, *The Scientific World Journal*, Article ID 684047, 2014, <https://doi.org/10.1155/2014/684047>.
29. M. Dumitrașcu, M.G. Albu, M. Virgolici, C. Vancea, V. Meltzer, Characterization of Electron Beam Irradiated Polyvinylpyrrolidone-Dextran (PVP/DEX) Blends, *Solid State Phenomena*, 188, 102-108, 2012, <https://doi.org/10.4028/www.scientific.net/SSP.188.102>.
30. **M. Dumitrașcu**, V. Meltzer, E. Sima, M. Virgolici, M.G. Albu, A. Ficai, V. Moise, R. Minea, C. Vancea, A. Scărișoreanu, F. Scarlat, Characterization of electron beam irradiated collagen-polyvinylpyrrolidone (PVP) and collagen-dextran (DEX) Blends, *Digest Journal of Nanomaterials and Biostructures*, 6(4), 1793-1803, 2011.
31. M.G. Albu, M.V. Ghica, A. Lungu, L. Popa, I-C. Stancu, **M. Dumitrașcu**, E. Sima, Lidocaine release from collagen dressings, *Proceedings of the 3rd International Conference on Advanced Materials and Systems*, 175-180, 2010.

RESEARCH PROJECTS:

1. **Romanian National Core Program LAPLAS VII–contract no. 30N/2023**: Advanced research and technological development of lasers - plasma - radiation - space (2023-2026) – **Team member**;
2. **PN-IV-P2-2.1-TE-2023-0453**: Biomimetic hydrogel dressing containing natural therapeutic agents developed by radiation synthesis (2025-2027) – **Team member**;
3. **PN-III-P1-1.1-PD-2021-0552**: Mulicomponent hydrogel with hybrid structure obtained in situ by irradiation technology for the malignant melanoma therapy (2022-2024) – **Project Leader**;
4. **PN-III-P4-PCE-2021-1778**: Selection of the competitive reactions for plasma modified starch (2022-2024) – **Team member**;
5. **PN-III-P2-2.1-PED-2021-2151**: Biotechnological solution for plant water and biostimulants sustainable delivery system (2022-2024) – **Team member**;
6. **PN-III-P1-1.2-PCCDI-2017-0728**: Integrated development project for advanced medical treatment technologies, (2018-2021) – **Key Person**.
7. **NUCLEU-LAPLAS VI 16N/08.02.2019**: Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 111, *Formulation and evaluation of hydrogels microemulsion for the controlled release of active principles with hydrophobic properties* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.

8. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 84, *Composite hydrogels based on polymeric and/or metallic micro- and nanoparticles* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
9. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 21, *Biodegradable polymeric hydrogels with superabsorbent properties for applications in regenerative medicine* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
10. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 21, *Biodegradable polymeric hydrogels with superabsorbent properties for applications in regenerative medicine* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
11. **NUCLEU PN 16 47 01 04:** Applied research with lasers, plasma and radiation for the development of emerging technologies (in the health, energy, security and the environment)/ Phase No. 27, *Researching the effects of ionizing radiation on chiral compounds and selecting the category of medical products in which components with chiral activity are found* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
12. **NUCLEU PN 16 47 01 04:** Applied research with lasers, plasma and radiation for the development of emerging technologies (in the health, energy, security and the environment)/ Phase No. 15, *Synthesis and physicochemical characterization of mixtures: superabsorbent hydrogel with graphene, obtained in solid phase, by irradiation with ionizing radiation* - Phase Responsible – Ministry of Research, Innovation, and Digitalization
13. Bilateral cooperation project, Contract no. 598/2013: Identification of optimum processing conditions for the preparations of Xanthan Gum based superabsorbent polymers by ionizing radiations (2013-2014).
14. **LAPLAS Nucleus Program 3:** PN 09 39 (2009-2012): Macroscopic effects of fundamental interest and applications of electron beam interaction with matter
15. **PCDI – STAR – ROSA 140/2017:** Technologies for elastomeric nanocomposites development for low temperature and radiation resistant O-rings manufacturing, with potential applications in space, aeronautics, security and other related fields - **NANOELAST-O – Team member**
16. **Nucleus Program (2014-2015):** Advanced processing of materials using electron beams, microwaves, plasma and laser radiation for environmental protection, agriculture, electronics, and machine building applications
17. **LAPLAS Nucleus Program 3:** PN 09 39: Macroscopic effects of fundamental interest and applications of electron beam interaction with matter (2009-2012).
18. **CEEX M1-Biotech, 86/2006:** „The applied treatment with accelerates electron beam for microbial decontamination of the nutritious supplements from Sea Buckthorn” (2006-2008).
19. **PNCDI2, 51-101/2007:** The natural nutritive supplement with antistress properties (2009-2010).
20. **PNCDI2, 31-061/2007:** Uncontaminated vegetal extracts used in phytotherapy obtained by unconventional technologies (2008-2010).

