A N E X A 5

UNIVERSITATEA BABEŞ-BOLYAI
Facultatea de Fizică
Domeniul de licenţă: Ştiinţe Inginereşti Aplicate
Programul de studii: Fizică Tehnologică

TABEL PRIVIND INDEPLINIREA INDICATORULUI

„Cadrele didactice titulare* au pregătirea iniţială, sunt doctori / doctoranzi şi cercetează în domeniul în care se includ disciplinele din postul ocupat."

Nr. crt.	Gradul didactic, numele şi prenumele titularului vârsta / vechimea în învăţământul superior	Disciplinele din cadrul programului de studii incluse în postul didactic şi tipul activităţii desfăşurate (curs, seminar, lucrări, proiect)	Competenţa cadrului didactic titular în disciplinele din postul didactic			Constatări privind îndeplinirea indicatorului
			Universitatea/ facultatea/ specializarea absolvită	Specializarea la masterat/ doctorat	Numărul de cărţi, numărul de lucrări ştiinţifice, numărul de brevete în domeniul disciplinelor din postul didactic ** conform Anexelor 5.1, 5.2 etc	
1.	Prof. dr. habil. Monica Baia 51 / 27	Tehnologii energetice nepoluante, curs, laborator	Universitatea Babes-Bolyai din Cluj / Facultatea de Fizica	Doctorat în Stiintele Naturii/Fizica (atestat CNATDCU)	3 cărţi (B1, B2, B3); 9 lucrări indexate ISI/BDI (C3, C4, C7, C10, C11, C23, C24, C33, C47);	îndeplinit
2						
3						
4						
5						
6						

* Din statul de funcţii cumulativ al tuturor disciplinelor şi tuturor activităţilor didactice desfăşurate în cadrul programului de studii evaluat.

** Se indică numărul pe următoarele tipuri de lucrări: A – teza de doctorat B – Cărţi şi capitole în cărţi publicate în ultimii XX ani C – Lucrări indexate ISI/BDI publicate în ultimii XX ani	D – Lucrări publicate în ultimii XX ani în reviste şi volume de conferinţe cu referenţi (neindexate); pentru lucrările publicate în volume de conferinţe se selectează de maximum 20 articole. E – Brevete acordate în întreaga activitate. Persoanele incluse în tabelul de mai sus anexează câte o listă de lucrări după modelul de mai jos.

A N E X A 5 . 1

(*Pentu următoarele cadre didactice se adaugă Anexele 5.2, 5.3. etc.*)

Universitatea Babeș-Bolyai
Facultatea de Fizica
Departamentul Fizica Biomoleculara
Prof. dr. habil. Monica Baia

L I S T A
lucrărilor ştiinţifice în domeniul disciplinelor din postul didactic

A. Teza de doctorat

Vibrational characterisation of coordination and biologically active compounds by means of IR absorption, Raman and surface-enhanced Raman spectroscopy in combination with theoretical simulations (2003, Wuerzburg, Germania)

B. Cărţi si capitole în cărţi publicate în ultimii 10 anii

1. Tehnologii energetice nepoluante vol. I, **Monica Baia**, Casa Cartii de Stiinta, Cluj-Napoca, 2015.
2. Advanced nanostructures for environmental health Lucian Baia, Zsolt Pap, Klara Hernadi, **Monica Baia** (Book Editors),: ISBN: 0128158832 Publisher: Elsevier: Amsterdam, Netherlands; Kidlington, Oxford, England; Cambridge, Massachusetts, 2019, 584 pagini
3. Insights into Graphene-based Materials as Counter Electrodes for Dye-Sensitized Solar Cells, L. C. Cotet, C. I. Fort, L. C. Pop, **M. Baia,** L. Baia, capitol din: Dye-Sensitized Solar Cells, 1st Edition, Mathematical Modelling, and Materials Design and Optimization, ISBN: 9780128145418, 9780128145425, Academic Press, pp. 341-396, 2019
4. When the nanostructures meet the environmental health key issues, **Baia, M.,** Pap, Z., Hernadi, K., Baia, L. capitolul 1 din: Advanced Nanostructures for Environmental Health: Micro and Nano Technologies, Editors: Lucian Baia Zsolt Pap Klara Hernadi Monica Baia, Paperback ISBN: 9780128158821, eBook ISBN: 9780128158838, Elsevier, 2019, pp. 1-33
5. Perspectives of environmental health issues addressed by advanced nanostructures, Baia, L., **Baia, M.,** Hernadi, K., Pap, Z.,Popp, J. capitolul 13 din: Advanced Nanostructures for Environmental Health: Micro and Nano Technologies, Editori: Lucian Baia Zsolt Pap Klara Hernadi Monica Baia, Paperback ISBN: 9780128158821, eBook ISBN: 9780128158838, Elsevier, 2019, pp. 525-547
6. Advanced Graphene-Based Materials for Electrochemical Biomarkers and Protein Detection, C. I. Fort, L. C. Cotet, L. C. Pop, **M. Baia**, L. Baia, capitol in Graphene - Chemistry and Applications, Editata de Dr. Enos Wamalwa Wambu, IntechOpen, 2024, Available at: http://dx.doi.org/10.5772/intechopen.114011.1.

