

Curriculum Vitae

Date personale și afiliere

Nume: **Mirela BRAȘOVEANU**

Titlu științific: Cercetător Științific III

Instituție: Institutul Național pentru Fizica Laserilor, Plasmei și Radiației (INFLPR)

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Profil profesional

Studiul interacției radiației și plasmei cu sisteme organice complexe

Dezvoltarea de tehnici neconvenționale pentru funcționalizarea biopolimerilor

Utilizarea avansată a fasciculelor de electroni și plasmei reci pentru aplicații în siguranța alimentului și calitatea mediului

Domenii de interes

Interacția radiației cu materia/ Iradierea cu electroni accelerați/ Procesare cu plasma/ Modelarea matematică a proceselor competitive în tratamente cu radiații și plasma/ Funcționalizarea biopolimerilor/ Iradierea alimentelor/Procese sinergetice/ Transfer de căldură/ Spectroscopie UV-Vis și FTIR, analiza elementală CHNS-O, cromatografie de permeabilitate în gel GPC pentru carbohidrați

Educație

Doctor în Fizică, Universitatea din București, 2007/Titlul Tezei: “Studiul efectelor iradierii în sisteme organice complexe de interes nutrițional și farmaceutic”

Master în Fizică, Universitatea din București, 1995, Specializare: Fizică Nucleară Aplicată

Licențiată în Fizică, Universitatea din București, 1994, Specializare: Fizică Tehnologică

Experiență profesională

2004-present: Cercetător Științific Gradul III - INFLPR, Laboratorul Acceleratoare de Electroni

1996-2004: Cercetător Științific - INFLPR, Laboratorul Acceleratoare de Electroni

1994-1996: Asistent Cercetare Științifică - INFLPR, Laboratorul Acceleratoare de Electroni

Activitate științifică

Co-Autor in peste 40 articole științifice indexate ISI (10 Q1/12 Q2)

Key Person si membru in echipele de cercetare a unor proiecte de cercetare naționale și cooperari bilaterale

Prezentări la conferințe științifice naționale și internaționale.

Co-Autor la 2 brevete de inventie si 8 capitole de carte

Referent pentru ELSEVIER: *Radiation Physics and Chemistry*; WILEY: *Starch/Starke*; SPRINGER: *Cellulose*

Citari (Web of Science™): >400

H-index (Web of Science™): 9

Curriculum Vitae

Personal data and affiliation

Name: **Mirela BRAȘOVEANU**

Scientific title: Scientific Researcher III

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Professional Profile

Study of radiation and plasma interaction with complex organic systems

Development of unconventional techniques for biopolymer functionalization

Advanced use of electron beams and cold plasma for applications in food safety and environmental quality

Areas of interest

Interaction of radiation with matter/ Electron-beam irradiation/ Plasma processing/ Mathematical modeling of competitive processes in radiation and plasma treatments/ Functionalization of biopolymers/ Food irradiation/ Synergistic processes/ Heat transfer/ UV-Vis and FTIR spectroscopy, CHNS-O elemental analysis, GPC- gel permeation chromatography for carbohydrates

Education

Ph.D. in Physics, University of Bucharest, 2007/Thesis title: “The study of irradiation effects in complex organic systems of nutritional and pharmaceutical interest”

M.Sc. in Physics, University of Bucharest, 1995, Specialization: Applied Nuclear Physics

B.Sc. in Physics, University of Bucharest, 1994, Specialization: Technological Physics

Professional experience

2004-present: Senior Researcher (3rd rank) - National Institute Laser, Plasma and Radiation Physics, Electron Accelerators Laboratory

1996-2004: Scientific Researcher - National Institute for Laser, Plasma and Radiation Physics, Electron Accelerators Laboratory

1994-1996: Research Assistant - National Institute for Laser, Plasma and Radiation Physics, Electron Accelerators Laboratory

Scientific activity

Co-Author in over 40 ISI indexed scientific articles. (10 Q1/ 12 Q2)

Key Person and member of research teams of national research projects and bilateral cooperations

Presentations at national and international scientific conferences.

