

University of Reims, Institute of Molecular Chemistry is seeking to join a research proposal in the course of elaboration as partner on the following theme:

Call Identifier	<i>ex.:FP7-KBBE-2010</i>	
Topic Identifier	<i>KBBE- 2010.3.3-02 : Biotechnology for greening the chemical industry – industrial bioprocesses for the fine and speciality chemicals and intermediates</i>	
Funding scheme	Collaborative projet	
Role in the future project	<input checked="" type="checkbox"/> Participation	
Deadline of the call		
Key words (Max. 5)	Potentiometry, UV-Vis spectrophotometry, EPR, solution equilibria	
Organization activities / Context	<p>The depletion of fossil resources and the numerous pollution caused by use of chemicals associated with the cost of increasingly high energy are the factors behind the change announced in the chemical industry in the near future with the mission to be both more environmentally friendly and safer for users of chemicals. In order to reach these objectives, has emerged the concept of green chemistry and chemistry of sustainable development based on the use of renewable resources and cleaner processes. In this area, some metal complexes using new ligands derived from natural molecules have been synthesized for the development of new catalytic processes and metal extraction for remediation. These process working in aqueous media are environmentally benefit since they contribute to the removal of organic solvent and polluting chemical reagent.</p>	
Expertise offered	<p>Our main research topic concerns the interactions between inorganic compounds (metallic cations or oxoanions) with organic ligands. In this area our group gained an expertise in coordination chemistry in solution and in solid state. In solution, analytical methodologies such as potentiometric, spectrophotometric and fluorimetric titrations are used in order to determine the stability constants of the complexes formed. The environment of the metallic ions is studied using physico-chemical techniques (IR, UV-Vis, EPR or RMN, fluorescence and X-ray diffraction). The redox properties of these complexes are investigated by cyclic voltammetry.</p> <p>We are beginning to develop the synthesis of amphiphilic ligands from compounds originated from biomass and to use them as operational ligands for the complexation of metallic cations. As complexing molecules, these new compounds can be notably used for selective extraction of ions for cleaning up waste waters or to develop new catalyst for oxidation reactions in aqueous media following a process respectful of the environment</p>	
Participation in EU & international R&D projects, if any		
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