Chirality Control in 2,2'-biphosphole Ligands leading to Enantiopure Complexes

Jean-Claude Daran, Emmanuel Robé, Carmen Ortega, Maryse Gouygou, *Laboratoire de Chimie de Coordination, Toulouse*. E-mail: daran@lcc-toulouse.fr

The use of stereochemically dynamic 2,2'-biphosphole (BIPHOS), after spontaneous resolution by crystallization and complexation on Pd center, proved to be as effective as well known chirally rigid diphosphines in asymmetric allylic substitution[1]. In oder to generalize the use of 2,2'-biphosphole type ligands in asymmetric catalysis, the control of chirality could be achieved in two steps : selective formation of diastereoisomers by using a chiral controller and enantiomer-selective coordination on a metal center. The partial chirality control of the 2,2'-biphosphole framework as only 3 diastereoisomers are obtained among the six expected. The relative configurations of these diastereo isomers as stereorigid disulfides derivatives have been confirmed by X-ray diffraction analysis.

By complexation on Pd[2] or Pt, a metal dynamic resolution occurs leading to enantio and diastereomerically pure 2,2'-biphosphole complexes as confirmed by X-ray diffractions studies. Applications of these complexes in asymmetric catalysis are currently underway.

[1] Tissot O., Gouygou M., Dallemer F., Daran J.-C., Balavoine G.G.A., *Angew. Chem. Int. Ed*., 2001, **40**, 1076-1078. [2] Ortega C., Gouygou M., Daran J-C., *Chem Comm.*, 2003, 1154-1155.

Keywords: chiraly flexible ligand, metal dynamic resolution, diphosphines