PATENTS AND APPLICATION:

1. **M. Demeter, I. C. Călina, A. Scărișoreanu, A. Cîmpean,** Process for obtaining biocompatible semisolid hydrogel with doxorubicin release and pro-generative role, application number A/00138/2024.
2. **M. Demeter, I.C. Călina, A. Scărișoreanu,** Multicomponent superabsorbent dressing in the form of a hydrogel, RO-BOPI 6/2021, page 25 (application number/a 2019 00871).

3. P. Constantinescu, **M. Dumitrașcu**, E. Mazilu, V. Meltzer, R.D.M. Minea, E. Mitru, M. Neagu, M. Popescu, E. Pincu, E. Sima, “Natural dietary supplement with anti-stress properties and process for obtaining”, Patent No. RO127728, 2013.

AWARDS: Honorary diploma awarded by L'ORÉAL Romania, for the contribution to the advancement of science, L'Oréal – UNESCO Program for Women in Science (June 19, 2022).

INTERNATIONAL AND NATIONAL SCIENTIFIC COLLABORATION:

Hacettepe University, Department of Chemistry, Ankara, Turkey – Prof. Dr. Murat SEN

- University of Bucharest, The Faculty of Chemistry, Bucharest, Romania – Prof. Dr. Viorica MELTZER
- University of Bucharest, The Faculty of Chemistry, Bucharest, Romania – Conf. Dr. Marin MICUȚ
- Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, IRASM Multipurpose Irradiation Facility, Măgurele, Romania – Dr. Valentin MOISE, Dr. Marian VIRGOLICI.
- University of Bucharest, The Faculty of Biology, Biochemistry and Molecular Biology Department Bucharest, Romania – Prof. Dr. Anișoara CÎMPEAN
- The Leather and Footwear Research Institute (ICPI), Collagen Research Department, Bucharest, Romania – CS I, Dr. Mădălina Albu Kaya.

REVIEWER FOR ISI JOURNALS:

ELSEVIER: *Radiation Physics and Chemistry, Polymer, Material Letters, Journal of Functional Foods, LWT – Food Science and Technology*; **WILEY:** *Polymers for Advanced Technologies, Journal of Applied Polymer Science*; **SPRINGER:** *Journal of Polymers and the Environment, Journal of Materials Science, Journal of Polymer Research, Polymer Bulletin*; **MDPI:** *Gels, Polymers, Materials, Pharmaceutics*.

PERSONAL LINKS:

Scopus Author ID: <https://www.scopus.com/authid/detail.uri?authorId=57094838400>;

ORCID: <https://orcid.org/0000-0003-0758-1445>;

Researcher ID: [Demeter Maria - Web of Science Researcher Profile](#)

Google Scholar: <https://scholar.google.com/citations?user=Ft-3u-sAAAAJ&hl=en>;

I declare on my responsibility that the data presented is in line with reality.

