

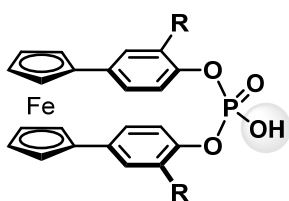
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DEVELOPMENT OF NEW PHOSPHORUS PARACYCLOPHANES WITH PLANAR CHIRALITY: APPLICATIONS IN ASYMMETRIC CATALYSIS

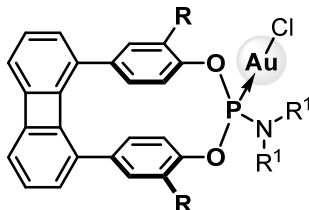
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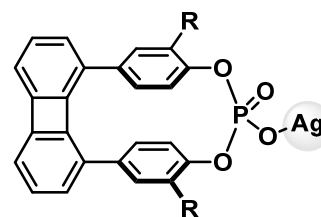
Paracyclophanes are attractive backbones with unique structures and many potential applications.[1] We have designed new series of [3.3]- and [3.4]-paracyclophanes, in which one of the chains tethering the aromatic rings is a three atom O-P-O sequence and the second chain a 1,1'-ferrocenediyl or a 1,8-biphenylenediyl moiety. Planar chirality is generated by the presence of *pseudo-meta* substituents R on the paracyclophane moiety, close to the catalytic center. Phosphoric acids of this series have been used as chiral organocatalysts[2] and phosphoramidites have been successfully used as ligands in gold catalysis.[3]



Phosphoric acids



Phosphoramidite gold complexes



Silver phosphates

References:

- [1] V. Rozenber, E. Sergeeva, H. Hopf, in *Modern Cyclophane Chemistry*. R. Gleiter, H. Hopf, Wiley-VCH, New York, **2004**, pp. 435-462.
- [2] J. Stemper, K. Isaac, V. Duret, P. Retailleau, A. Voituriez, J.-F. Betzer, A. Marinetti, *Chem. Commun.* **2013**, 49, 6084-6086. J. Stemper, K. Isaac, N. Ghosh, H. Lauwick, G. Le Duc, P. Retailleau, A. Voituriez, J.-F. Betzer, A. Marinetti, *Adv. Synth. Catal.* **2017**, 359, 519-526.
- [3] Z. Wu, K. Isaac, P. Retailleau, J.-F. Betzer, A. Voituriez, A. Marinetti, *Chem. Eur. J.* **2016**, 22, 3278-3281.