



Proposition de sujet de thèse

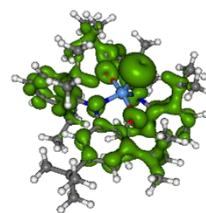
## Organometallic complexes of metals (Al, Zn) and redox-active ligands for Ring Opening Polymerization (ROP)

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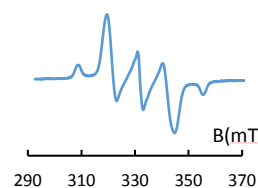
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The synthesis of biodegradable polymers such as polylactic acid (PLA) by ring opening polymerization (ROP) is undergoing considerable development for sustainable processes and materials. Catalysis by metal complexes based on abundant and inexpensive metals is an essential tool. The combined use of redox-active ligands can activate or deactivate the catalyst without changing the degree of oxidation of the metal, thus offering interesting possibilities for controlling polymerization.

Our teams are interested in the synthesis and study of oxophilic metal complexes (Al(III), Zn(II)) associated with redox-active o-iminosemiquinolate ligands. Electron Paramagnetic Resonance (EPR) will play an important role in the study and characterization of complexes associated with theoretical calculations (DFT). The switching role of the redox-active ligand will then be tested in ring opening polymerization catalysis.



DFT/ spin density



EPR Spectroscopy @ 120

### Candidate profile:

The applicant must have a Master of Science in Chemistry and good knowledge in Physical-Chemistry. Highly motivated, independent and dynamic, he/she should be able to work in a multidisciplinary team. Please send applications including (1) a detailed CV (2) an application and motivation letter, and (3) a recommendation letter of the Master's internship supervisor by e-mail at [sylvie.choua@unistra.fr](mailto:sylvie.choua@unistra.fr)

### Selected references:

1-L. J. Esdaile, L. Rintoul, M. See Goh, K. Merahi, N. Parizel, R. M. Wellard, S. Choua, D. P. Arnold. *Chem. Eur. J.* **2016**, 22, 3430.