

Universitatea Tehnica din Cluj-Napoca
Facultatea Ingineria Materialelor si a Mediului
Departamentul de Fizica si Chimie
Prof. Abil. Dr. Fiz. Radu Fechete

L I S T A L U C R Ă R I L O R Ș T I I N Ț I F I C E

A. 1. Teza de doctorat

Radu Fechete, *NMR of Elastomers and Biological tissues, Teza de Doctorat*, Rheinich-Westfälischen Technischen Hochschule Aachen, Fakultät für Mathematik Informatik und Naturwissenschaften, (2004)

2. Teza de abilitare

Radu Fechete, *Nanocomposite materials and biomaterials characterized by modern NMR techniques*, Teza de Abilitare, (2013).

B. Cărți și capitole în cărți

Carti

1. R. Fechete, Nuclear Magnetic Resonance of Elastomers and Biological Tissues, Editura Risoprint, 242 pg, ISBN 978-973-751-775-3 (2008).
2. Radu Fechete, Elemente de fizica pentru ingineri, Editura UT Press, 227 pg., ISBN 978-973-662-375-2 (2008).
3. Radu Fechete, Dan E. Demco, Dumitrita C. Moldovan, Ramona I. Chelcea, Eugen Culea, Rezonanta Magnetica Nucleara: Metode clasice si Moderne, Editura Risoprint, Cluj-Napoca, ISBN 978-973-53-0441-6, pg. 260 (2010).
4. R. Fechete, D. Moldovan, R. Chelcea, Applications of modern NMR techniques to nanocomposite materials and biomaterials, ISBN: 978-973-662-906-8, Editura U.T.PRESS Cluj-Napoca (2013).
5. R. Fechete, R. Chelcea, D. Moldovan, S. Nicoara, I. Coroiu, C. Badea, E. Culea, I. Cosma, N. Serban, Fizica: Indrumator de laborator, UT. PRESS, Cluj-Napoca, ISBN 978-973-662-952-5, (2014).
6. Radu Fechete, Dumitrita C. Moldovan, Ramona I. Chelcea, Lidia Pop, Maria Bosca, Fizica. Îndrumator de lucrari virtuale de laborator, U.T. PRESS, Cluj - Napoca, ISBN 978-606-737-519-0, pg. 238, (2021).
7. Simona Nicoara, Codruta Badea, Radu Fechete, Problems and Applications of PHYSICS for Students of Engineering, U.T. PRESS, Cluj - Napoca, ISBN 978-606-737-619-7, pg. 154, (2022).

C. Lucrări indexate ISI/BDI publicate

1. A. Lupulescu, R. Fechete, D.E. Demco and O. Cozar, Single-Quantum NMR Spinning-Side-Band Patterns for Spin-3/2 System, Acta Physica Polonica A, 92(6), (1997).

2. R. Ordean, R. Fechete, C. Filip, O. Pana, L.V. Giurgiu, C. Kessler, M. Mehring Charge Delocalisation in Quasi-One-Dimensional Molecular Conductor KCP as seen by ESR, Roum. J. Phys. 43, 481-487 (1998).
3. K. Hailu, R. Fechete, D. E. Demco, and B. Blümich, Anisotropy of Transverse ^1H Magnetisation Relaxation in Strained Elastomers by NMR-MOUSE®, NATO-ARW on Magnetic Resonance in Colloid and Interface Science, eds. J. Fraissard and O. LApina., St. Petersburg, Russia, 525-530 (2001).
4. R. Fechete, D. E. Demco, and B. Blümich, Segmental Anisotropy in Strained Elastomers by ^1H NMR of Multipolar Spin States, Macromolecules 35, 6083-6085 (2002).
5. K. Hailu, R. Fechete, D. E. Demco, and B. Blümich, Segmental Anisotropy Induced in Strained Elastomers Detected with a Portable NMR Scanner, Solid State Nucl. Magn. Reson. 22, 327-343 (2002).
6. B. Blümich, V. Anferov, S. Anferova, M. Klein, R. Fechete, M. Adams, F. Casanova, A Simple NMR-MOUSE® with a Bar Magnet, Magn. Res. Eng., 15(4), 255-261 (2002).
7. R. Fechete, D. E. Demco, and B. Blümich, Chain Orientation and Slow Dynamics in Elastomers by Mixed Magic-Hahn Echo Decays, J. Chem. Phys., 118(5), 2411-2421 (2003).
8. R. Fechete, D. E. Demco, B. Blümich, U. Eliav, and G. Navon, Anisotropy of Collagen Fiber Orientation in Sheep Tendon by ^1H Double-Quantum-Filtered NMR Signals, J. Magn. Reson., 161 (3), (2003).
9. B. Blümich, V. Anferov, S. Anferova, M. Klein, R. Fechete, A NMR-MOUSE□ for Analysis of Thin Objects, Macromolecular Materials & Engineering, 288(4), 312-317 (2003)
10. D.E. Demco, R. Fechete, and B. Blümich, Residual van Vleck moments in elastomers by accordion magic sandwich, Chem. Phys. Lett., 375, 406-412 (2003).
11. R. Fechete, Chain orientation and slow dynamics of elastomers and ordered tissues by advanced NMR, Chemisch Weekblad, The Netherlands, 99, 13 (2003).
12. R. Fechete, D.E. Demco, and B. Blümich, Self-diffusion Anisotropy of Small Penetrants in Compressed Elastomers, Macromolecules, 36, 7155-7157 (2003).
13. M. Todica, R. Fechete, and B. Blümich, Selective NMR excitation in strongly inhomogeneous magnetic fields, J. Magn. Reson., 164 220-227 (2003).
14. M. Klein, R. Fechete, D.E. Demco, and B. Blümich, Self-Diffusion Measurements by Constant-Relaxations Method in Strongly Inhomogeneous Magnetic Fields, J. Magn. Reson., 164 310-320 (2003).
15. R. Fechete, D.E. Demco, and B. Blümich, Parameter maps of ^1H residual dipolar couplings in tendon under mechanical load, J. Magn. Reson., 165 9-17 (2003).
16. R. Fechete, D.E. Demco, and B. Blümich, Order parameters of orientation distributions of collagen fibers in tendon by Multipolar spin states filtered NMR signals, NMR in Biomedicine, 16, 8, 479-483 (2003).
17. R. Fechete, D.E. Demco, and B. Blümich, Enhanced sensitivity to residual dipolar couplings by high-order multiple-quantum NMR, J. Magn. Reson., 169, 19-26 (2004).
18. B. Blümich, D.E. Demco, R. Fechete, Auslegung mobiler NMR-Sonden zur zerstörungsfreien Prüfung, Computational Chemistry: Berichte aus der RWTH-Aachen, 2, 28-31 (2004).
19. S. Anferova, V. Anferov, M. Adams, R. Fechete, G. Schröder and B. Blümich, A temperature control unit for operation with the NMR-MOUSE®: application to thermo-oxidative aging of elastomers, App. Magn. Reson., 27, 3-4, 1-10 (2005).
20. D.E. Demco, G. Rata, R. Fechete, and B. Blümich, A new tool to investigate segmental anisotropy in strained elastomers by the anisotropy of self-diffusion of small penetrant molecules, Macromolecules, 38, 5647-5653 (2005).
21. R. Fechete, D.E. Demco, B. Blümich, U. Eliav, G. Navon, Self-diffusion anisotropy of water in sheep Achilles tendon, NMR in Biomedicine, 18, 577-586 (2005).

