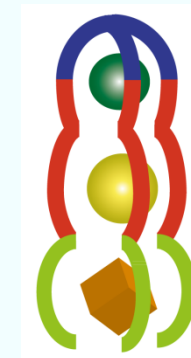


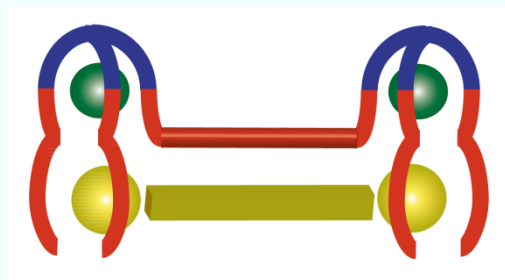
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# Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

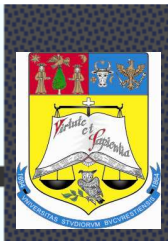


project PN-II-RU-TE-2011-3-0252

2011-2014



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UNITATEA EXECUTIVA  
PENTRU FINANTAREA  
INVATAMANTULUI  
SUPERIOR, A CERCETARII,  
DEZVOLTARII SI INOVARII  
INOVARE SI CREATIVITATE



## Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

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### Summary

This project is devoted to the design, synthesis and investigation of chemical and physical properties of complexes with tripodal ligands bearing functional groups (amino, carboxylato, -OH) or biological residues, such as amino-acids, oligopeptides, urea or guanidinium fragments. This kind of project is basically interdisciplinary implying techniques and principles from domains as: organic chemistry (synthesis of minutely designed organic molecules), coordination chemistry (the proper use of metallic ions for self-assembly with organic ligands in order to obtain the desired metalloarrays), molecular magnetism (investigation and rationalization of the magnetic properties), supramolecular chemistry and biochemistry (recognition or bio-recognition between complementary fragments).

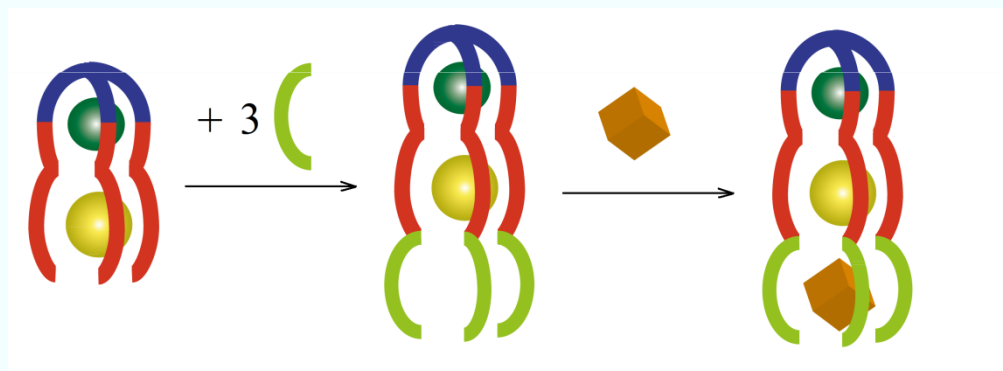


# Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

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## Objectives

- Design and synthesis of functionalized tripodal ligands derived from tris(2-aminoethyl)-amine and 2-formyl-6-hydroxymethyl-*p*-cresol with different functional groups (amino, carboxylato, -OH) or biological residues (amino-acids, urea or guanidinium).
- Synthesis and structural characterization (by X-ray diffraction on single crystals) of mono- and binuclear complexes (homo- and heterobinuclear complexes) of the functionalised tripodal ligands with 3d metal ions and/or lanthanides(III).



- Investigation of the luminescent and magnetic properties of the metallocomplexes.
- Investigation of the ability of the metallocomplexes with tripodal coordination sites in molecular recognition of different chemical species (anions, cations, small biological molecules).

