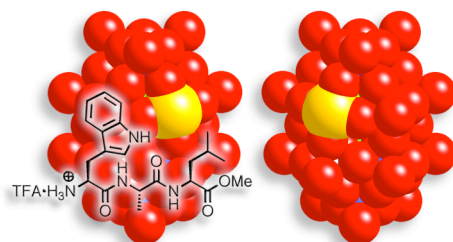


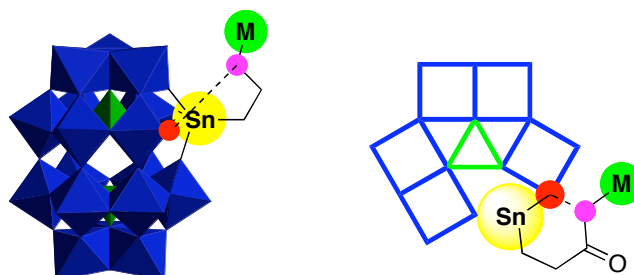
Catalyse asymétrique utilisant les polyoxométallates chiraux

Emmanuel Lacôte, Serge Thorimbert, Bernold Hasenknopf

We have recently achieved the resolution of a chiral functionalizable α_1 -substituted Dawson polyoxotungstate.¹ The present thesis will focus on the use of those hybrid polyoxoanions as sources of chiral information to be used in organic transformations.



Two avenues for research will be pursued. First, the polyoxometalate (POM) will be used as a *chiral inorganic ligand* to a metal inserted into the inorganic cluster, first and foremost (but not limited to) Lewis acid catalysts.²



The chiral anion effect has very recently received renewed attention in the context of organometallic chemistry. Nonetheless, it is sometimes difficult to get correct enantioselectivity. We propose to examine catalysts where the chiral anion (POMs in our case) is attached to the catalytic species. Because the ion pairing will be an intramolecular process, we believe the enantioselection will improve.

The thesis will be prepared within the Institut Parisien de Chimie Moléculaire (IPCM), in a group, which focuses on the conception of application-oriented novel hybrid architectures, among which organic hybrids of POMs play a prominent role. The Ph. D. candidate must have a synthetic molecular chemistry background and be interested in working at the organic/inorganic border.

¹ "Chiral Recognition of Hybrid Metal Oxide by Peptides" Micoine, K.; Hasenknopf, B.; Thorimbert, S.; Lacôte, E.; Malacria, M. *Angew. Chem. Int. Ed.* **2009**, accepted.

² "Lanthanide Complexes of Monovacant Dawson Polyoxotungstate [α_1 -P₂W₁₇O₆₁]¹⁰⁻, as Selective and Recoverable Catalysts for Lewis-Acid Promoted Organic Transformations" Boglio, C.; Lemièrre, G.; Hasenknopf, B.; Thorimbert, S.; Lacôte, E.; Malacria, M. *Angew. Chem. Int. Ed.* **2006**, *45*, 3324-3327.