

LISTA
lucrărilor științifice în domeniul disciplinelor din postul didactic
(2015-2025)

A – Teza de doctorat

Metode moderne de rezonanta magnetica nucleara cu aplicatii in obtinerea de informatii structurale si dinamice asupra unor compusi moleculari (Conducător științific: Prof.dr.fiz. Dan Eugen Demco; Universitatea Babes-Bolyai din Cluj Napoca; Susținere publică: 15 mai 1997)

B – Cărți și capitole în cărți publicate în ultimii 10 ani

1. I. Ardelean, R. Kimmich, "Beyond the Limits of Conventional Pulsed Gradient Spin Echo (PGSE) Diffusometry: Generalization of the Magnetization-grating Principle", in "Diffusion NMR of Confined Systems: Fluid Transport in Porous Solids and Heterogeneous Materials"; Edited by Royal Society of Chemistry 2016; pag. 260-293; DOI:10.1039/9781782623779
2. I. Ardelean, "Applications of Field-cycling NMR Relaxometry to Cement Materials", in "Field-Cycling NMR Relaxometry: Instrumentation, Model Theories and Applications", Edited by Royal Society of Chemistry 2018; pag. 462 – 489; <http://dx.doi.org/10.1039/9781788012966>

C – Lucrări indexate ISI/BDI publicate în ultimii 10 ani

C1. Lucrari ISI

1. S. Boboia, M. Moldovan, C. Prejmerean, C. Sarosi, A. Roman, I. Ardelean, Influence of Initiation System and Filler Ratio on the Properties of New Flowable Dental Composites, *Materiale Plastice* 52, 104-108 (2015).
2. A. Pop and I. Ardelean, Monitoring the size evolution of capillary pores in cement paste during the early hydration via diffusion in internal gradients, *Cem. Conc. Res.* 77, 76-81 (2015) ([can be downloaded here](#))