C. Lucrări indexate ISI/BDI publicate în ultimii 10 anii

ISI

1. C. Pintilii, **M. Baia,** E. Alexa, K. Magyari, I. Botiz, M. Muresan-Pop, L. Barbu-Tudoran, C. Nicula, A. Peter, Z. Szakács, A. Mihaly Cozmuta, L. Mihaly Cozmuta, Comparative study on starch and protein secondary structures in brown, red, and black rice influenced by microwave treatment, Food Chemistry: X, Volume 32, 2025, 103224,
2. L. E. Olar, L. Bolunduț, M. Suciu, K. Magyari, L. Baia, **M. Baia**, A. Popa , M. Șenilă, E. Culea, R. Stefan, The antimicrobial and cellular proliferative potentials of some bioactive and biocompatible copper-containing glasses, J Mater Sci (2025) 60:16752–16767
3. Arpad Mihai Rostas, Ramona-Crina Suciu, Marcela-Corina Roşu, Alexandru Turza, Dragoş-Viorel Cosma, Septimiu Tripon, Carmen Ioana Fort, Virginia Danciu, **Monica Baia**, Amelia Bocirnea, Emil Indrea, Annealing temperature, a key factor in shaping Ag-decorated TiO2 aerogels as efficient visible-light photocatalysts, Materials Chemistry and Physics, Volume 337, 2025, 130557
4. Sălăgean, C.A.; Coteț, L.C.; **Baia, M**.; Fort, C.I.; Turdean, G.L.; Barbu-Tudoran, L.; Lazar, M.D.; Baia, L. Influence of Precursors on Physical Characteristics of MoS_2 and Their Correlation with Potential Electrochemical Applications. *Materials* **2025**, *18*, 2111.
5. Alexandra Feraru, Zsejke-Réka Tóth, Klára Magyari, **Monica Baia**, Tamás Gyulavári, Emőke Páll, Emilia Licarete, Codrut Costinas, Oana Cadar, Ionel Papuc, Lucian Baia, The effect of nanoceria on the alginate-gum arabic crosslinking mechanism and in vitro behavior as a wound dressing, International Journal of Biological Macromolecules, Volume 288, 2025, 138569,
6. Moldovan, I.; Cotoz, A.-P.; Rózsa, S.; Magyari, K.; Lehel, L.; **Baia, M**.; Cantor, M. The Influence of Technological Factors on the Structure and Chemical Composition of Tuberous *Dahlia* Roots Determined Using Vibrational Spectroscopy. *Plants* **2024**, *13*, 1955.
7. C. I. Fort, M. M Rusu, L. C Cotet, A. Vulpoi, M Todea, **M Baia**, Baia, L. The Impact of Ar or N2 Atmosphere on the Structure of Bi-Fe-Carbon Xerogel Based Composites as Electrode Material for Detection of Pb2+ and H2O2. Gels 10, 230, 2024.
8. S.A.M. Faur, Z.R Tóth, K Magyari, **M. Baia**, Vibrational Analysis and Concentration Dependent SERS Study of Cefoperazone. Chemosensors 12, 48, 2024
9. I Anghel, C Lisa, S. Curteanu, D. M Preda, IE Şofran, **M. Baia**, M Stroe, M Paraschiv, M Baibarac, V Danciu, LC Cotet, L. Baia, The influence of the functionalization of polystyrene and graphene oxide composites on the flammability characteristics: modeling with artificial intelligence tools. J Therm Anal Calorim 149, 2805–2824 (2024).
10. Rusu, M.M.; Fort, C.I.; Vulpoi, A.; Barbu-Tudoran, L.; **Baia, M**.; Cotet, L.C.; Baia, L. Ultrasensitive Electroanalytical Detection of Pb2+ and H2O2 Using Bi and Fe—Based Nanoparticles Embedded into Porous Carbon Xerogel—The Influence of Nanocomposite Pyrolysis Temperatures. Gels 2023, 9, 868.
11. Székely, I.; Kovács, Z.; Rusu, M.; Gyulavári, T.; Todea, M.; Focșan, M.; **Baia, M**.; Pap, Z. Tungsten Oxide Morphology-Dependent Au/TiO2/WO3 Heterostructures with Applications in Heterogenous Photocatalysis and Surface-Enhanced Raman Spectroscopy. Catalysts 2023, 13, 1015.
12. Mihis, AG, Cotet, LC; Cadar, C ; Pop, LC ; Todea, M ; Rusu, MM ; Vulpoi, A, Székely, I; Salagean, CA ; Magyari, K ; Muresan-Pop, M ; Cadar, O ; **Baia, M**; Sofran, IE ; Lisa, G ; Anghel, I ; Baibarac, M ; Danciu, V ; Baia, L, Structural and flame retardancy properties of GO-DOPO-HAK composite. J Mater Sci 58, 7025–7047 (2023)
13. Feraru, A.; Tóth, Z.-R.; Mureșan-Pop, M.; **Baia, M**.; Gyulavári, T.; Páll, E.; Turcu, R.V.F.; Magyari, K.; Baia, L. Anionic Polysaccharide Cryogels: Interaction and In Vitro Behavior of Alginate–Gum Arabic Composites. Polymers 2023, 15, 1844.