Date: 09. 10.2025

Signature



INFORMAȚII PERSONALE



DEMETER MARIA

📍 Institutul Național pentru Fizica Laserilor, Plasmei și Radiației
Laboratorul Acceleratoare de Electroni

☎ +4 021 457 48 46 📠 +4 0770 669 982

✉ maria.demeter@inflpr.ro; mariadumitrascu30@gmail.com

Sex Feminin | Data nașterii 12/04/1981 | Naționalitate Romanian

EXPERIENȚĂ PROFESIONALĂ

2011 – Prezent

Cercetător Științific gr. III, Doctor/Cercetare & Dezvoltare & Inovare

Institutul Național pentru Fizica Laserilor, Plasmei și Radiației (INFLPR), Laboratorul Acceleratoare de Electroni (Str. Atomistilor 409, PO Box MG-36, București - Măgurele, România); www.inflpr.ro.

Hidrogeluri pentru aplicații în științele: Dezvoltarea de hidrogeluri pentru aplicații biomedicale și agricole; Prelucrarea prin radiații a materialelor polimerice; Tratarea materialelor polimerice cu radiații ionizante; Dozimetria radiațiilor ionizante utilizate pentru prelucrarea industrială a materialelor (dozimetrie chimică, calorimetrie și dozimetrie cu filme radiocromice pentru măsurarea dozei absorbite); Sinteza hidrogelurilor compozite pe bază de grafene; Determinarea stabilității elastomerilor siliconici prin procesare cu fascicule de electroni accelerați.

2008 – 2010

Asistent Cercetare, INFLPR

Decontaminarea produselor alimentare și a produselor vegetale cu radiații ionizante; Interacția radiațiilor cu materia; Dozimetria radiațiilor ionizante.

EDUCAȚIE ȘI FORMARE

2020

Doctor în Chimie, Universitatea din București, Facultatea de Chimie
Ordin Nr. 4021 din 07.04.2020

Teza: **Hidrogeluri superabsorbante obținute prin reticulare cu radiații ionizante**

(Conducător: Prof. Dr. Viorica Meltzer)

2008

Master/Medicamente și Cosmetice, Universitatea Politehnica din București (UPB), Facultatea de Chimie Aplicată și Știința Materialelor (FACMS)

2006

Inginer Diplomat / Chimie Industrială, UPB, FACMS

2000

Diplomă Bacalaureat,

Liceul Teoretic "Constantin Brîncoveanu", Horezu (Chimie-Biologie)

COMPETENȚE PERSONALE

Engleză

Ascultare-B1/Lectură-C1/ Interacțiune vorbită - B2/Înțelegere-C1/Sciere - B2

COMPETENȚE DOBÂNDITE LA LOCUL DE MUNCĂ:

- Caracterizarea fizico-chimică a materialelor organice prin: spectrometrie FT-IR și FT-Raman (Perkin-Elmer și Bruker); Spectrofotometrie UV-Vis; Analiza reologică a materialelor polimerice; Dozimetrie cu film; Analiză termică: Calorimetrie dinamică diferențială (DSC) și termogravimetrie (TG), utilizator de bază LC/MS Agilent Q-TOF LC/MS.
- **Microsoft Office:** (Word, Excel, PowerPoint, Outlook,); Grafică și programe de calculator: Origin, Photoshop; Spectrometrie FTIR: Spectrum 100 (Perkin-Elmer); EndNote, UV-Vis; Programe de analiză termică și analiză cinetică; Software-ul RisoScan și CalDose utilizat pentru dozimetria fasciculelor de electroni; Software pentru desenarea schemelor de reacții chimice.

ALTE COMPETENȚE:

1. IAEA Regional Workshop on the Status, **Advances and Applications of Ionizing Radiation on Bio-medical Materials**, Zagreb, Croatia, 11-14 June, 2019.
2. Basic Training on LC MSD Q-TOF 1260 Infinity/6530 C Agilent Technologies (SC Agilrom Scientific SRL), 2018.
3. **IAEA Regional Meeting and Training Course:** On the Evaluation of the First Phase of the Dose Intercomparison Exercise Conducted to Improve QA/QC Procedures in Radiation Processing in the European Region, Vienna, Austria 13-15 September, 2017; On Adoption of QA/QC Methods and Procedures for Intercomparison of Radiation Dosimetry in Radiation Facilities for Process Control, Budapest, Hungary, 3-7 October, 2016; On Introducing and Harmonizing Standardized Quality Control Procedures for Radiation Technologies, Warsaw, Poland, 24-28 September, 2012.
4. Internal auditor training: SR EN ISO 17025:2005 and SR EN ISO 19011:2011, RENAR, Bucharest, 2012.
5. Summer school „Thermal Analysis and Calorimetry”, Craiova, September 2011.