3. A. Pop, A. Bede, M.C. Dudescu, F. Popa, I. Ardelean, Monitoring the Influence of Aminosilane on Cement Hydration Via Low-field NMR Relaxometry, *Appl. Magn. Reson.* 47, 191–199 (2015), doi: 10.1007/s00723-015-0743-7 (can be downloaded here).
4. A. Bede, A. Scurtu, I. Ardelean, NMR relaxation of molecules confined inside the cement paste pores under partially saturated conditions, *Cem. Conc. Res.* 89, 56-62 (2016), doi: 10.1016/j.cemconres.2016.07.012 (can be downloaded here).
5. J. Stepišnik, I. Ardelean, Usage of internal magnetic fields to study the early hydration process of cement paste by MGSE method, *J. Magn. Reson.* 272, 100-107, (2016). doi: 10.1016/j.jmr.2016.09.013 (can be downloaded here).
6. C. Cadar, C. Cotet, L. Baia, L. Barbu-Tudoran, I. Ardelean, Probing into the mesoporous structure of carbon xerogels via the low-field NMR relaxometry of water and cyclohexane molecules, *Microporous Mesoporous Mater.*, 251, 19-25(2017).
7. A. Cretu, C. Mattea, S. Stapf, I. Ardelean, The effect of silica nanoparticles on the pore structure of hydrating cement paste: a spatially resolved low-field NMR study, *Molecular Physics* 117, 1006-1014 (2019) <https://doi.org/10.1080/00268976.2018.1513581>
8. A. Crețu (Bede), C. Mattea, S. Stapf, I. Ardelean, The effect of silica fume and organosilane addition on the porosity of cement paste, *Molecules* 25 (8), 1762 (2020) <https://doi.org/10.3390/molecules25081762>
9. C. Cadar, A. Cretu, M. Moldovan, C. Mattea, S. Stapf, I. Ardelean, NMR T1–T2 correlation analysis of molecular absorption inside a hardened cement paste containing silanized silica fume, *Molecular Physics* 117, 1000-1005 (2019), <https://doi.org/10.1080/00268976.2018.1513582>
10. C. Cadar, I. Ardelean, Surface influence on the rotational and translational dynamics of molecules confined inside a mesoporous carbon xerogel, *Magnetic Resonance in Chemistry* 57 (10), 829-835 (2019) <https://doi.org/10.1002/mrc.4819>
11. F Gallego-Gómez, C Cadar, C Lopez, I Ardelean, Microporosity Quantification via NMR Relaxometry, *The Journal of Physical Chemistry C* 123 (50), 30486-30491(2019) <https://doi.org/10.1021/acs.jpcc.9b10398>
12. F Gallego-Gómez, C Cadar, C López, I Ardelean, Imbibition and dewetting of silica colloidal crystals: An NMR relaxometry study, *Journal of colloid and interface science* 561, 741-748(2020)<https://doi.org/10.1016/j.jcis.2019.11.050>
13. V. Kushwah, D. Gomes Lopes, I. Koutsamanis, H. Plank, I. Ardelean, A. Sarkar, A. Prpich, M.T. Am Ende, H.T. Schmidt, P. Doshi, S.L. Shamblin, P. Laggner, A. Paudel, Evolution of the microstructure and the drug release upon annealing the drug-loaded lipid-surfactant microspheres, *European Journal of Pharmaceutical Sciences* 147, 105278 (2020) <https://doi.org/10.1016/j.ejps.2020.105278>
14. D.D.B Nergis, P. Vizureanu, I. Ardelean, A.V. Sandu, O.C. Corbu, E. Matei, Revealing the Influence of Microparticles on Geopolymers' Synthesis and Porosity, *Materials* 13 (14), 3211 (2020) <https://doi.org/10.3390/ma13143211>
15. A. Nan, M. Suci, I. Ardelean, M. Senila, R. Turcu, Characterization of the Nuclear Magnetic Resonance Relaxivity of Gadolinium Functionalized Magnetic Nanoparticles, *Analytical Letters* 54, 124-139 (2021) <https://doi.org/10.1080/00032719.2020.1731522>
16. V. Kushwah, I. Saraf, T. Yeoh, I. Ardelean, H. Weber, A. Sarkar, R. Chen, T.Vogel, D. Modhave, P. Laggner, A. Paudel, Interplay of Aging and Lot-to-Lot Variability on the Physical and Chemical Properties of Excipients: A Case Study of Mono-and Diglycerides, *Mol. Pharmaceutics* 2021; <https://doi.org/10.1021/acs.molpharmaceut.0c00847>
17. J Stepišnik, I Ardelean, A Mohorič, Molecular self-diffusion in internal magnetic fields of porous medium investigated by NMR MGSE method, *Journal of Magnetic Resonance* 328, 106981 (2021) <https://doi.org/10.1016/j.jmr.2021.106981>
18. I. Ardelean, The Effect of an Accelerator on Cement Paste Capillary Pores: NMR Relaxometry Investigations, *Molecules* 26 (17), 5328 (2021) <https://www.mdpi.com/1420-3049/26/17/5328>
19. L.M. Nicula, O. Corbu, I. Ardelean, A.V. Sandu, M. Iliescu, D. Simedru, Freeze–Thaw Effect on Road Concrete Containing Blast Furnace Slag: NMR Relaxometry Investigations, *Materials* 14 (12), 3288 (2021) <https://doi.org/10.3390/ma14123288>
20. M. Oztop Berkay Berk, C. Cavdaroglu, L. Grunin, I. Ardelean, D. Kruk, G. Mazi, Use of Magic Sandwich Echo and Fast Field Cycling NMR Relaxometry on Honey Adulteration with Corn Syrup, *J. Science of Food and Agriculture*, 2021, <https://doi.org/10.1002/jsfa.11606>
21. M.M. Rusu, C. Vilau, C. Dudescu, P. Pascuta, F. Popa, I. Ardelean, Characterization of the Influence of an Accelerator upon the Porosity and Strength of Cement Paste by Nuclear Magnetic Resonance (NMR) Relaxometry, *Analytical Letters*, 2022, <https://doi.org/10.1080/00032719.2022.2072855>

