Dr. Niculae Olaru

Senior scientist I

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Research topics:

● electrospinning; ● nanomaterials, nanocomposites; ● cellulose chemistry; ● cold plasma modification of natural fibers; ● applications of molecular orbital theory to QSAR and chemical reactivity; ● doctoral thesis: “Quantum chemical calculation for enzymatic reactions”.

Scientific research:

More than **85 papers** in international journals (from which **60 ISI**); **13 Romanian patents**; **3 book chapters**; more then **100 participations at national and international scientific meetings**; applied researches: laboratory electrospinning set up; laboratory torch discharge set up; contractual reports; technological processes; technologies applied in industry; tested products and technologies; internal norms for carboxymethylcellulose (CMC) with medical destination.
Author output: h-index = 14; citations = 563 (web of science); without self-citations = 478

Relevant publications:

1. L. Marin, B. Dragoi, N. Olaru, E. Perju, A. Coroaba, F. Doroftei, G. Scavia, S. Destri, S. Zappia, W. Portio, “Nanoporous furfuryl-imine-chitosan fibers as a new pathway towards eco-materials for CO2 adsorption”, *European Polymer Journal*, 120, page 605, 2019
2. N. Olaru, N. Anghel, P. Pascariu, G. Ailiesei, “Synthesis and testing of cellulose acetate nicotinate as adsorbent for rhodamine B dye”, *Journal of Applied Polymer Science*, 136, 29, 2019
3. P. Pascariu, C. Cojocaru, N. Olaru, P. Samoila, A. Airinei, M. Ignat, L. Sacarescu, D. Timpu, “Novel rare earth (RE-La, Er, Sm) metal doped ZnO photocatalysts for degradation of Congo-Red dye: Synthesis, characterization and kinetic studies”, *Journal of Environmental Management* 239, 225-234, 2019
4. P. Pascariu, C. Cojocaru, N. Olaru, A. Airinei A, “Photocatalytic Activity of ZnO-SnO2 Ceramic Nanofibers for RhB Dye Degradation: Experimental Design, Modeling, and Process Optimization” *Physica Status Solidi B-Basic Solid State Physics* 256, 5, 2019
5. P. Pascariu, L. Olaru, A.L. Matricala, N. Olaru, “Photocatalytic activity of ZnO nanostructures grown on electrospun CAB ultrafine fibers” *Applied Surface Science*, 455, 61-69, 2019
6. N. Olaru, G. Calin, L. Olaru, “Zinc Oxide Nanocrystals Grown on Cellulose Acetate Butyrate Nanofiber Mats and Their Potential Photocatalytic Activity for Dye Degradation”, *Ind. Eng. Chem. Res*., 53, 17968-17975, 2014
7. N. Olaru, L. Olaru, N. Tudorachi, S. Dunca, M. Pintilie, „Nanostructures of Cellulose Acetate Phthalate Obtained by Electrospinning from 2-Methoxyethanol-Containing Solvent Systems: Morphological Aspects, Thermal Behavior, and Antimicrobial Activity”, *Ind. Eng. Chem. Res.*, 52, 696-705, 2013
8. N. Olaru, L. Olaru, C. Vasile, P. Ander, “Surface Modified Cellulose Obtained by Acetylation without Solvents of Bleached and Unbleached Kraft Pulps”, Polimery, 56, 834-840, 2011
9. N. Olaru, L. Olaru, „Electrospinning of Cellulose Acetate Phthalate from Different Solvent Systems”, *Ind. Eng. Chem. Res*., 49, 1953–1957, 2010
10. A.M. Necula, N. Olaru, L. Olaru, M. Homocianu, S. Ioan, “Influence of the Substitution Degrees on the Optical Properties of Cellulose Acetates”, *J. Appl. Polym. Sci*., 115, 1751-1757, 2010
11. N. Olaru, D. Ciolacu, D. Tampu, L. Olaru, “Structural modifications of cellulose in heterogeneous acetylation process”, *Journal of Optoelectronic and Advanced Materials*, 9 (12), 3917-3920, 2007

12. N. Olaru, L. Olaru, Gh. Cobiliac, "Plasma-modified wood fibers as fillers in polymeric materials", *Romanian Journal of Physics*, 50 (9-10), 1095 – 1102, 2005
13. N. Olaru, L. Olaru, „Cellulose Acetate Deacetylation in Benzene / Acetic Acid / Water Systems", *J. Appl. Polym. Sci*., 94 (5), 1965 – 1968, 2004
14. N. Olaru, „MO study of cation-radical polymerization of Schiff bases", *Annals of West University of Timisoara* 12 (3), 77-86, 2003
15. N. Olaru, A. Andriescu, L. Olaru, „On the Hydrolysis of Cellulose Acetate in Toluene/Acetic Acid/Water System", *Eur. Polym. J.* 37, 865, 2001
16. N. Olaru, L. Olaru, „Influence of Organic Diluents on Cellulose Carboxymethylation", *Macromol. Chem. Phys*. 202, 207-211, 2001
17. N. Olaru, L. Olaru, A. Stoleriu, D. Timpu, „Carboxymethylcellulose Synthesis in Organic Media Containing Ethanol and/or Acetone", *J.Appl.Polym.Sci.*, 67, 481-486, 1998
18. N. Olaru, L. Olaru, A. Andriescu, N. Tudorachi, „Partial Hydrolysis of Cellulose Acetate in Toluene/Acetic Acid/Water System", *Die Angewandte Makromolekulare Chemie*, 241, 67, 1996
19. N. Olaru, L. Olaru, M. Leanca, „On Thermal Degradation of Cellulose Acetate Phthalate", *Cellulose Chem. Technol.*, 29, 253, 1995
20. N. Olaru, L. Olaru, „Mathematical Models for the Synthesis of Carboxymethylcellulose in the Isopropyl Alcohol System", *Cellulose Chem. Technol.*, 26, 685-690, 1992
21. N. Olaru, Z. Simon, „Electronic Structure and Rectivity Indices for a Series of Purine Derivatives, Inhibitors of Guanine Phosphorybosyltransferase from Escherichia Coli", *Rev.Roum.Chim*., 32, 63, 1987
22. N. Olaru, Z. Simon, „Quantitative Structure-Activity Relations for the Inhibition of Guanine Phosphorybosyltranferase from E. Coli", *Rev.Roum.Chim*., 32, 1001, 1987