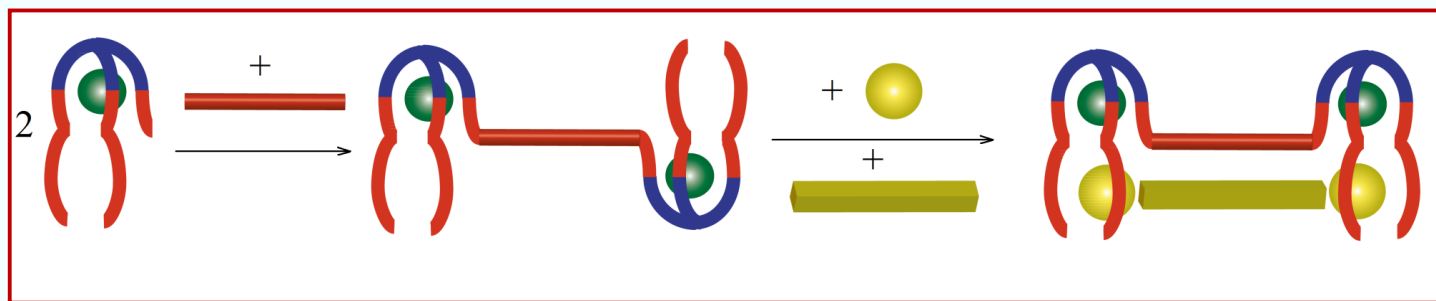


# Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

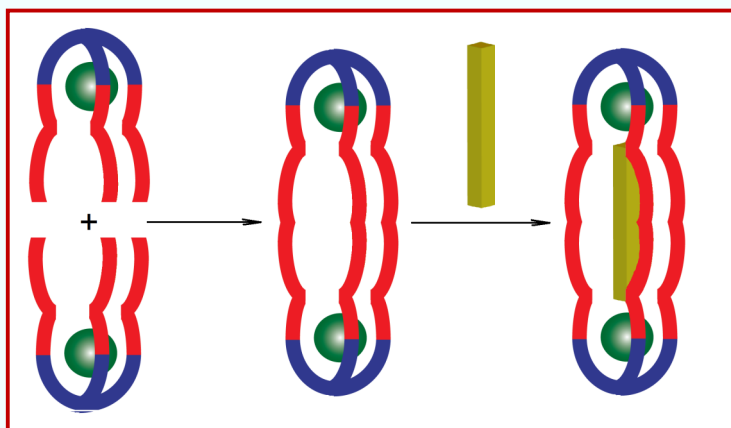
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## Objectives

- Synthesis and structural characterization of complexes containing two tripodal coordination sites.



- Investigation of the ability of the metal complexes with one or two functionalized tripodal coordination sites in molecular recognition of different chemical species (anions, cations, small biological molecules).



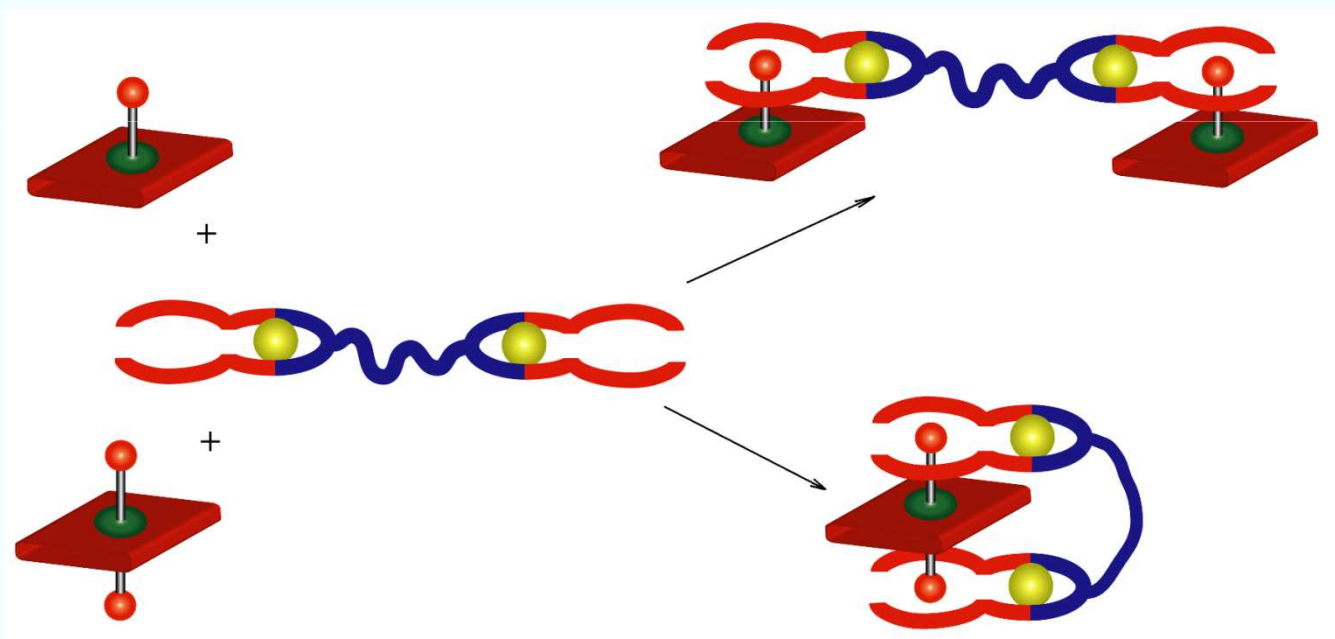


# Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

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## Objectives

- Synthesis and structural characterization of "molecular tweezers" based on bicompartmental ligands, for specific recognition by hydrogen bonding of complexes with octahedral stereochemistry and two water or two ammonia ligands coordinated in *trans* position.





# Metallo-complexes with functionalised tripodal ligands as molecular recognition devices

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## Team members

- Dr. Augustin Madalan - project leader;
- Dr. Gabriela Marinescu;
- Dr. Delia Popescu;
- Dr. Ruxandra Gheorghe
- MS student Elena Vulpe
- Drd. Alina Dinca
- Drd. Anca Paun
- Student Andrei Patrascu
- Tehn. Stefana Cazacu