22. M. Todica, R. Fechete, and B. Blümich, Selective saturatons in strongly inhomogeneous magnetic fields, *App. Magn. Reson.*, 29, 655-667 (2005).
23. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, The behaviour of some butadiene elastomers submitted to the degrading action of climatic factors studied by photoacoustic technique, *Studia Babes-Bolyai, Physica*, L 4b, 633-636 (2005).
24. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, The action of marine climate on some polymers, *Studia Babes-Bolyai, Physica*, L 4b, 637-640 (2005).
25. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, Application of NMR techniques in studying the dynamics of some polymers, *Studia Babes-Bolyai, Physica*, L 4b, 641-645 (2005).
26. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, Application of an IR techniques in studying the structure of some polymers, *Studia Babes-Bolyai, Physica*, L 3, 264-270 (2005).
27. Marko Bertmer, Dan E. Demco, Mingfei Wang, Claudiu Melian, Ramona I. Marcean-Chelcea, Radu Fechete, Maria Baias, Bernhard Blümich, Segmental dynamic heterogeneity of short-chaiengrafted-poly(dimethylsiloxane) by ^1H spin-diffusion NMR, *Chem. Phys. Letter*, 431, 404-409 (2006).
28. E. Culea, L. Pop, R. Fechete, P. Pascuta, S. Rada, M. Culea, M. Bosca, R. Chelcea, Spectroscopic and Magnetic Properties of $x\text{Gd}_2\text{O}_3(1-x)[0.15 \text{Bi}_2\text{O}_3-0.85 \text{TeO}_2]$ Glasses, *Annals of the West University of Timisoara. Physics Series* 49, 55 (2006).
29. L. Pop, E. Culea, M. Culea, S. Rada, P. Pascuta, R. Fechete, M. Bosca, R. Chelcea, Structural Properties of $\text{B}_2\text{O}_3\text{-PbO}$ Glasses Doped with Rare Earth Ions, *Annals of the West University of Timisoara. Physics Series*, 48, 204 (2006).
30. R. Marcean-Chelcea, R. Fechete, E. Culea, D.E. Demco, B. Blümich, Segmental Order and Dynamics of Polymer Networks Using Dipolar Correlation Effect Measured in Low Field NMR, *American Institute of Physics CP899*, 561 (2007).
31. R. Marcean-Chelcea, R. Fechete, E. Culea, D.E. Demco, B. Blümich, Microscopic and Macroscopic Properties Correlations of Polymer Networks Measured in Low Field NMR, *American Institute of Physics CP899*, 567 (2007).
32. M. Culea, P. Chereches-Panta, R. Fechete and E.Culea, Biomarkers use in diagnosis of different diseases, 1st International Conference on Advancements of Medicine and Health Care through Technology, MediTech2007, Conf. Proc. Book pp 75-78, 27-29th September, Cluj-Napoca, ROMANIA (2007).
33. R. I. Chelcea, R. Fechete, E. Culea, D. E. Demco and B. Blümich, Distributions of transverse relaxation times for soft-solids measured in strongly inhomogeneous magnetic fields, *J. Magn. Reson.*, 196, 178-190 (2009).
34. Maria Baias, Dan E. Demco, Crisan Popescu, Radu Fechete, Claudiu Melian, Bernhard Blümich, and Martin Möller, Thermal Denaturation of Hydrated Wool Keratin by ^1H Solid-State NMR, *J. Phys. Chem. B*, 113, 2184-2192, (2009).
35. D. Moldovan, R. Fechete, D. E. Demco, E. Culea and B. Blümich, Monte - Carlo simulations of the two-dimensional NMR T2-T2 exchange of fluids in porous media, *Diffusion Fundamentals*, 10 20.1 - 20.3 (2009).
36. R. Fechete, D. Moldovan, D. E. Demco and B. Blümich, Laplace inversions applied to multi-component T2-T2 exchange experiments, *Diffusion Fundamentals*, 10 14.1 - 14.3 (2009).
37. I. Cosma , E. Culea, R. Fechete and S. Nicoara, Statistics of interatomic Ni-Ni bonds in Ni-based ternary solid solutions with non magnetic elements and their magnetic behavior, *Modern Phys. Lett. B*, Vol. 23, No. 9 1199-1206 (2009).
38. Claudiu Melian, Dan E. Demco, Monica Istrate, Andreea Balaceanu, Dumitrita Moldovan, Radu Fechete, Crisan Popescu, Bernhard Blümich, and Martin Möller, Morphology and side chain dynamics in hydrated hard α -keratin fibres by ^1H solid-state NMR *Chem. Phys. Lett.* 480 300–304 (2009).

