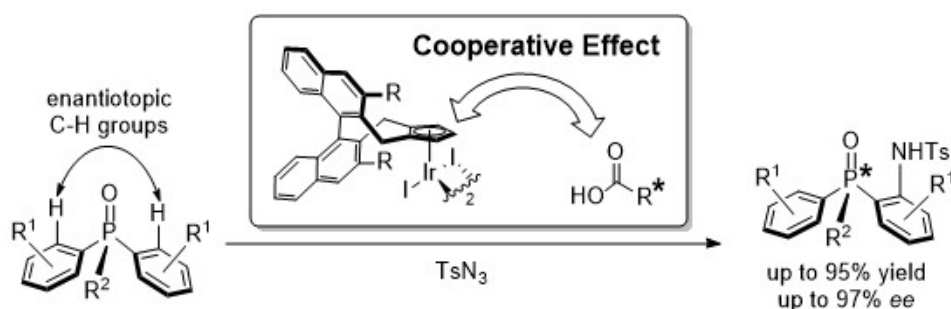


Chiral Cp^XIr(III) Catalyzed C-H Amidation Leading to P-Chiral Arylphosphine OxidesY. Jang¹, M. C. Dieckmann¹, N. Cramer^{1*}¹Laboratory of Asymmetric Catalysis and Synthesis, EPF Lausanne

Organophosphorus compounds with *P*-stereogenic centers are valuable motifs in pharmaceuticals, agrochemicals, organocatalysts and ligands.^[1] Only a limited number of catalytic enantioselective approaches have been developed to access molecules with a *P*-stereogenic center.^[2]

Chang *et al.* reported an Ir(III) catalyzed amidation of arylphosphine oxides that proceeds in modest enantioselectivities.^[3] We report that our recently developed chiral Cp^XIr(III) complex,^[4] in combination with a chiral carboxylic acid, provides a highly selective C-H amidation process. A very strong cooperative effect between the chiral Cp^XIr(III) complex and the carboxylic acid was discovered. This proved to be pivotal for high enantioselectivities and yields.



[1] P. C. J. Kamer, P. W. N. M. van Leeuwen, *Phosphorus(III) Ligands in Homogeneous Catalysis: Design and Synthesis*, John Wiley & Sons, Chichester, 2012.

[2] Y. Huang, Y. Li, P. H. Leung, T. Hayashi, *J. Am. Chem. Soc.* **2014**, *136*, 4865–4868.

[3] D. Gwon, S. Park, S. Chang, *Tetrahedron* **2015**, *71*, 4504–4511.

[4] M. Dieckmann, Y. Jang, N. Cramer, *Angew. Chem. Int. Ed.* **2015**, *54*, 12149–12152.