Anexa 1 - Lista lucrărilor științifice publicate în reviste clasate ISI (31) / Brevete acordate și solicitate (3) și experiența acumulată în alte programe / proiecte naționale / internaționale (15)

1. E. Mănăilă, I. Călina, A. Scărișoreanu, **M. Demeter**, G. Crăciun, M. Dumitru, Impact of Water Conductivity on the Structure and Swelling Dynamics of E-Beam Cross-Linked Hydrogels, *Gels*, *11*(8), 611, 2025, <https://doi.org/10.3390/gels11080611>.
2. A. Scărișoreanu, **M. Demeter**, I. Călina, M.A. Raza, Non-ionizing (UV and MW)-assisted synthesis of polymeric hydrogels for advanced tissue engineering applications, *Journal of Biomaterials Science, Polymer Edition*, *36*(14), 2052-2084, 2025, <https://doi.org/10.1080/09205063.2025.2486866>
3. I. Călina, **M. Demeter**, A. Scărișoreanu, A. Abbas, M. A. Raza, Role of Ionizing Radiation Techniques in Polymeric Hydrogel Synthesis for Tissue Engineering Applications, *Gels*, *11*(1), 47, 2025, <https://doi.org/10.3390/gels11010047>.
4. **M. Demeter**, I. Călina, A. Scărișoreanu, M.R. Nemțanu, M. Brașoveanu, M. Micutz, M. Dumitru, Formulation, E-Beam Crosslinking, and Comprehensive Characterization of Lavender Oil-Enriched Hydrogels” *Polymers* *16*(22), 3150, 2024, <https://doi.org/10.3390/polym16223150>.
5. I. Calina, **M. Demeter**, G. Crăciun, A. Scărișoreanu, E. Mănăilă, The Influence of the Structural Architecture on the Swelling Kinetics and the Network Behavior of Sodium-Alginate-Based

- Hydrogels Cross-Linked with Ionizing Radiation, *Gels* 10 (9), 588, 2024, <https://doi.org/10.3390/gels10090588>.
6. **M. Demeter**, I. Calina, A. Scarisoreanu, V. Mitran, M. Popa, A. Cimpean, M.C. Chifiriuc, M. Micutz, E. Matei, B. Mitu, Biocompatible and antimicrobial chitosan/PVP/PEO/PAA/AgNP composite hydrogels: e-beam cross-linking, biodegradation and rheological behaviors, *Radiation Physics and Chemistry* 16, 111391, 2024, <https://doi.org/10.1016/j.radphyschem.2023.111391>.
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PROIECTE DE CERCETARE:

1. **Romanian National Core Program LAPLAS VII–contract no. 30N/2023:** Advanced research and technological development of lasers - plasma - radiation - space (2023-2026) – **Team member**;
2. **PN-IV-P2-2.1-TE-2023-0453:** Biomimetic hydrogel dressing containing natural therapeutic agents developed by radiation synthesis (2025-2027) – **Team member**;
3. **PN-III-P1-1.1-PD-2021-0552:** Mulicomponent hydrogel with hybrid structure obtained in situ by irradiation technology for the malignant melanoma therapy (2022-2024) – **Project Leader**;
4. **PN-III-P4-PCE-2021-1778:** Selection of the competitive reactions for plasma modified starch (2022-2024) – **Team member**;