39. D. Moldovan, R. Fechete, D. E. Demco, E. Culea, B. Blümich, V. Herrmann, M. Heinz, Heterogeneity of Nanofilled EPDM Elastomers Investigated by Inverse Laplace Transform 1H NMR Relaxometry and Rheometry, *Macromol. Chem. Phys.*, 211, 1579-1594 (2010).
40. D. Moldovan, R. Fechete, D. E. Demco, E. Culea, B. Blümich, V. Herrmann, M. Heinz, The heterogeneity of segmental dynamics of filled EPDM by 1H transverse relaxation NMR, *J. Magn. Reson.*, 208 156-162 (2011).
41. C. Filipoi, D. E. Demco, X. Zhu, R. Vinokur, O. Conradi, R. Fechete, M. Möller, Channel orientation anisotropy in perfluorosulfonic acid/SiO₂ composite proton exchange membranes: Water self-diffusion study using NMR, *Chem. Phys. Lett.*, 513, 251–255 (2011).
42. L. Utiu, , D. E. Demco, R. Fechete, M. Möller, C. Popescu, Morphology and molecular dynamics of hard α -keratin based micro-tubes by 1H and 13C solid-state NMR, *Chem. Phys. Lett.*, 517 (1-3), 86-91, (2011).
43. D. Moldovan, M. Pop, R. Fechete, A. Baudouine, M. Todica, Investigation of the effects of degradation of high density polyethylene by 13C NMR spectroscopy and 1H relaxometry, *Studia Univ. Babes-Bolyai Chemia* (3) , 103-110, (2011).
44. M. Pop, S. Traian, L. Daraban, R. Fechete, 13C NMR study of gamma irradiated polystyrene, *Studia Univ. Babes-Bolyai, Chemia* (3), 129-134, (2011).
45. C. I. Horvat, X. Zhu, D. Türp, R. A. Vinokur, D. E. Demco, R. Fechete, O. Conradi, A. Graichen, D. Anokhin, D. A. Ivanov, M. Möller, Perfluorosulfonic acid ionomer – silica composite membranes prepared using hyperbranched polyethoxysiloxane for polymer electrolyte membrane fuel cells, *Int. J. Hydr. Energy*, 37 (19) 14454–14462 (2012).
46. C. Filipoi, D. E. Demco, X. Zhu, R. Vinokur, O. Conradi, R. Fechete, M. Möller, Water self-diffusion anisotropy and electrical conductivity of perfluorosulfonic acid/SiO₂ composite proton exchange membranes, *Chem. Phys. Lett.*, 554 143–149 (2012).
47. N. Cioica, R. Fechete, O. Cozar, C. Cota, Investigate the effect of some plasticizers on the macrostructure of corn starch used to obtain biodegradable packaging, INMATEH - Agricultural Engineering, Volume 36, Issue 1, 2012, Pages 69-70, (2012).
48. E. Jumate, D. C. Moldovan, R. Fechete, D. L. Manea, The porosity and exchange processes in Portland cement pastes by 1D and 2D NMR relaxometry, First International Conference for PhD students in Civil Engineering, 4-7 Noviembrie, Cluj-Napoca, CE-PhD, 421-427(2012).
49. D. Demco; A.-M. Oros-Peusquens, L. Utiu, R. Fechete, B. Blümich, N. J. Shah, Molecular dynamics parameter maps by 1H Hahn echo and mixed-echo phase-encoding MRI, *J. Magn. Reson.*, 227, 1–8 (2013).
50. N. Cioica, R. Fechete, C. Cota, E.M. Nagy, L. David, O. Cozar, NMR relaxation investigation of the native corn starch structure with plasticizers, *J. Molec. Struct.*, 1044, 128–133 (2013).
51. D. Demco; Carmen Filipoi, Xiaomin Zhu, Radu Fechete, Martin Möller, Morphological Heterogeneity by Diffusional Kurtosis NMR Spectroscopy in Perfluorosulfonic Acid/SiO₂ Composite Proton-Exchange Membranes, *Macromol. Chem. Phys.*, 214, 1345-1355 (2013)
52. E. Jumate, D. Moldovan, R. Fechete, D. Manea, NMR Relaxometry Study Of Plaster Mortar With Polymer Additives, *AIP Conference Proceedings*, AIP Conf. Proc. 1565, 112-116 (2013).
53. R. Fechete, D. E. Demco, X. Zhu, W. Tillmann, R. Vinokur, M. Möller, Water states and dynamics in perfluorinated ionomer proton exchange membranes by 1H one- and two-dimensional NMR spectroscopy, relaxometry, and diffusometry, *Chem. Phys. Lett.* 597 6-15 (2014).
54. Nicolae Cioica, Radu Fechete, Ramona Chelcea, Constantin Cota, Mihai Todica, Cornel V. Pop , Onuc Cozar, Water Absorption And Degradation Of Packages Based On Native Corn Starch With Plasticizers, *STUDIA UBB CHEMIA*, LX, 1, 45-55 (2015).
55. Ramona I. Chelcea, Remus S. Sipos, Radu Fechete, Dumitrita Moldovan, Ioana Sus, Zoltan Pávai and Dan E. Decmo, One-Dimensional Laplace Spectroscopy Used For The Assessment Of Pore-

- Size Distribution On The Ovariectomized Rats Femur, STUDIA UBB CHEMIA, LX, 1, 57-70 (2015).
- 56. E. Jumate, D. L. Manea, C. Aciu, L. Molnar, R. Fechete, Innovative Materials Made by Adding Cellulose to Cement Mortars, Procedia Technology 19, 291 – 298 (2015).
 - 57. R. S. Sipos, R. Fechete, D. Moldovan, I. Sus, S. Szasz, Z. Pávai, Assessment of femoral bone osteoporosis in rats treated with simvastatin or fenofibrate, Open Life Sci 10, 379-387 (2015).
 - 58. R. S. Sipos, R. Fechete, R. I. Chelcea, D. Moldovan, Z. Pap, Z. Pávai, D. E. Demco, Ovariectomized rats' femur treated with fibrates and statins. Assessment of pore-size distribution by ^1H -NMR relaxometry, Rom J Morphol Embryol 56 (2 Suppl), 743-752 (2015).
 - 59. N. Cioica, R. Fechete, C. Filip, I. B. Cozar, C. Cota, E. M. Nagy, NMR and SEM Investigation of Extruded Native Corn Starch with Plasticizers, Rom. J. of Phys. 60 (3-4), 512-520 (2015).
 - 60. C. Cota, N. Cioica, C. Filip, R. Fechete, M. Todica, E. M. Nagy, O. Cozar, Spectroscopic investigation of the constituent components effect on the biodegradable package characteristics, AIP Conf. Proc. 1700, 040002-1–040002-5, (2015).
 - 61. S. Singh, D. E. Demco, K. Rahimi, R. Fechete, J. C. Rodriguez-Cabello, M. Möller, Coacervation of Elastin-Like Recombinamer Microgels, Macromolecular rapid communications 37 (2), 181-186 (2016).
 - 62. S. Singh, D. E. Demco, K. Rahimi, R. Fechete, J. C. Rodriguez-Cabello, M. Möller, Aggregation behaviour of biohybrid microgels from elastin-like recombinamers, SoftMatter, 12 , 6240--6252 (2016).
 - 63. D. M. Andres, D. L. Manea, R. Fechete, E. Jumate, Clay Mortar Performance Improvement by Modifying the Physical Characteristics of Wheat Straw, Procedia Technology 22, 335-342 (2016).
 - 64. D. M. Andres, D. L. Manea, R. Fechete, E. Jumate, Green Plastering Mortars Based on Clay and Wheat Straw, Procedia Technology 22, 327-334 (2016).
 - 65. R.S. Sipos, R. Fechete, D. Moldovan, I. Sus, Z. Pávai, D.E. Demco, Ovariectomy-Induced Osteoporosis Evaluated by ^1H One-and Two-Dimensional NMR Transverse Relaxometry, Applied Magnetic Resonance 47 (12), 1419-1437 (2016).
 - 66. E. Jumate, D. Moldovan, D.L. Manea, D.E. Demco, R. Fechete, The Effects of Cellulose Ethers and Limestone Fillers in Portland Cement-Based Mortars by ^1H NMR relaxometry, App. Magn. Reson. 47 (12), 1353-1373 (2016).
 - 67. Ph. Kensbok, D. E. Demco, S. Singh, K. Rahimi, R. Fechete, A. Walther, A. M. Schmidt, M. Moeller, Peptizing Mechanism at the Molecular Level of Laponite Nanoclay Gels, Langmuir, 33 (1), pp 66–74 (2017).
 - 68. O. Cozar, N. Cioica, C. Cota, E.M. Nagy, R. Fechete, Plasticizers effect on native biodegradable package materials, AIP Conference Proceedings 1796 (1), 040008 (2017).
 - 69. S. Schweizerhof, D. E. Demco, A. Mourran, H. Keul, R. Fechete, M. Möller, Temperature-Induced Phase Transition Characterization of Responsive Polymer Brushes Grafted onto Nanoparticles, Macromol. Chem. Phys., 218(6), 1600495 (2017).
 - 70. R. I. Chelcea, D. Moldovan, D. E. Demco, E. Culea, R. Fechete, In vitro degradation and phase composition of cosmetic emulsions, Studia Universitatis Babes-Bolyai Chemia, 62(1), pp. 73-88 (2017).
 - 71. E. Jumate, D. L. Manea, D. Moldovan, R. Fechete, The Effects of Hydrophobic Redispersible Powder Polymer in Portland Cement Based Mortars, Procedia Engineering, 181, pp. 316-323 (2017).
 - 72. S. Schweizerhof, D. E. Demco, A. Mourran, H. Keul, R. Fechete, M. Möller, Thermodynamic Parameters of Temperature-Induced Phase Transition for Brushes onto Nanoparticles: Hydrophilic versus Hydrophobic End-Groups Functionalization, Macromolecular Rapid Communications, 38, 1700362 (2017).