Co-Author in 2 patents and 8 book chapters

Reviewer for ELSEVIER: *Radiation Physics and Chemistry*; WILEY: *Starch/Starke*; SPRINGER: *Cellulose*

Times Cited (Web of Science™): >400

H-index (Web of Science™): 9

Lista de publicatii

I. Publicatii in jurnale stiintifice cotate ISI conform Web of Science™

1. Ebenezer Asiamah, Monica R. Nemțanu, Mirela **Brașoveanu**, Dong-Hui Geng, Yiming Wang, Kuaitian Wang, Yongqiang Cheng; "Unveiling the suitability of C-starch as functional food: A pairwise interaction of lipids and polyphenol components (LIPOP)"; *CARBOHYDRATE POLYMERS* Vol (353) art no 12327 (2025) <https://doi.org/10.1016/j.carbpol.2025.123279>. /Q1
2. **Brașoveanu**, M.; Nemtanu M.R.; "Tailoring starch functionality through non-thermal plasma"; *ROMANIAN REPORTS IN PHYSICS*, (in press).
3. **Brasoveanu**, M; Sabbaghi, H; Ticos, D; Dumitru, M; Sunooj, KV; Sher, F; Nemtanu, MR; "Enhancing starch functionality through synergistic modification via sequential treatments with cold plasma and electron beam irradiation"; *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*, 270 132346 (2024) /Q1
4. Demeter, M.; Călina, I.; Scărișoreanu, A.; Nemțanu, M.R.; **Brașoveanu**, M.; Micutz, M.; Dumitru, M. Formulation, E-Beam Crosslinking, and Comprehensive Characterisation of Lavender Oil-Enriched Hydrogels. *POLYMERS* 16, 3150 (2024) /Q1
5. **Brasoveanu**, M; Sabbaghi, H; Nemtanu, MR; "Synthesis of Natural-Inspired Materials by Irradiation: Data Mining from the Perspective of Their Functional Properties in Wastewater Treatment"; *MATERIALS* APR (2023) /Q2
6. **Brasoveanu**, M; Nemtanu, MR; "Dual Modification of Starch by Physical Methods Based on Corona Electrical Discharge and Ionizing Radiation: Synergistic Impact on Rheological Behavior"; *FOODS* 11(16) 2479 (2022) /Q1
7. Nemtanu, MR; **Brasoveanu**, M; Pincu, E; Meltzer, V; "Water-Soluble Starch-Based Copolymers Synthesized by Electron Beam Irradiation: Physicochemical and Functional Characterization"; *MATERIALS* 15(3) 1061 (2022)
8. **Brasoveanu**, M; Nemtanu, MR; Ticos, D; "Influence of the sample loading on the contribution of competitive effects for granular starch exposed to radio-frequency plasma"; *INNOVATIVE FOOD SCIENCE & EMERGING TECHNOLOGIES* 72, 102740 (2021) /Q1
9. Nemt, MR; **Brasoveanu**, M; "Exposure of starch to combined physical treatments based on corona electrical discharges and ionizing radiation. Impact on physicochemical properties"; *RADIATION PHYSICS AND CHEMISTRY* 184, 109480 (2021) /Q1
10. **Brasoveanu**, M; Nemtanu, MR; "Temperature Profile in Starch during Irradiation. Indirect Effects in Starch by Radiation-Induced Heating"; *MATERIALS* 14 (11) 3061 (2021)
11. **Brasoveanu**, M; Nemtanu, MR; "Pasting properties modeling and comparative analysis of starch exposed to ionizing radiation"; *RADIATION PHYSICS AND CHEMISTRY* 168, 108492 (2020) /Q1
12. **Brasoveanu**, M; Oane, M; Nemtanu, MR; "Heat Transport in Starch Exposed to Ionizing Radiation: Experiment Versus Theoretical Computer Modeling"; *STARCHE-STARKE* 71 (44176) 1900147 (2019) /Q2

