

AUREL PUI

Research Areas/Interest

- Synthesis and characterization of coordination compounds
- Study of the reversible binding of molecular oxygen
- Synthesis and characterization of magnetic nanoparticles and inorganic materials
- Applications of magnetic nanoparticles and inorganic materials
- FTIR analysis of inorganic compounds and materials, organic compounds, products biological, polymers, food, drugs, soils.

Synthesis and characterization of coordination compounds with different ligands (type Schiff bases as Salen and Salophen, ylides, calixarene etc.). Characterization of compounds by UV-Vis, FTIR, NMR, EPR, cyclic voltammetry, mass spectrometry, thermal analysis.

The study of coordination compounds ability to reversibly bind of dioxygen.

Determination of catalytic and antimicrobial activity of the coordination compounds.

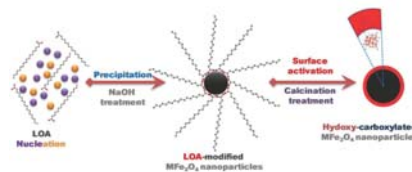
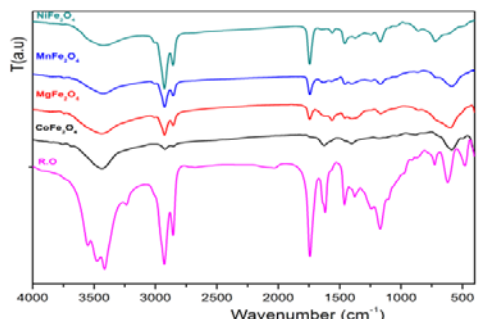
FTIR and thermal analysis of biological samples / medium (fungi, plants, soils), food, etc., and statistical processing of the results.

Synthesis and characterization of magnetic nanoparticles (MNPs), as MFe_2O_4 with spinel structure, using non toxic surfactants as vegetable oils.

Characterization of MNPs by FTIR spectroscopy, electron microscopy, SEM, TEM transmission microscopy, X-ray diffraction, thermal analysis etc.

Study of the magnetic properties, saturation magnetization (M_s), remanent magnetization (M_r) and coercive field (H_c), of the MNPs.

Applications of MNPs in wastewater discoloration, controlled release of drugs, gas sensor etc.



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**Inorganic and coordination chemistry
Inorganic structural analysis**

PhD Supervisor
(from 2009)

PhD studies
„Alexandru Ioan Cuza” from Iași University, 1999

Postdoc Scholarship
Paris XI (Sud), University, France, 2003-2004

Research Scholarship (PhD)
Paris XI (Sud), University, France, 1997-1998

Research Internships
Konstanz University, Germania, Paris XI (Sud) University, France.

Publications (selection)

Postolachi, R., Danac, R., Buurma, N.J., Pui, A., Balan, M., Shova, S., Deleanu, C., New cycloimmonium ylide ligands and their palladium(II) affinities, *RSC Advances*, 3 (38), pp. 17260-17270, **2013**.

Pui, A., Gherca, D., Cornei, N., Synthesis and characterization of MFe_2O_4 ($M=Mg, Mn, Ni$) nanoparticles, *Materials Research Bulletin*, 48(4), Pages 1357-1362, **2013**.

Danac, R., Rusu, R., Rotaru, Al., Pui, A., Shova, S., New conjugates of calix[4]arenes bearing dipyrindine and indolizine heterocycles, *Supramolecular Chemistry*, Volume 24, Issue 6, 424-435, **2012**.

Pui, A., Malutan, T., Tataru, L., Malutan, C., Humelnicu, D., Carja, G., New complexes of lanthanide Ln(III), ($Ln = La, Sm, Gd, Er$) with Schiff bases derived from 2-furaldehyde and phenylenediamines, *Polyhedron*, 30, 2127-2131, **2011**.

Pui, A., Policar, C., Mahy, J.-P., Electronic and steric effects in cobalt Schiff bases complexes. Synthesis, characterization and catalytic activity of some cobalt(II) tetra-halogen-dimethyl salen complexes, *Inorg. Chim. Acta*, 360, 2139-2144, **2007**.