73. Sjören Schweizerhof, Dan Eugen Demco, Ahmed Mourran, Helmut Keul, Radu Fechete, Martin Möller, Temperature-Induced Phase Transition Characterization of Responsive Polymer Brushes Grafted onto Nanoparticles, *Macromolecular Chemistry and Physics*, 218, 1600495 1-11, (2017).
74. Onuc COZAR, Nicolae CIOICA, Elena Mihaela NAGY, Constantin COTA, Radu FECHETE, Claudiu FILIP, STRUCTURAL INVESTIGATION OF SOME NATIVE BIODEGRADABLE PACKAGING MATERIALS, *Studia Universitatis Babes-Bolyai, Ephemerides*, 62 19-28 (2017).
75. Andrei Mustea, Daniela L Manea, Elena Jumate, Yvette A Orbán, Radu Fechete, Plaster mortars with polymer fibers and additives investigated by ^1H NMR relaxometry, *AIP Conference Proceedings*, 1917, 040008 (2017).
76. E Jumate, C Aciu, DL Manea, D Moldovan, R Chelcea, R Fechete, Plastering mortar with antibacterial and antifungal properties studied by ^1H NMR relaxometry, *AIP Conference Proceedings* 1917, 040007 (2017).
77. Anamaria Victoria Bumbu, Radu Fechete, Marcel Perian, Bogdan Septimiu Bumbu, Klara Brinzaniuc, Sciatic Nerve Regeneration in Wistar Albino Rats Evaluated by *in vivo* Conductivity and *in vitro* ^1H NMR Relaxometry, *Acta Medica Marisiensis*, 64(1):22-27 (2018).
78. Sjören Schweizerhof, Dan Eugen Demco, Ahmed Mourran, Radu Fechete, Martin Möller, Polymers Diffusivity Encoded by Stimuli-Induced Phase Transition: Theory and Application to Poly(N-Isopropylacrylamide) with Hydrophilic and Hydrophobic End Groups, *Macromol. Chem. Phys.* 219, 1700587 (2018).
79. Sjören Schweizerhof, Dan Eugen Demco, Ahmed Mourran, Radu Fechete, Martin Moeller, Diffusion of Gold Nanorods Functionalized with Thermoresponsive Polymer Brushes, *Langmuir* 34, 8031–8041 (2018).
80. A. V. Bumbu, I. Radu, M. Perian, K. Brînzaniuc, R. Fechete, A COMPARISON BETWEEN TWO RECONSTRUCTION PROCEDURES IN PERIPHERAL NERVE REGENERATION USING *IN VIVO* AND *IN VITRO* ELECTRIC CONDUCTIVITY, *Acta Medica Transilvanica* 23 (3), 28-30 (2018).
81. Ramona Crainic, Lavinia R. Dragan, Radu Fechete, ^1H NMR RELAXOMETRY AND ATR-FT-IR SPECTROSCOPY USED FOR THE ASSESSMENT OF WASTEWATER TREATMENT IN SLAUGHTERHOUSE, *Studia Universitatis Babes-Bolyai, Physica* 63, 49-60 (2018).
82. Lavinia R. Dragan, Ramona Crainic, Radu Fechete, A COMPARATIVE STUDY FOR NATURAL DEGRADATION OF THREE LOCAL ANESTHETIC DRUGS FOR HUMAN USE BY ^1H NMR RELAXOMETRY AND FT-IR SPECTROSCOPY. *Studia Universitatis Babes-Bolyai, Physica* 63, 61-73 (2018).
83. Reka David Magdalena Viorica Nagy, F. Stamatian, Tunde Kovacs, V. Bura, Iris Morar, Roxana Pintican, Radu Fechete, IN *VIVO* ^1H MAGNETIC RESONANCE SPECTROSCOPY OF WOMAN'S NORMAL AND CANCEROUS UTERUS, *Obstetrica si Ginecologia* LXVI, 105- 112 (2018).
84. Réka Emma Dávid, Radu Fechete, Silviu Sfrângăeu, Dumitrita Moldovan, Ramona Ioana Chelcea, Iris Adina Morar, Florin Stamatian, Tunde Kovacs, Paula Popoi, In Vivo ^1H Nuclear Magnetic Resonance Spectroscopy and Relaxometry Maps of the Human Female Pelvis, *Analytical Letters* 52 (1), 54-77 (2019).
85. R. E. Suarasan, S. R. Budu, I. Suarasan, D. Moldovan, R. Fechete, Complex Influence of Intense Electric Fields upon Ozone and Free Radicals from Aqueous Solutions, 6th International Conference on Advancements of Medicine and Health Care through Technology; 17–20 October 2018, Cluj-Napoca, Romania, 347-350 (2019).
86. I. Florea, E. Jumate, D. L. Manea, R. Fechete, NMR Study on New Natural Building Materials, *Procedia Manufacturing* 32, 224-229 (2019).
87. K. H. Tan, D. E. Demco, R. Fechete, A. Pich, Functional selenium modified microgels: temperature-induced phase transitions and network morphology, *Soft matter* 15 (15), 3227-3240 (2019).