22. I. Lacan, M. Moldovan, C. Sarosi, I. Ardelean, Chitosan Effect on Hardening Dynamics of Calcium Phosphate Cement: Low-Field NMR Relaxometry Investigations. *Polymers*. 2022; 14(15):3042. <https://doi.org/10.3390/polym14153042>
23. Rusu, M.M.; Faux, D.; Ardelean, I. Monitoring the Effect of Calcium Nitrate on the Induction Period of Cement Hydration via Low-Field NMR Relaxometry. *Molecules* 2023, 28, 476. <https://doi.org/10.3390/molecules28020476>
24. Rusu, M.M.; Vulpoi, A.; Vilau, C.; Dudescu, C.M.; Pășcuță, P.; Ardelean, I. Analyzing the Effects of Calcium Nitrate over White Portland Cement: A Multi-Scale Approach. *Materials* **2023**, 16, 371. <https://doi.org/10.3390/ma16010371>
25. Simedru, A.F.; Becze, A.; Cadar, O.; Scurtu, D.A.; Simedru, D.; Ardelean, I. Structural Characterization of Several Cement-Based Materials Containing Chemical Additives with Potential Application in Additive Manufacturing. *Int. J. Mol. Sci.* 2023, 24, 7688. <https://doi.org/10.3390/ijms24097688>
26. Toma, I.-O.; Stoian, G.; Rusu, M.-M.; Ardelean, I.; Cimpoeșu, N.; Alexa-Stratulat, S.-M. Analysis of Pore Structure in Cement Pastes with Micronized Natural Zeolite. *Materials* 2023, 16, 4500. <https://doi.org/10.3390/ma16134500>
27. Nicula, L.M.; Manea, D.L.; Simedru, D.; Cadar, O.; Ardelean, I.; Dragomir, M.L. The Advantages on Using GGBS and ACBFS Aggregate to Obtain an Ecological Road Concrete. *Coatings* 2023, 13, 1368. <https://doi.org/10.3390/coatings13081368>
28. Nicula, L.M.; Manea, D.L.; Simedru, D.; Cadar, O.; Dragomir, M.L.; Ardelean, I.; Corbu, O. Potential Role of GGBS and ACBFS Blast Furnace Slag at 90 Days for Application in Rigid Concrete Pavements. *Materials* 2023, 16, 5902. <https://doi.org/10.3390/ma16175902>
29. Lacan, I.; Moldovan, M.; Ardelean, I. The Influence of Chitosan on Water Absorption and Solubility of Calcium Phosphate Cement. *Coatings* 2023, 13, 1641. <https://doi.org/10.3390/coatings13091641>
30. Tăut, M.A.; Moldovan, M.; Filip, M.; Petean, I.; Saroși, C.; Cuc, S.; Taut, A.C.; Ardelean, I.; Lazăr, V.; Man, S.C. Synthesis and Characterization of Microcapsules as Fillers for Self-Healing Dental Composites. *Nanomaterials* 2024, 14, 1853. <https://doi.org/10.3390/nano14221853>
31. V Papp, I Ardelean, A Bulátkó, K László, A Csík, R Janovics, M Kéri, Effect of metakaolin and fly ash on the early hydration and pore structure of Portland cement, *Cement and Concrete Research* 2025, 196, 107928. <https://doi.org/10.1016/j.cemconres.2025.107928>
32. Rusu, M.M.; Ardelean, I. Relations Between the Printability Descriptors of Mortar and NMR Relaxometry Data. *Materials* 2025, 18, 3070. <https://doi.org/10.3390/ma18133070>

C2. Lucrari BDI

1. A Bede, A Pop, M Moldovan, I Ardelean, The influence of silanized nano-SiO₂ on the hydration of cement paste: NMR investigations, AIP Conference Proceedings 1700, 060009 (2015)
2. C. Cadar, C. Cotet, L. Baia, I. Ardelean, Probing the connectivity and wettability of carbon aerogels and xerogels via low-field NMR, AIP Conference Proceedings 1917 (1), 040006 (2017)
3. C. Badea, A. Bede, I. Ardelean, The effect of silica fume on early hydration of white Portland cement via fast field cycling-NMR relaxometry, AIP Conference Proceedings 1917 (1), 040001 (2017)
4. A. Bede, I. Ardelean, Revealing the influence of water-cement ratio on the pore size distribution in hydrated cement paste by using cyclohexane, AIP Conference Proceedings 1917 (1), 040002 (2017)
5. I. Ardelean, S. Miclaus, I.I. Ardelean, C. Moisescu, Magnetotactic bacteria and biogenic magnetite nanocrystals as potential contrast agents in magnetic resonance imaging, *IEEE Xplore*, 2018, DOI:10.23919/EMF-MED.2018.852604