14. C. Costinas, C. A. Salagean, L. C. Cotet, M. Baia, M. Todea, K. Magyari, L. Baia, Insights into the Stability of Graphene Oxide Aqueous Dispersions, Nanomaterials 12 (24), 4489, 2022.
15. K. Magyari, A. Dreancă, I. Székely, A. Popescu, A. Feraru, E. Páll, T. Gyulavári, M. Suciu, M. Cenariu, E. Bobu, L. Baia, M. Baia, How does the structure of pullulan alginate composites change in the biological environment? Journal of Materials Science, 57, 19050–19067. (2022)
16. M. M. Rusu, A. Vulpoi, I. Maurin, L. C Cotet, L. C Pop, C. I Fort, M. Baia, L. Baia, I. Florea, Thermal Evolution of C–Fe–Bi Nanocomposite System: From Nanoparticle Formation to Heterogeneous Graphitization Stage, Microscopy and Microanalysis, 28(2), 317-329, 2022.
17. L. C. Pop, G. Barta, L. C. Cotet, K. Magyari, M. Baia, L. Barbu Tudoran, R. Ungur, D. Vodnar, L. Baia, V. Danciu, Antimicrobial activity of graphene oxide-coated polypropylene surfaces, Studia Universitatis Babes-Bolyai, Chemia, 67(1), 281-296, 2022.
18. M. Chiş, A. Bonifacio, V. Sergo, C. Căinap, V. Chiş, M. Baia, Experimental and Theoretical Investigations of the Chemotherapeutic Drug Capecitabine, Journal of Molecular Structure, 1250, Part 2, 131577, 2022.
19. B. Boga, I. Székely, M. Focșan, M. Baia, T. Szabó, L. Nagy, Zs. Pap, Sensor surface via inspiration from Nature: The specific case of electron trapping in TiO2/WO3 (· 0.33 H2O) and reaction center/WO3 (· 0.33 H2O) systems, Applied Surface Science, 572, 151139, 2022.
20. E.A Rusu, K Magyari, L Baia, M Baia, Vibrational analysis of α-lipoic acid and its adsorption behavior study by SERS, Journal of Molecular Structure, 1248, 131501, 2022.
21. A.M. Craciun, L. Susu, M. Baia, Two-photon excited photoluminescence lifetime imaging studies on individual gelatin-coated gold nanorods, Journal of Molecular Structure, 1243, 130785, 2021.
22. I. Anghel, G. Lisa, I-E. Șofran, F-C. Mitroi-Symeonidis, M. M. Rusu, M. Baia, L. Baia, K. Magyari, V. Danciu, L. C. Cotet, M. Stroe, M. Baibarac, Pyrolysis and combustion of polystyrene composites based on graphene oxide functionalized with 3-(methacryloyloxy)-propyltrimethoxysilane, Journal of Polymer Engineering, 41(7), 615-626, 2021.
23. I. Székely, E-Zs. Kedves, Zs. Pap, M. Baia, Synthesis Design of Electronegativity Dependent WO3 and WO3·0.33H2O Materials for a Better Understanding of TiO2/WO3 Composites' Photocatalytic Activity, Catalysts, 11(7), 779, 2021.
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27. Matei, A., Puscas, C., Patrascu, I., Lehene M, Ziebro J., Scurtu F, Baia M., Porumb. D., Totos, R., Silaghi-Dumitrescu, R., On the stability of glutaraldehyde in biocide compositions, International Journal of Molecular Sciences, 2020, 21(9), 3372
28. Stroe, M., Cristea, M., Matei, E., . Galatanu A., Cotet L.C., Pop L.C., Baia M., Danciu V., Anghel I.,.Baia, L., Baibarac, M.A., Optical properties of composites based on graphene oxide and polystyrene, Molecules, 2020, 25(10), 2419
29. S. Fornasaro, F. Alsamad, M. Baia, L. AE Batista de Carvalho, C. Beleites, H. J Byrne, A. Chiadò, M. Chis, M. Chisanga, A. Daniel, J. Dybas, G. Eppe, G. Falgayrac, K. Faulds, H. Gebavi, F. Giorgis, R. Goodacre, D. Graham, P. La Manna, S. Laing, L. Litti, F. M Lyng, K. Malek, C. Malherbe, M. PM Marques, M. Meneghetti, E. Mitri, V. Mohacek-Grosev, C. Morasso, H. Muhamadali, P. Musto, C. Novara, M. Pannico, G. Penel, O. Piot, T. Rindzevicius, E. A Rusu, M. S Schmidt, V. Sergo, G. D Sockalingum, V. Untereiner, R. Vanna, E. Wiercigroch, A. Bonifacio, A Surface Enhanced Raman Spectroscopy for Quantitative Analysis: Results of a Large-Scale European Multi-Instrument Interlaboratory Study, Analytical Chemistry, 2020, 92(5), pp. 4053-4064
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31. Balan, C., Pop, L.-C., Baia, M., IR, Raman and SERS analysis of amikacin combined with DFTbased calculations, Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy, 2019, 214, pp. 79-82
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44. Husti, A., Cantor, M., Stefan, R., Miclean, M., Roman, M., Neacsu, I., Contiu, I., Magyari, K., Baia, M., Assessing the indoor pollutants effect on ornamental plants leaves by FT-IR spectroscopy, (2016) Acta Physica Polonica A, 129 (1), pp. 142-149.