5. **PN-III-P2-2.1-PED-2021-2151:** Biotechnological solution for plant water and biostimulants sustainable delivery system (2022-2024) – **Team member**;
6. **PN-III-P1-1.2-PCCDI-2017-0728:** Integrated development project for advanced medical treatment technologies, (2018-2021) – **Key Person**.
7. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 111, *Formulation and evaluation of hydrogels microemulsion for the controlled release of active principles with hydrophobic properties* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
8. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 84, *Composite hydrogels based on polymeric and/or metallic micro- and nanoparticles* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
9. **NUCLEU-LAPLAS VI 16N/08.02.2019:** Project PN 19 15 01 01: Emerging research on lasers, plasma, radiation, and their applications in intelligent specialized fields and public interest / Phase: No. 21, *Biodegradable polymeric hydrogels with superabsorbent properties for applications in regenerative medicine* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
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11. **NUCLEU PN 16 47 01 04:** Applied research with lasers, plasma and radiation for the development of emerging technologies (in the health, energy, security and the environment)/ Phase No. 27, *Researching the effects of ionizing radiation on chiral compounds and selecting the category of medical products in which components with chiral activity are found* – **Phase Responsible** – Ministry of Research, Innovation, and Digitalization.
12. **NUCLEU PN 16 47 01 04:** Applied research with lasers, plasma and radiation for the development of emerging technologies (in the health, energy, security and the environment)/ Phase No. 15, *Synthesis and physicochemical characterization of mixtures: superabsorbent hydrogel with graphene, obtained in solid phase, by irradiation with ionizing radiation* - Phase Responsible – Ministry of Research, Innovation, and Digitalization
13. Bilateral cooperation project, Contract no. 598/2013: Identification of optimum processing conditions for the preparations of Xanthan Gum based superabsorbent polymers by ionizing radiations (2013-2014).
14. **Laplas Nucleus Program 3:** PN 09 39 (2009-2012): Macroscopic effects of fundamental interest and applications of electron beam interaction with matter
15. **PCDI – STAR – ROSA 140/2017:** Technologies for elastomeric nanocomposites development for low temperature and radiation resistant O-rings manufacturing, with potential applications in space, aeronautics, security and other related fields - NANOELAST-O – **Team member**
16. **Nucleus Program (2014-2015):** Advanced processing of materials using electron beams, microwaves, plasma and laser radiation for environmental protection, agriculture, electronics, and machine building applications
17. **Laplas Nucleus Program 3:** PN 09 39: Macroscopic effects of fundamental interest and applications of electron beam interaction with matter (2009-2012).
18. CEEEX M1-Biotech, 86/2006: „The applied treatment with accelerates electron beam for microbial decontamination of the nutritious supplements from Sea Buckthorn” (2006-2008).
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BREVETE DE INVENȚIE :

1. **M. Demeter**, I. C. Călina, A. Scărișoreanu, A. Cîmpean, Process for obtaining biocompatible semisolid hydrogel with doxorubicin release and pro-generative role, application number A/00138/2024.
2. **M. Demeter**, I.C. Călina, A. Scărișoreanu, Multicomponent superabsorbent dressing in the form of a hydrogel, RO-BOPI 6/2021, page 25 (application number/a 2019 00871).
3. P. Constantinescu, **M. Dumitrașcu**, E. Mazilu, V. Meltzer, R.D.M. Minea, E. Mîtru, M. Neagu, M. Popescu, E. Pincu, E. Sima, “Natural dietary supplement with anti-stress properties and process for obtaining”, Patent No. RO127728, 2013.

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REFERENT PENTRU JURNALE ISI:

ELSEVIER: *Radiation Physics and Chemistry, Polymer, Material Letters, Journal of Functional Foods, LWT – Food Science and Technology; Journal of Molecular Liquids; Separation and Purification Technology;* **WILEY:** *Polymers for Advanced Technologies, Journal of Applied Polymer Science;* **SPRINGER:** *Journal of Polymers and the Environment, Journal of Materials Science, Journal of Polymer Research, Polymer Bulletin;* **MDPI:** *Gels, Polymers, Materials, Pharmaceutics*

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Declar pe proprie răspundere că datele prezentate sunt în concordanță cu realitatea.

Date: 09.10.2025

Signature