88. Anamaria Victoria Bumbu, Marcel Perian, Radu Fechete, Calina Dan, Ioana Radu, Klara Brinzaniuc, The Role of Muscle Cells and Fat Cells in Nerve Regeneration Evaluated by in vivo Electric Conductivity, REV. CHIM., 70 (8), 2954-2958, (2019).
89. I. A. MORAR, R. PINTICAN, R. E. DAVID, T. KOVACS and R. FECHETE, IN VIVO ^1H NMR RELAXOMETRY MAPS OF WOMEN NORMAL AND CANCEROUS PELVIS STUDIA UBB PHYSICA, 64, 55-65, (2019).
90. T. Fischer, D. E. Demco, R. Fechete, M. Möller, S. Singh, Poly (vinylamine-co-N-isopropylacrylamide) linear polymer and hydrogels with tuned thermoresponsivity, Soft Matter 16 (28), 6549-6562, (2020).
91. A. Chiorean, R. M. Pintican, M.M. Duma, R. Fechete, D. Feier, M. Szep, S. Dudea, Visualization of the shear wave on gray-scale ultrasound: experience with a complex breast cyst, Medical Ultrasonography, 0, 1-3, (2020).
92. Ramona Crainic, Radu Fechete, Advanced monitoring of a laboratory scale modular green roof model, AIP Conference Proceedings 2206 (1), 030004, (2020).
93. L. R. Dragan, E. Jumate, C. Aciu, D. L. Manea, R. Fechete, Advanced characterization of plastering mortars with glass waste additives, AIP Conference Proceedings 2206 (1), 030005, (2020).
94. A. O. Pintea, D. L. Manea, C. Aciu, E. Jumate, R. Fechete, Plastering mortar with organic natural polymers studied by ^1H NMR relaxometry, AIP Conference Proceedings 2206 (1), 050004, (2020).
95. R. Fechete, I.A. Morar, D. Moldovan, R.I. Chelcea, R. Crainic, S.C. Nicoara, Fourier and Laplace-like low-field NMR spectroscopy: The perspectives of multivariate and artificial neural networks analyses, Journal of Magnetic Resonance 324, 106915, (2021).
96. C. Tripon, N. Cobarzan, R. Fechete, A.A. Balog, R. Gutt, D. Dadarlat, Ugo Zammit, Fulvio Mercuri, Stefano Paoloni, Non-contact photopyroelectric approach for complete thermal characterization of porous building materials, Thermochimica Acta, 178943, (2021).
97. L. Hussmann, T. Belthle, DE Demco, R. Fechete, A. Pich, Stimuli-responsive microgels with cationic moieties: characterization and interaction with *E. coli* cells, Soft Matter 17 (38), 8678-8692 (2021).
98. D. Moldovan, R. Fechete, Bimodal ^1H Double Quantum Build-Up Curves by Fourier and Laplace-like Transforms on Aged Cross-Linked Natural Rubber, Polymers 13 (20), 3523 (2021).
99. Roxana M. Pintican, Reka David Kerekes, Vlad Bura, Florin Stamatian, Tunde Kovacs, Iris Morar, Viorica Nagy, Radu Fechete, Angelica Chiorean, T_2^* relaxometry maps of the uterus—Future pro-spectives with oncology implications, J Clin Images Med Case Rep, 3(2), 1102, (2021).
100. Daniel Cadar, Daniela Lucia Manea, Dumitrita Moldovan, Elena Jumate, Radu Fechete, Behavior Analysis of One-Component Waterproofing Mortars by Mechanical and NMR Investigations, Lecture Notes in Networks and Systems, 386, 93-99, (2021).
101. Pompilia Mioara Purcea Lopes, Dumitrita Moldovan, Marioara Moldovan, Rahela Carpa, Codruta Sarosi, Petru Pascuta, Amalia Mazilu Moldovan, Radu Fechete, Violeta Popescu, New Composite Hydrogel Based on Whey and Gelatin Crosslinked with Copper Sulphate, Materials, 7(15), 2611, (2022).
102. ML Tintisan, AC Siomin, M. Moldovean, AM Zaharie, R. Istoan, E. Jumate, DL Manea, R. Fechete, Investigation of microstructural development in mortars with recycled paper ash used as cement replacement, using NMR relaxometry, International Conference on Innovative Research (ICIR Euroinvent 2022), 1251, 012007 (2022).
103. AC Siomin, ML Tintisan, A. Zaharie, M. Moldoveanu, DL Manea, E. Jumate, R. Fechete, Identifying the structure of a plaster mortar mixtures on the basis of NMR investigations, International Conference on Innovative Research (ICIR Euroinvent 2022), 1251, 012009, (2022).

104. R. Pintican, R. Fechete, B. Boca, M. Cambrea, T. Leonte, O. Camuescu, D. Gherman, I. Bene, L. D. Ciule, C. A. Ciortea, S. M. Dudea, A. I. Ciurea, Predicting the Early Response to Neoadjuvant Therapy with Breast MR Morphological, Functional and Relaxometry Features—A Pilot Study, *Cancers*, 14, 5866, (2022).
105. Emese Orban, Zsuzsanna Pap, Andreea Maria Micu, Remus Sebastian Sipos, Radu Fechete, Callus formation in albino Wistar rats after femur fracture assessed by visible spectroscopy, *Biochemical and Biophysical Research Communications* 634 168-174, (2022).
106. P. M. Purcea Lopes, D. Moldovan, R. Fechete, D. Prodan, C. R. Pop, A. M. Rotar, V. Popescu, Swelling and Antimicrobial Activity Characterization of a GO-Reinforced Gelatin—Whey Hydrogel, *Gels*, 9, 18 (2023).
107. Daniel Cadar, Daniela Lucia Manea, Elena Jumate, Florin Popa, Dumitrita Moldovan, Radu Fechete, Structural and dynamic characterization of two-component waterproof mortars by ^1H NMR, FT-IR, mechanical and SEM investigations, *Construction and Building Materials*, 378, 131182 (2023).
108. R. I. Chelcea, D. Danis, Radu Fechete, Structural and Kinetic Characterization of Unexpired and Expired Drugs by Proton Nuclear Magnetic Resonance (^1H NMR) Relaxometry and Fourier Transform Infrared (FT-IR) Spectroscopy, *Analytical Letters*, 56 (2), 372-389 (2023).
109. Lavinia Raluca Dragan, David Andras, Radu Fechete, Fourier Transform Infrared (FT-IR) Spectroscopy and Proton Nuclear Magnetic Resonance (^1H NMR) Relaxometry and Diffusometry for the Identification of Colorectal Cancer in Blood Plasma, *Analytical Letters*, 56 (2), 286-302, (2023).
110. O Dinescu, E Orban, RS Sipos, R Fechete, Eficientizarea metodelor de evaluare a proprietăților țesutului osos, *Medic. ro* 153 (3) (2023).
111. Pompilia Mioara Purcea Lopes, Dumitrita Moldovan, Radu Fechete, Liviu Mare, Lucian Barbu-Tudoran, Niculina Sechel, Violeta Popescu, Characterization of a Graphene Oxide-Reinforced Whey Hydrogel as an Eco-Friendly Absorbent for Food Packaging, *Gels* 9 (4), 298 (2023).
112. C Saitis, DL Manea, R Fechete, LM Plesa, L Saitis, Analysis of mortars with old plastering waste using state-of-the-art method: nuclear magnetic resonance, *IOP Conference Series: Materials Science and Engineering* 1283 (1), 012009 (2023).
113. E Orban, Z Pap, R Fechete, RS Sipos, Effect of hypolipidemic drugs on the process of callus formation assessed by Fourier transform infrared spectroscopy, *Vibrational Spectroscopy*, 103546 (2023).
114. RS Sipos, S Szasz, R Fechete, E Coman, F Ruta, “Pullum Ovum”. Highlighting the Nutrient Content through Innovative Determination Methods, *Agriculture* 13 (9), 1648 (2023).
115. Susanne Braun, Marta Santi, Dan Eugen Demco, Inga Litzen, Jan Uecker, Radu Fechete, Jacek Janusz Walkowiak, Andrij Pich, Investigation of morphology and volume phase transition of supramacromolecular microgels by NMR spectroscopy and quartz crystal microbalance, *J Polym Sci.* 62:2301–2319 (2024).
116. Pompilia Mioara Lopes, Radu Fechete, Felicia Minteanu, Liviu Mare, Dumitrița Moldovan, Marioara Moldovan, Stanca Cuc, Codruța Liana Saroși, Violeta Popescu, The Influence of Lyophilization Pretreatment and Whey Content on Whey and Gelatin-Based Hydrogels, *Gels*, 10(4), 229, (2024); <https://doi.org/10.3390/gels10040229>.
117. E Orban, Z Pap, R Fechete, RS Sipos, Evaluation of the Influence of Hypolipidemic Medication on Albino Wistar Rats’ Bone Tissue by NMR Diffusiometry, *Medicina* 60 (6), 918, (2024).

