

Propuneri pentru temele/direcțiile de cercetare doctorală, în vederea înscrierii la colocviul de admitere pentru anul universitar 2026-2027, anul I de studii doctorale

I. Domeniul Chimie

1. *Evaluarea acțiunii reducătoare a sulfurilor de fier/ Assessing the reducing activity of iron sulfides*

Conducător științific: Prof. univ. dr. habil. Paul CHIRIȚĂ

Bibliografie

- a.** Sulfide Mineralogy and Geochemistry, Editor David J. Vaughan, editor, Reviews in Mineralogy & Geochemistry, Volume 61.
- b.** P. Chirita, M. Descostes, M.L. Schlegel, Oxidation of FeS by oxygen-bearing acidic solutions, Journal of Colloid Interface Science, 321; 2008: 84-95.

II. Domeniul Fizică

1. *Metode analitice și computaționale pentru investigarea sistemelor dinamice neliniare/ Analytical and computational methods for investigating nonlinear dynamical systems*

Conducător științific: Prof. univ. dr. habil. Rodica CIMPOIAȘU

Bibliografie

- a.** Arrowsmith D. K., Place C. M. An introduction to dynamical systems, University press, Cambridge, 1994.
- b.** Olver, P.J. Applications of Lie Groups to Differential Equations, GTM 107, 2nd ed.; Springer-Verlag: New York, USA, 1993.
- c.** Bluman G.W., Cheviakov A.F., Anco S.C.: Applications of Symetry Methods to Partial Diferential Equations. Springer, New York, 2010.
- d.** Polyanin, Andrei D., and Valentin F. Zaitsev. Handbook of nonlinear partial differential equations: exact solutions, methods, and problems. Chapman and Hall/CRC, 2003.
- e.** Langtangen, Hans Petter. "Solving nonlinear ODE and PDE problems." Center for Biomedical Computing, Simula Research Laboratory and Department of Informatics, University of Oslo, 2016.

2. Amplitudini de împrăștiere și vertexuri de interacție/ Scattering amplitudes and interaction vertices

Conducător științific: Prof. univ. dr. habil. Eugen-Mihăiță CIOROIANU

Bibliografie

- a.** H. Elvang, Y.T. Huang, Scattering amplitudes in gauge theory and gravity, Cambridge University Press, Cambridge, 2015
- b.** N. Arkani-Hamed, J. Bourjaily, F. Cachazo, A. Goncharov, A. Postnikov, J. Trnka, Grassmannian geometry of scattering amplitudes, Cambridge University Press, Cambridge, 2015
- c.** C. Cheung, TASI Lectures on Scattering Amplitudes, preprint, arxiv: 1708.03872

3. Metode de construcție a interacțiunilor în teoriile cu simetrii de etalonare

Conducător științific: Prof. univ. dr. Solange-Odile SALIU

Bibliografie

- a.** S. Deser, Self-interaction and gauge invariance, General Relativity and Gravitation **1** (1970) 9–18, <https://doi.org/10.1007/BF00759198>
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- c.** G. Barnich, F. Brandt, M. Henneaux, Local BRST cohomology in gauge theories, Physics Reports **338** (2000) 439–569, [https://doi.org/10.1016/S0370-1573\(00\)00049-1](https://doi.org/10.1016/S0370-1573(00)00049-1)
- d.** C. Bizdadea, Consistent interactions in the Hamiltonian BRST formalism, Acta Physica Polonica B **32** (2001) 2843 – 2862, <https://arxiv.org/pdf/hep-th/0003199>
- e.** S. O. Salu, E. M. Cioroianu, C. Bizdadea, Various aspects of lower dimensional BF models: Cross-couplings to matter, in TIM20-21 Physics Conference, eds. A. Popescu, M. Lungu, A. Vanciu Rau, AIP Conf. Proc. 2843, 020001, American Institute of Physics: New York, NY, USA, 2023, <https://doi.org/10.1063/5.0150599>

III. Domeniul Geografie

1. Integrarea modelelor de evaluare a impactului activităților antropice asupra calității mediului marin în managementul adaptiv al zonei costiere românești

Conducător științific: Prof. univ. dr. habil. Igor SÎRODOEV

Bibliografie

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- b.** BSC, 2019. State of the Environment of the Black Sea (2009-2014/5). Edited by Anatoly Krutov. Publications of the Commission on the Protection of the Black Sea Against Pollution (BSC) 2019, Istanbul, Turkey, 811 pp. <https://www.blackseacommission.org/SoE2009-2014/SoE2009-2014.pdf>

- c. Maccarrone, V., Scandura, P., & La Rosa, S. D. (2024). The Integrated Coastal Zone Management in the Anthropocene. In *Coastal Sustainability: Insights from Southeast Asia and Beyond* (pp. 1-20). Cham: Springer Nature Switzerland. Maccarrone, V., Scandura, P., La Rosa, S.D. (2024). The Integrated Coastal Zone Management in the Anthropocene. In: Maccarrone, V., Fadzil Akhir, M. (eds) Coastal Sustainability. Coastal Research Library, vol 39. Springer, Cham. DOI: 10.1007/978-3-031-75749-5_1
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IV. Domeniul Matematică

1. Elemente de optimizare matematică în inteligența artificială/ Elements of mathematical optimization in artificial intelligence

Conducător științific: Prof. univ. dr. habil. Ionel ROVENȚA

Bibliografie

- a. Bauschke, H. H., & Combettes, P. L. (2017). *Convex Analysis and Monotone Operator Theory in Hilbert Spaces* (2nd ed.). Cham: Springer. 620 p.
- b. Barbu, V. (1984). *Optimal Control of Variational Inequalities*. Boston: Pitman. 244 p.
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