

Paramagnetic polyoxometalates (POMs) as metalloligands for constructing heterotrispin complexes

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Financial support: UEFISCDI

Project team:

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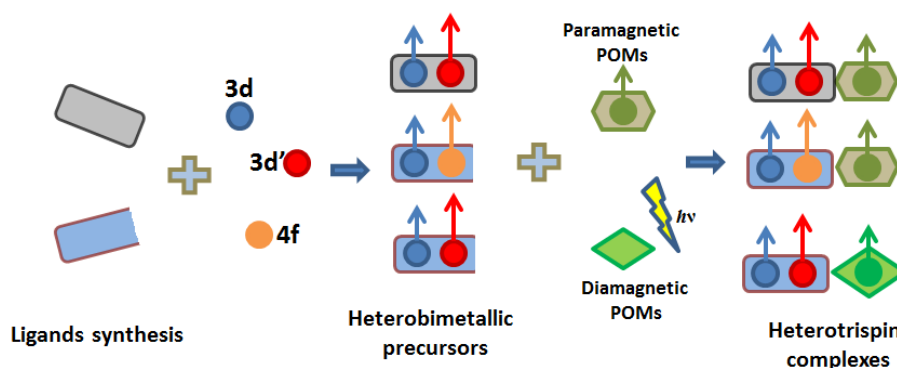
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Abstract:

The present project will concentrate on the development the synthesis and characterization of new molecular heterotrispin systems based on heterobimetallic 3d-3d' and 3d-4f precursors and paramagnetic polyoxometalates(POMs) as metalloligands by using the molecular approach strategy. This strategy focuses on POMs as ligands, and will be used for the first time in heterotrispin chemistry.

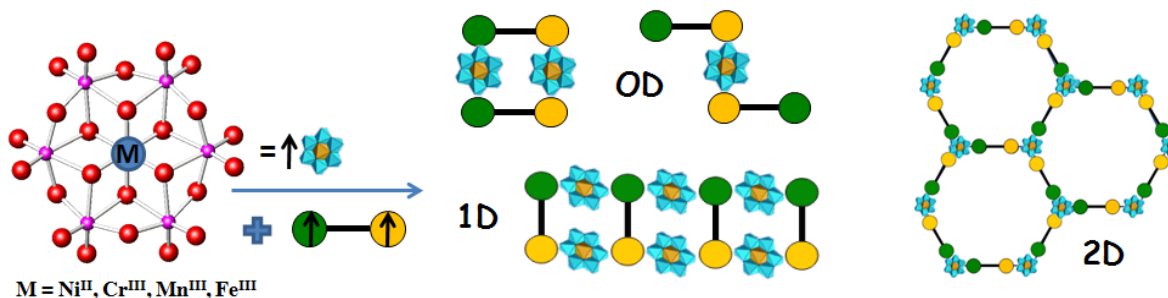
Two synthetic routes will be followed to achieve the envisaged heterotrispin networks:

- the self-assembly process involving heterobinuclear cationic complexes and paramagnetic polyoxometalates
 - as a follow up of the self-assembly route, the photo-generation of the trispin complexes by photoinduced intramolecular charge transfer in POMs based organic-inorganic hybrids.
- New organic ligands will be synthesized in order to design new heterodinuclear precursors with easily accessible positions that favor strong interaction and flexible coordination spheres.



Objectives:

- A. *Design, synthesis and characterization of new bicompartamental Schiff base ligands (macrocyclic or side-off type).*
- B. *Design, synthesis and characterization of new heterobimetallic 3d-3d' and 3d-4f complexes to be further used as nodes.*
- C. *Design, synthesis and characterization of new heterotrispin complexes containing paramagnetic POMs as metalloligands.*
- D. *Magneto-structural correlations in heterometallic complexes.*



Dissemination of results:

Conferences:

- Catalin Maxim, Cristian D. ENE, Marius Andruh, *Chiral coordination polymers containing tridentate Schiff bases ligands. Crystal structures, optical and magnetic properties*, **68th Conference of Japan Society of Coordination Chemistry** (JSCC), July 28-30, 2018, Sendai, Japan, (oral presentation)
- Cristian D. Ene, Catalin Maxim, Rodolphe Clérac, Narcis Avarvari, Marius Andruh, *Enantiopure versus racemic mixture in reversible, two-step, single-crystal-to-single-crystal transformations of copper(II) complexes, accompanied by drastic changes of the magnetic properties*, **43rd International Conference on Coordination Chemistry** (ICCC2018), July 30 -August 4, 2018 , Sendai, Japan, (oral presentation)