13. Nemtanu, MR; **Brasoveanu, M**; "Degradation of amylose by ionizing radiation processing"; *STARCH-STARKE* 69 (3-4) 1600027 (2017) /Q2
14. Nemtanu, MR; **Brasoveanu, M**; "Impact of electron beam irradiation on quality of sea buckthorn (*Hippophae rhamnoides* L.) oil"; *JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE* 96 (5) 1736-1744 (2016). /Q1
15. Ghisleni, DD; Bragaa, MD; Kikuchia, IS; **Brasoveanu, M**; Nemtanu, MR; Dua, K; Pinto, TDA; "The Microbial Quality Aspects and Decontamination Approaches for the Herbal Medicinal Plants and Products: An In-Depth Review"; *CURRENT PHARMACEUTICAL DESIGN* 22 (27) 4264-4287 (2016).
16. **Braşoveanu, M**; Koleva, E; Vutova, K; Koleva, L; Nemţanu, MR; "Optimization Aspects on Modification of Starch Using Electron Beam Irradiation for the Synthesis of Water-Soluble Copolymers"; *ROMANIAN JOURNAL OF PHYSICS* 61(9-10) 1519-1529 (2016) /Q2
17. Brasoveanu, M.; Nemtanu, M. R.; Surdu-Bob, C.; Karaca, G.; Erper, I.; EFFECT OF GLOW DISCHARGE PLASMA ON GERMINATION AND FUNGAL LOAD OF SOME CEREAL SEEDS, *ROMANIAN REPORTS IN PHYSICS* 67(2) 617-624- (2015) /Q2
18. Nemtanu, M R; **Brasoveanu, M**; Karaca, G; Erper, I; "Inactivation effect of electron beam irradiation on fungal load of naturally contaminated maize seeds"; *JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE* 94 (13) 2668-2673 (2014) /Q2
19. **Brasoveanu, M**; Nemtanu, M R; "Behaviour of Starch Exposed to Microwave Radiation Treatment"; *STARCH-STARKE* 66 (1-2) SI 3-14 (2014) /Q2
20. **Braşoveanu, M.**; Nemţanu, M.R.; D. Duţă; "Electron-Beam Processed Corn Starch: Evaluation of Physicochemical and Structural Properties and Technical-Economic Aspects of The Processing"; *BRAZILIAN JOURNAL OF CHEMICAL ENGINEERING*, Vol. 30, No. 4, 847-856 (2013).
21. **Braşoveanu, M.**; Crăciun, G.; Mănăilă, E.; Ighigeanu, D.; Nemţanu, M.R.; Grecu, M.N.; "Evolution of the Levels of Free Radicals Generated on Wheat Flour and Wheat Bran by Electron Beam"; *CEREAL CHEMISTRY*, Vol. 90, Iss. 5, 469-473 (2013).
22. M. R. Nemtanu, **M. Brasoveanu*** Radio-sensitivity of some starches treated with accelerated electron beam, *STARCH/STÄRKE*, Vol. 64, Issue 6, 435–440, 2012 /Q2
23. M. Nemtanu, G. Craciun, E. Manaila, M. Oane, M. Brasoveanu, C. Oproiu, D. Martin and D. Ighigeanu, One and Two-Temperature Models in Solids Under Laser Pulse Irradiation Which Effectively Present as Two-Photon Absorption Coefficient Anisotropy, *LASERS IN ENGINEERING*, Vol. 22, Nos. 1-2, 13-23, 2012
24. I. Sandu, **M. Brasoveanu**, I. Morjan, I. Voicu, F. Dumitrache, C. Fleaca Teodor, L. Gavrila-Florescu, Synthesis of optical transparent and electrical conductive polymer/nanocarbon composite films by infiltration method, *THIN SOLIDS FILM*, Vol. 519, Issue 12, 4128-4131, 2011
25. M.R. Nemtanu, **M. Brasoveanu**, Aspects regarding the Rheological Behavior of Wheat Starch Treated with Accelerated Electron Beam, *ROMANIAN JOURNAL OF PHYSICS*, Vol. 55, Nos. 1-2, 111-117, 2010
26. M.R. Nemţanu, M. Braşoveanu, Chapter 17: Functional Properties of Some Non-conventional Treated Starches, pp 319-344 in "Biopolymers" (ed. M. Eknashar), ISBN 978-953-307-109-1, Scyio, Rijeka, Croatia, 2010

