

Research Project for Master Students

Field: Organometallic Chemistry/Homogeneous Catalysis

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Institution: Instituto de Tecnologia Química e Biológica – Homogeneous Catalysis Lab

Duration: 1 year

Research project: Sustainable catalysis based on N-heterocyclic carbene metal complexes

Sustainable catalysis based on N-heterocyclic carbene metal complexes

The development of sustainable, more efficient and selective organic synthesis is one of the fundamental research goals in chemistry. In this respect, catalysis is a key technology for both industrial and academic research. The reactivity and selectivity of the catalysts are widely influenced by the choice of the central metal and the surrounded ligands. N-heterocyclic carbenes (NHCs) are an important class of carbenes that have attracted a lot of attention due to their use as ligands in many catalytic reactions catalyzed by transition metals.

Our research group is engaged with a project dealing with the functionalization of NHCs, their coordination to transition metals and study of their catalytic applications. The present project aims at preparing new organometallic complexes containing NHC ligands, their fully characterization and catalytic applications [1-4].

References:

- [1] A. P. da Costa, J. A. Mata, B. Royo, E. Peris (2010) *Organometallics* DOI: 10.102/om100090c.
- [2] V. V. K. M. Kandepi, A. Pontes da Costa, E. Peris, B. Royo (2009) *Organometallics* 28, 4544.
- [3] A. P. da Costa, M. Sanaú, E. Peris, B. Royo (2009) *Dalton Trans.* 28, 4544.
- [4] A. P. da Costa, M. Viciano, M. Sanaú, S. Merino, J. Tejada, E. Peris, B. Royo (2008) *Organometallics* 50, 949.