D. Brevete obținute în întreaga activitate

1. Bluemich, Bernhard; Bruder, Michael; Anferov, Vladimir; Anferova, Sophia; Fechete, Radu; Klein, Martin; Krause, Karl-Heinz; Rabkin, Michael; Stangenberg, Juergen, *NMR probe used to*

analyze materials, PCT Int. Appl., (2003), (Germany), 37 pp. CODEN: PIXXD2 WO 2003087861 A1 20031023.

2. Radu Fechete, Martin Blanz, Holger Thern, Thomas Kruspe, Peter Rottergatter, Diminution d'artefacts dus au mouvement en RMN, Canadian intellectual Properties CA 2 565 587 Date of publication 17 Nov. (2005).
3. Peter Rottergatter, Holger Thern, Radu Fechete, Martin Blanz, Thomas, Kruspe, *Reduction of motion artifacts in NMR*, United State Patent, US 2005/0248342 A1, (2005).
4. Blumich Bernhard, Bruder Michael, Klein Martin, Krause Karl-Heinz, Rabkin Michael, Stangenberg Juergen, Anferov Vladimir, Anferova Sophia, Fechete Radu, *NMR probe for material analysis*, United States Patent, 7,095,230, August 22, (2006).
5. Martin Blanz, Thomas, Krusp, Peter Rottergatter, Holger Thern, Radu Fechete, *Reduction of motion artifacts in NMR*, UK Patent Application GB 2 440 280 A, Date of publication 23.01.(2008).

E. Postere prezentate la coloanele si conferinte internationale

1. K. Hailu, R. Fechete, D. E. Demco, B. Blümich, *Anisotropy of ¹H Magnetization Transverse Relaxation in Strained Elastomers by the NMR-MOUSE*, NATO ARW, Magnetic Resonance in Colloid and Interface Science, St. Petersburg, Russia, June 26-30, (2001).
2. R. Fechete, A. Weismath, D. E. Demco, B. Blümich, *Magic echo in combination with Hahn echo for measuring residual dipolar coupling in elastomers, double-quantum filtered NMR signal by NMR-MOUSE sensor, NMR endoscopes*, Mid term DIP meeting, March, Aachen, (2002).
3. R. Fechete, D.E. Demco, and B. Blümich, *Segmental order and chain dynamics of polymer networks Using multi-spin dipolar correlation effect*, The 16th European Experimental Nuclear Magnetic Resonance Conference in Prague, June 9-14, (2002).
4. Martin Klein, V. Anferov, S. Anferova, R. Fechete, M. Adams, F. Casanova and B. Blümich, *The Bar-Magnet NMR-MOUSE®*, Colloquium on Mobile NMR Vaals, The Netherlands, October 7-9, (2002).
5. Martin Klein, R. Fechete, D. E. Demco and B. Blümich, *Self-Diffusion Measurements by Constant-Relaxation Method in Strongly Inhomogeneous Magnetic Fields*, Colloquium on Mobile NMR Vaals, The Netherlands, October 7-9, (2002).
6. R. Fechete, D.E. Demco, and B. Blümich, *Segmental order and chain dynamics of polymer networks Using multi-spin dipolar correlation effect*, The 44 ENC, Savannah, Georgia, (2003).

7. D.E. Demco, R. Fechete, B. Blümich, U. Eliav, and G. Navon, *Anisotropy of Collagen Fiber Orientation in Sheep Tendon by ¹H Double-Quantum-Filtered NMR Signals*, The 44 ENC, Savannah, Georgia, (2003).
8. R. Fechete, S. Anferova, V. Anferov and B. Blümich, *Characterization of thermo-oxidative aging of elastomers by NMR-MOUSE[®]*, 3rd Colloquium on Mobile NMR Aachen, Germany, October 7-9, (2003).
9. G. D. Rata, S. Anferova, V. Anferov, J. Arnold, R. Fechete and B. Blümich, *Analysis of porous materials by the NMR-MOUSE[®]*, Lile, France (2004)
10. B. Blümich, S. Anferova, J. Arnold, G. D. Rata, R. Pechnig, R. Fechete, C. Clauser, *Feasibility Study of a Mobile NMR Scanner for Porosity Measurements on Deep Sea Ocean Drilling Core Samples*, Conference on porous media, Paris (2004)
11. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, The behaviour of some butadiene elastomers submitted to the degrading action of climatic factors studied by photoacoustic technique, PIM International Conference on Isotopic and Molecular Processes, Cluj-Napoca, Romania, Sept. 22-24 (2005).
12. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, The action of marine climate on some polymers, PIM International Conference on Isotopic and Molecular Processes, Cluj-Napoca, Romania, Sept. 22-24 (2005) (2005).
13. M. Butnaru, R. Marcean, O. Cozar, I. Bratu and R. Fechete, Application of NMR techniques in studying the dynamics of some polymers, PIM International Conference on Isotopic and Molecular Processes, Cluj-Napoca, Romania, Sept. 22-24 (2005) (2005).
14. R. Marcean-Chelcea, R. Fechete, E. Culea, D.E. Demco, B. Blümich, Segmental Order and Dynamics of Polymer Networks Using Dipolar Correlation Effect Measured in Low Field NMR, BPU The 6th International Conference of the Balkan physical Union, Istanbul, Turkey, August 22-26 (2006).
15. R. Marcean-Chelcea, R. Fechete, E. Culea, D.E. Demco, B. Blümich, Microscopic and Macroscopic Properties Correlations of Polymer Networks Measured in Low Field NMR, BPU The 6th International Conference of the Balkan physical Union, Istanbul, Turkey, August 22-26 (2006).
16. I.Cosma, E. Culea, S.Nicoara, R.Fechete, *Statistical distribution of extra-electrons at the nickel atoms and the mean magnetic moment in i-rich solid solutions with non-magnetic elements*, Fourth International Conference in Materials and Manufacturing Technologies, Cluj-Napoca, Romania, 21-23 September 2006