BDI

45. Mihaly Cozmuta A., Peter, A. Nicula C., Crisan L., Vulpoi, A., **Baia, M**. The influence of far-red light on the attributes of green bell pepper fruits (Capsicum annuum l.) during storage, Annals of the University Dunarea de Jos of Galati, Fascicle VI: Food Technology, 2016, 40(2), pp. 98–118
46. **M Baia,** MA Baibarac, L Valentini, L Baia, A Special Section on Carbonaceous-Containing Nanomaterials for Multi-Functional Applications, Journal of nanoscience and nanotechnology 21 (4), 2265-2268, 2021
47. CI Fort, MM Rusu, LC Pop, LC Cotet, A Vulpoi, **M Baia**, L Baia, Preparation and characterization of carbon xerogel based composites for electrochemical sensing and photocatalytic degradation, Journal of Nanoscience and Nanotechnology 21 (4), 2323-2333, 2021.
48. C Cadar, CI Fort, A Mihis, Zs Kedves, K Magyari, L Baia**, M Baia,** MC Dudescu, I Olteanu, LC Cotet, V Danciu, 3-Aminopropyl-Triethoxysilane Functionalized Graphene Oxide for Silane-Based Consolidation Treatments to Increase Mortar Performances, Journal of Nanoscience and Nanotechnology 21 (4), 2351-2359, 2021.
49. L.C. Cotet, C. Salagean, A. Mihis, I. Szekely, ZS. Toth, L. Baia, M. Baia, G. Olteanu, I. Olteanu, V. Danciu, SUSPENSION BASED ON A MIXTURE OF TITANIA-SILICA-FUNCTIONALIZED GRAPHENE OXIDE FOR SURFACE CONSOLIDATION OF HISTORICAL ANDESITE STONE AND MORTAR, , STUDIA UBB PHYSICA, Vol. 67 (LXVII), 1-2, 2022, pp. 55-77
50. E. A. Rusu, M Baia, Moving from Raman Spectroscopy Lab towards Analytical Applications: A Review of Interlaboratory Studies. Instruments, 7, 30, 2023

D. Lucrări publicate în ultimii 10 anii în reviste şi volume de conferinţe cu referenţi (neindexate)

- Reviste

1. G.C Olar, LC Cotet, L Baia, A Mihis, M Baia, SERS-active substrates based on graphene oxide or reduced graphene oxide and silver nanoparticles, Materials Today: Proceedings, 45, 4096-4099, 2021 Conference: 8th International Conference on Advanced Materials and Structures (AMS), Timisoara, 2020

E. **Brevete obţinute în întreaga activitate**

1. Brevet de inventie national nr. RO 129023 B1, 2017: *Procedeu de obtinere a unor compozite pe baza de aerogel cu metale nobile cu dubla functionalitate*

1. Cerere de brevet national nr. 2410-A/00737/16.11.2022, *Metoda de obtinere a compozitelor bazate pe polistiren si oxid de grafena functionalizat cu compusi continand atomi de azot si fosfor avand rolul de agenti ignifugi.*

Data:
07.05.2026

Semnătura: