



Școala Doctorală de Chimie

TEMATICA PENTRU CONCURSUL DE ADMITERE LA DOCTORAT sesiunea septembrie 2022

Prof. univ. dr. Aurel PUI

- 1. Nanostructuri oxidice cu aplicații biomedicale și în tratarea apelor (ro)**
Oxide nanostructures with biomedical and water treatment applications (en)

Bibliografie

1. Kefeni, K. K., Msagati, T.A., Nkambule, T.T., Mamba, B.B., Spinel ferrite nanoparticles and nanocomposites for biomedical applications and their toxicity, *Materials Science and Engineering: C*, 107, 110314, **2020**.
2. Kefeni, K.K., Mamba, B.B., Msagati, T.A., Application of spinel ferrite nanoparticles in water and wastewater treatment: a review, *Separation and Purification Technology*, 188, 399-422, **2017**.
3. Sharma, S.K., Javed, Y. (Eds.), Magnetic nanoheterostructures: diagnostic, imaging and treatment, *Springer Nature*, **2020**.
4. El-Naggar, M.E., Shouair, K., Recent advances in polymer/metal/metal oxide hybrid nanostructures for catalytic applications: A review, *Journal of Environmental Chemical Engineering*, 8(5), 104175, **2020**.
5. Ikram, M., Rashid, M., Haider, A., Naz, S., Haider, J., Raza, A., Maqbool, M., A review of photocatalytic characterization, and environmental cleaning, of metal oxide nanostructured materials, *Sustainable Materials and Technologies*, 30, e00343, **2021**.
6. McBain, S.C., Yiu, H. HP., Yiu, Dobson, J., Magnetic nanoparticles for gene and drug delivery, *International Journal of Nanomedicine*, 169-180, **2008**.

- 2. Corelația structură-proprietăți în seria unor oxizi metalici micști (ro)**
The correlation between structure and properties in the mixed metal oxides series (en)

Bibliografie

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4. Sun, Y., Liao, H., Wang, J., Chen, B., Sun, S., Hoong Ong, S.J., Xi, S., Diao, C., Du, C., Du, Y., Wnag, J.O., Breese, M.B.H., Li, S., Zhang, H., Xu, Z.J., Covalency competition dominates the water oxidation structure–activity relationship on spinel oxides, *Nature Catalysis*, 3, 554-563, 2020, <https://doi.org/10.1038/s41929-020-0465-6>;
5. Wang, Y., Wang, G., Deng, W., Han, J., Qin, L., Zhao, B., Guo, L., Xing, F., Study on the structure-activity relationship of Fe-Mn oxide catalysts for chlorobenzene catalytic combustion, *Chemical Engineering Journal*, 395, 125172, 2020, <https://doi.org/10.1016/j.cej.2020.125172>.

3. Sinteza și caracterizarea unor silicați ai lantanidelor (ro)

Synthesis and characterization of some lanthanide silicates (en)

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1. F. Rey-García, N. Ben Sedrine, M. R. Soares, A. J. S. Fernandes, A. B. Lopes, N. M. Ferreira, T. Onreiro, And F. M. Costa, Structural and optical characterization of Gd_2SiO_5 crystalline fibres obtained by laser floating zone, *Optical materials express*, 868, 7, 3, 2017.
2. S.N. Ogugua, S.K.K. Shaat, H.C. Swart, O.M. Ntwaeaborwa, Optical properties and chemical composition analyses of mixed rare earth oxyorthosilicate (R_2SiO_5 , R 1/4 La, Gd and Y) doped Dyphosphors prepared by urea-assisted solution combustion method *Journal of Physics and Chemistry of Solids*, 83, 109–116, 2015.
3. Monica Ciomaga Hatnean, Oleg A. Petrenko, Martin R. Lees, Tom E. Orton, and Geetha Balakrishnan, Optical Floating Zone Crystal Growth of Rare-Earth Disilicates, $R_2Si_2O_7$ (R = Er, Ho, and Tm), *Cryst. Growth Des.*, 20, 6636–6648 2020.
4. Jiaguo Wang, Shujian Tian, Guobao Li, Fuhui Liao, Xiping Jin, Preparation and X-Ray characterisation of low -temperature phases of R_2SiO_5 (R=rare earth elements), *Materials Research Bulletin*, 36, 1855–1861, 2001.
5. J. Felsche, The crystal Chemistry of the Rare-Earth Silicates, Institut fur Kristallographie, ETH Zurich Switzerland, 1973.

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