27. M.R. Nemțanu, M. Brașoveanu, H. Iovu, Degradation Rate of Some Electron Beam Irradiated Starches, *U.P.B. SCI. BULL.*, Series B, Vol. 72, Iss. 2, 69-74, 2010
28. M.R. Nemțanu, **M. Brașoveanu**, D. Martin, E. Mănăilă, H. Iovu, A. Dinescu, Physicochemical and structural characterization of corn starch modified by combined electron beam with microwave treatment, *MATERIALE PLASTICE* 46, Nr. 4, 413-418, 2009
29. M.R. Nemtanu, C. Oproiu, **M. Brasoveanu**, M. Oane, Characterization of the Electron Beam Radiation Field by Chemical Dosimetry, *ROMANIAN JOURNAL OF PHYSICS*, Vol. 54, Nos. 7-8, 613-617, 2009
30. M.R. Nemtanu, **M. Brasoveanu**, V. Meltzer, E. Pincu, C. Oproiu, Thermal Analysis of Some Phytotherapeutic Products Irradiated with Electron Beam, *JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY* 97, Issue 1, 309-313, 2009 /Q2
31. M.R. Nemtanu, **M. Brasoveanu**, M.N. Grecu, R. Minea, Green Coffee Decontamination by Electron Beam Irradiation, *NUCLEAR INSTRUMENTS AND METHODS IN PHYSICS RESEARCH B* 240, Issues 1-2, 87-90, 2005 /Q1
32. **M. Brasoveanu**, M. Nemtanu, R. Minea, M.N. Grecu, E. Mazilu, N. Radulescu, Electron beam irradiation for biological decontamination of *Spirulina Platensis*, *NUCLEAR INSTRUMENTS AND METHODS IN PHYSICS RESEARCH B* 240, Issues 1-2, 83-86, 2005 /Q1
33. S. Manea, V. Tamas, E. Mazilu, C. Tanase, S. Setnic, D. Enulescu, N. Rădulescu, **M.M. Brașoveanu**, M.R. Nemțanu, R. Minea, The Effects of Ionising Radiation on the Main Free Radical Scavengers in *Spirulina Plantensis*, *REVISTA DE CHIMIE* 55, Nr. 11, 914-915, 2004
34. D.M. Timus, B.D. Timus, **M.M. Brasoveanu**, D.A. Bradley, On the energy behaviour of fast d-T neutrons generated by hollow-cylindrical deuteron beams accelerated onto plane tritium targets, *APPLIED RADIATION AND ISOTOPES*, Vol. 48, Issues 10-12, 1677-1686, 1997 /Q2
35. D.M. Timus, A.M. Popov, **M.M. Brasoveanu**, A. Babes, D.A. Bradley, Some preliminary studies of the thermal behaviour of electron beam grafted polyamides, *APPLIED RADIATION AND ISOTOPES*, Vol. 48, Issues 10-12, 1657-1662, 1997 /Q2
36. D.M. Timus, **M.M. Popescu (Brasoveanu)**, The energy spread of some radiation fields used in activation analysis, *JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY*, Vol. 220, Issue 2, 135-143, 1997/ Q2

II. Capitole si lucrari necotate in Web of Science

1. Mirela Brașoveanu, Betul Oskaybaş Emlek, Hassan Sabbaghi, Kevser Kahraman, Serpil Öztürk Muti, Farooq Sher, Monica R. Nemțanu, Ionizing Radiation, pp 188-213, in "Starch" (eds. S. P. Bangar, K. V. Sunooj, A. K. Siroha), CRC Press. 2025 (DOI <https://doi.org/10.1201/9781032655598>)
2. M. Brașoveanu, M.R. Nemțanu, Aspects on Starches Modified by Ionizing Radiation Processing, pp 49-68, în "Applications of Modified Starches" (eds. E. F. Huicochea, R. Rendon), ISBN 978-953-51-5691-8, IntechOpen, Croatia, 2018 (DOI: 10.5772/intechopen.71626)