17. R. Fechete, R. I. Chelcea, E. Culea, D. E. Demco and B. Blümich, Dipolar correlation functions of soft solids by NMR in strongly inhomogeneous magnetic fields, European Magnetic Resonance Conference, EUROMAR, Tarragona, Spania 1-6 Iulie (2007).
18. R. I. Chelcea, R. Fechete, E. Culea, D. E. Demco and B. Blümich, Dynamic heterogeneities in soft solids by NMR in strongly inhomogeneous magnetic fields , European Magnetic Resonance Conference, EUROMAR, Tarragona, Spania 1-6 Iulie (2007).
19. Ramona Chelcea, Eugen Culea and Radu Fechete, Microscopic Networks Properties Correlations Of Gelly Cosmetics Materials,PIM Conference, September 20-22, Cluj-Napoca, Romania (2007).
20. D. Moldovan, R. Fechete, D. E. Demco, E. Culea, and B. Blümich, Monte-Carlo simulations of the two-dimensional NMR T_2 - T_2 exchange of fluids in porous media, 9th International Bologna Conference, Magnetic Resonance in Porous Media, MRPM9, Cambridge MA, SUA, 13-17 Iulie (2008).
21. R. Fechete, D. Moldovan, D. E. Demco, and B. Blümich, Laplace inversions applied to multi-component T_2 - T_2 exchange experiments , 9th International Bologna Conference, Magnetic Resonance in Porous Media, MRPM9, Cambridge MA, SUA, 13-17 Iulie (2008).
22. Radu Fechete, Dumitrita Moldovan, Dan E. Demco, Eugen Culea and Bernhard Blümich, Heterogeneity of segmental dynamics of filled EPDM rubber by 1H Hahn Echo Measurements, Conferinta Internationala EUROMAR 2010 si 17-a Conferinat ISMAR, Florenta, Italia, 4-9 Iulie (2010).
23. Dumitrita Moldovan, Radu Fechete, Dan E. Demco, Eugen Culea and Bernhard Blümich, Heterogeneity of nano-filled EPDM elastomers investigated by inverse Laplace transform 1H NMR relaxometry, Conferinta Internationala EUROMAR 2010 si 17-a Conferinat ISMAR, Florenta, Italia, 4-9 Iulie (2010).
24. D. Moldovan, R. Fechete, D. E. Demco, Characterization of the 1H Double Quantum Fourier and Laplace Spectra of Aged Natural Rubber Samples, Conferinta Internationala EUROMAR 2012, Dublin, Irlanda, 1-5 Iulie (2012).
25. R. Fechete, D. Corpodean Moldovan, D. E. Demco, Morphology of Filled EPDM Rubber by Laplace Distribution of 1H NMR Spin-Diffusion Decays, Conferinta Internationala EUROMAR 2012, Dublin, Irlanda, 1-5 Iulie (2012).
26. E. Jumate, D. Moldovan, R. Fechete, D. Manea, Relaxometry Study Of Plaster Mortar With Polymer Additives, Processes in Isotopes and Molecules PIM 2013, 25-27 septembrie, Cluj-Napoca, Romania (2013).
27. Nicolae Cioica, Radu Fechete, Ramona Chelcea, Constantin Cota, Mihai Todica, Cornel V. Pop , Onuc Cozar, Water Absorption And Degradation Of Packages Based On Native Corn Starch

- With Plasticizers, Advanced Spectroscopies on Biomedical and Nanostructured Systems BioNanoSpec, Cluj-Napoca, Romania, September 7-10, 2014 - Poster.
- 28. Ramona I. Chelcea, Remus S. Sipos, Radu Fechete, Dumitrita Moldovan, Ioana Sus, Zoltan Pávai and Dan E. Decmo, One-Dimensional Laplace Spectroscopy Used For The Assessment Of Pore-Size Distribution On The Ovariectomized Rats Femur, Advanced Spectroscopies on Biomedical and Nanostructured Systems BioNanoSpec, Cluj-Napoca, Romania, September 7-10, 2014 - Poster.
 - 29. D. Moldovan, R. I. Chelcea, D. E. Demco, R. Fechete, Characterization of Superabsorbent Hydrogels by Low-Field 1D and 2D ^1H NMR Laplace Spectroscopy, Conferinta Internationala EUROMAR 2016, Aarhus, Danemarca, 3-7 Iulie (2016).
 - 30. R. Fechete, D. Moldovan, R. I. Chelcea, D. E. Demco, Experimental and numeric characterization of various PEM membranes for fuel cells, Conferinta Internationala EUROMAR 2016, Aarhus, Danemarca, 3-7 Iulie (2016).
 - 31. R. I. Chelcea, D. Moldovan, D. E. Demco, R. Fechete, The NR segmental dynamics response at thermal treatment monitored by ^1H DQ NMR and Laplace spectra, Conferinta Internationala EUROMAR 2016, Aarhus, Danemarca, 3-7 Iulie (2016).
 - 32. D. Moldovan, R. I. Chelcea, D. E. Demco and R. Fechete, Characterization of Poly (isobutylene-co-maleic acid) sodium salt cross-linked hydrogel by Low-Field 1D and 2D ^1H NMR Laplace Spectroscopy, ^{11}th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 27-29 September 2017, Cluj-Napoca, Romania.
 - 33. R. I. Chelcea, R. Fechete, D. Moldovan and D. E. Demco, Advanced methods for the characterization of commercial cosmetics effects on the skin, ^{11}th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 27-29 September 2017, Cluj-Napoca, Romania.
 - 34. E. Jumate, C. Aciu, D. L. Manea, D. Moldovan, R. Chelcea and R. Fechete, Plastering Mortar with Antibacterial and Antifungal Properties Studied By ^1H NMR relaxometry, ^{11}th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 27-29 September 2017, Cluj-Napoca, Romania.
 - 35. A. Mustea, D. L. Manea, E. Jumate, and R. Fechete, Plaster mortars with polymer fibers and additives investigated by ^1H NMR relaxometry, ^{11}th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 27-29 September 2017, Cluj-Napoca, Romania.
 - 36. R. I. Chelcea, D. Moldovan, F. G. Rus and R. Fechete, Monitoring the degradation of packaging products by advanced ^1H NMR relaxometry, Vis-near IR and FT-IR spectroscopy, ^{12}th biennial

International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.

37. R. Crainic and R. Fechete, Designing, building and monitoring of a laboratory scale modular green roof model, ¹²th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.
38. L. R. Dragan, E. Jumate, C. Aciu, D. L. Manea and R. Fechete, Advanced characterization of plastering mortars with glass waste additives, ¹²th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.
39. D. Moldovan, R. I. Chelcea, A-M Biris, D Sipos and R. Fechete, ¹H NMR relaxometry, FT-IR and Vis-near IR spectroscopy used for the characterization of personal care cosmetics, ¹²th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.
40. A. O. Pintea, D. L. Manea, C. Aciu, E. Jumate and R. Fechete, Plastering Mortar with Organic Natural Polymers Studied By ¹H NMR relaxometry , ¹²th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.
41. R. I. Chelcea, D. Danis and R. Fechete, Structural and kinetic characterization of expired drugs by ¹H NMR relaxometry and FT-IR spectroscopy, ¹³th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
42. R. Crainic, E. M. Nagy, N. Cioica, and R. Fechete, ¹H NMR relaxometry and FT-IR spectroscopy used for characterization of organo-mineral fertilizers based on biosolids, ¹³th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
43. L R Dragan, D Andras and R. Fechete, FT-IR spectroscopy used for identification of cancer specific biomarkers in blood plasma, ¹³th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
44. D Cadar, D L Manea, E Jumate, R. Fechete and D Moldovan, Behavior analysis of two-component waterproofing mortars by mechanical and NMR investigations, ¹³th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
45. Ramona Crainic, Alexandru Stefan Farcasanu, Petru Pascuta, Lavinia Raluca Saitis, and Radu Fechete, Advanced experimental and numeric simulation method used for the characterization of