3. M. R. Nemțanu, M. Brașoveanu; "Ionizing irradiation grafting of natural polymers having applications in wastewater treatment"; pp 270-277, în "Polymer science: research advances, practical applications and educational aspects" (eds. A. Méndez-Vilas, A. Solano-Martín), ISBN 978-81-7895-541-4, Formatex Research Center, Spain, 2016
4. M. Brașoveanu, M. R. Nemțanu; "Natural polymers used as matrices for metallic nanoparticle synthesis by ionizing irradiation"; pp 348-353, în "Polymer science: research advances, practical applications and educational aspects" (eds. A. Méndez-Vilas, A. Solano-Martín), ISBN 978-81-7895-541-4, Formatex Research Center, Spain, 2016
5. C. Oproiu, M.R. Nemțanu, **M. Brașoveanu**, M. Oane, Chapter 2: Determination of Absorbed Dose Distribution in Technological Accelerated Electron Beam Treatments, pp 17-41 in "Practical Aspects and Applications of Electron Beam Irradiation" (eds. M.R. Nemțanu, M. Brașoveanu), ISBN 978-81-7895-541-4, Research Signpost/Transworld Research Network, India (2011)
6. M.R. Nemțanu and **M. Brașoveanu**, Chapter 14: Irradiation as a Method to Assure Food Quality and Safety in "Food Quality: Control, Analysis and Consumer Concerns" (eds. D.A. Medina, A.M. Laine), ISBN 978-1-61122-917-2, Nova Science Publishers, Inc., New York, 2011)
7. M.R. Nemțanu, **M. Brașoveanu**, Chapter 5: *Electron Beam Treatment as a Non-conventional Preservation Method of Nutritional Supplements based on Vegetal Materials*, pp 169-192 in "Food Science Research and Technology" (eds. I. Hulsén, E. Ohnesorge), ISBN 978-1-60741-848-1, Nova Science Publishers, Inc., New York, 2009
8. S. Manea, E. Mazilu, S. Setnic, F.L. Botez, C. Ristea, **M. Brasoveanu**, M. Nemtanu, The effects of ionising radiation on the biological active compounds in *Hippophae Rhamnoides* fruits, and on their antioxidant activity, *Revista de Chimie* 58, Nr. 8, 844-847, 2007
9. M.R. Nemțanu, **M. Brașoveanu**, R. Minea, M.N. Grecu, M. Albulescu, E. Mitru, Microbiological Decontamination of *Spirulina Platensis* and Green Coffee Using Accelerated Electron Beams, *Romanian Journal of Biophysics*, Vol. 16, No. 2, 141-148, 2006
10. **M. Brasoveanu**, M.N. Grecu, M.R. Nemtanu, Electron Paramagnetic Resonance Study on Irradiated Green Coffee, *Romanian Journal of Physics*, Vol. 51, Nos. 1-2, 135-137, 2006
11. R. Minea, M. Brasoveanu, M.N. Grecu, M.R. Nemtanu, Preliminary Studies on Irradiated Spirulina, *Romanian Journal of Physics*, Vol. 51, Nos. 1-2, 131-134, 2006
12. M.R. Nemtanu, A. Tirlea, **M. Brasoveanu**, Physical Methods for Irradiated Food Identification, *Journal of Environmental Protection and Ecology*, Vol. 5, No. 4, 922-925, 2004
13. **M.M. Brasoveanu**, M.N. Grecu, M.R. Nemtanu, A. Tirlea, R. Minea, Irradiated Dried Fruits Identification, *Journal of Environmental Protection and Ecology*, Vol. 5, No. 4, 917-921, 2004
14. A. Tirlea, M.R. Nemtanu, **M.M. Brasoveanu**, Rheological Method for the Detection of Irradiated Spices, *Journal of Environmental Protection and Ecology*, Vol. 5, No. 3, 534-539, 2004

15. **M.M. Brasoveanu**, V.V. Grecu, M.R. Nemptanu, R. Minea, Limits in EPR Dosimetry for Irradiated Dried Fruits Discrimination, *Romanian Journal of Physics*, Vol. 48, Nos. 1-4, 289-293, 2003