- nanofibers biomaterials produced by electrospinning. 33th Anual Conference of the European Society for Biomateriales ESB2023, 4-8 September 2023, Davos, Switzeland.
- 46. Lavinia Raluca Saitis, David Andras, Alexandru Stefan Farcasanu, Cătălin Saitis, Ramona Crainic, and Radu Fechete, Integrating Spectroscopic and Imaging Approaches for Improved Biological Fluids and Tissues Biopsy Analysis in Colorectal Cancer Detection., 33th Anual Conference of the European Society for Biomateriales ESB, 4-8 September 2023, Davos, Switzeland.
 - 47. R. Crainic, A Fărcăsanu, P Păscută, L R Saitis and R Fechete, Experimental and numeric simulation used for the characterization of nanofibers biomaterials produced by electrospinning, 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 19-22 September 2023, Cluj-Napoca, Romania.
 - 48. L R Dragan, D Andras, Ioana A. Pop, A Farcasanu, C. Saitis, R. Crainic and R Fechete, Spectroscopic NMR and FT-IR approach used for the evaluation of healing after surgical interventions for patients with Colorectal Cancer, 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 19-22 September 2023, Cluj-Napoca, Romania.
 - 49. R I Chelcea, D Moldovan, C B Katler and R Fechete, The development of an ecosystem in Martian soil simulants, 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 19-22 September 2023, Cluj-Napoca, Romania.
 - 50. D Moldovan, R Chelcea, S Nicoara, S Ibrahim and R Fechete, Structural and dynamic characterization by ¹H NMR and FTIR analyses of oils obtained from waste plastics by low temperature slow pyrolysis, 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 19-22 September 2023, Cluj-Napoca, Romania.

F. Prezentari orale la colocvii si conferinte internationale

- 1. R. Fechete, D. E. Demco, B. Blümich, *Sensitive volume of NMR-mobile sensor in the presence of strongly inhomogeneous magnetic fields*, Second Colloquium on Mobile NMR, Vaals, The Netherlands, October 7-9, (2002).
- 2. R. Fechete, D. E. Demco, B. Blümich, *Spin System Response in Strongly Inhomogeneous Magnetic Fields*, 1st Computational Chemistry Coalition Workshop, RWTH-Aachen, Germany, February 28, (2003).
- 3. R. Fechete, *Chain orientation and slow dynamics of elastomers and ordered tissues by advanced NMR*, DSM awards for chemistry and technology, Vaals, The Netherlands, June 1-3, (2003).

4. Bernhard Blümich, Kai Kremer, Radu Fechete, Sophia Anferova, F. Casanova, *Unilateral NMR: Concepts and applications of the NMR-MOUSE*, 7th International Conference on Magnetic Resonance Microscopy, Utah, USA (2003).
5. B. Blümich, S. Anferova, R. Fechete, M. Wang, I. Blomenkamp-Höfges, Thermo-Oxydative Aging of Elastomers by NMR, Statusseminar BMBF “Forschung für die Umwelt”, Hannover, Germany, July 9, (2003).
6. R. Fechete, S. Anferova, K. Kremer, F. Casanova and B. Blümich, *NMR Tomography in Elastomer Analysis: Imaging and NMR-MOUSE®*, The day of elastomers for whole live, Essen, Germany, September 30 – October 1 (2003).
7. R. Fechete, Martin Klein, D. E. Demco and B. Blümich, *Self-Diffusion Measurements by Constant-Relaxation Method in Strongly Inhomogeneous Magnetic Fields*, Colloquium on Mobile NMR Aachen, Germany, October 7-9, (2003).
8. R. Fechete, 2D Laplace Inversion applied in T_2 - T_2 exchange experiments, Seminar stiintific sustinut in departamentul de Chimie Tehnica si Macromoleculara, ITMC si a grupului de cercercetare MARC a prof. Blümich, a Universitatii RWTH-Aachen, Germania, 5 Noiembrie, 14,30-15,30 (2007).
9. Radu Fechete, Nano-structured Biomaterials: A NMR study of collagen and keratin, 2nd Transylvanian NMR Workshop in Cluj-Napoca September 18 -21, (2009).
10. R. Fechete, The use of Laplace-like transform in studying the heterogeneities in elastomers, Seminar stiintific sustinut in departamentul de Chimie Tehnica si Macromoleculara, ITMC si a grupului de cercercetare MARC a prof. Blümich, a Universitatii RWTH-Aachen, Germania, 8 Iunie, 14,20-15,30 (2010).
11. R. Fechete, Applications of 1D and 2D Laplace inversion analysis, 4th Transylvanian NMR Workshop - Frontiers of Magnetic Resonance Applications to nano- and microscopically structured systems, 28-30 september, Cluj-Napoca, Romania (2013).
12. R. Fechete, R. David, S. Sfrangeu, D. Moldovan, R. Chelcea, I. Morar, F. Stamatian, T. Kovacs, P. A. Popoi, *In vivo* ^1H NMR spectroscopy and relaxometry maps of woman’s pelvis, 11th biennial International Conference on Processes in Isotopes and Molecules PIM-INCCTIM, 27-29 September 2017, Cluj-Napoca, Romania.
13. Ramona Crainic, Radu Fechete, *Principal component analysis used for the evaluation of treatment process of slaughterhouse wastewater*, 6th Alpine NMR Workshop (Frontiers of Magnetic Resonance: Applications to Nano- and Microscopically Structured Systems) Cluj-Napoca, September 13-15, 2019 (2019).

14. R. Fechete, I. A. Morar, R. E. Dávid, R. Pintican, R. I. Chelcea, D. Moldovan and A. V. Bumbu, Principal Component Analysis used in medical data assessment, ¹²th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 25-27 September 2019, Cluj-Napoca, Romania.
15. R. Fechete, I. A. Morar, D. Moldovan, R. I. Chelcea, R. Crainic, S. C. Nicoara, The perspectives of NMR and artificial neural networks analysis used for an advanced medical diagnosis, 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
16. Radu Fechete, How I discovered exotic applications of Nuclear Magnetic Resonance in low fields!, Micro-symposium - Celebrating half a century of Magnetic Resonance in Romania In Memoriam Professor IOAN URSU - Associated Event to 13th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 22-24 September 2021, Cluj-Napoca, Romania.
17. R. Fechete, R. Crainic, L R. Dragan, D. Moldovan, R. I. Chelcea, The perspectives of numerical neuroevolution of artificial neural networks with applications to Fourier and Laplace-like spectroscopy, 14th biennial International Conference on Processes in Isotopes and Molecules PIM-INCDTIM, 19-22 September 2023, Cluj-Napoca, Romania.

Data:
06.06.2024

Prof. Abil. Dr. Fiz. Radu Fechete
Semnătura: