Phosphorus Derivatives of Helicenes.

Beránek, Tomáš
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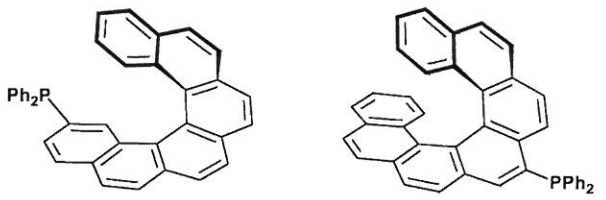
Student: Ing. Tomáš Beránek
Supervisor: Ing. Jan Sýkora, Ph. D.
Supervising Expert: RNDr. Jaroslav Žádný, Ph. D.

Helicenes possess a helical conjugated polyaromatic system consisting of *ortho*-fused benzene rings as a fundamental property of this fascinating compounds. Due to this, they also exhibit interesting physicochemical properties including P-type conductivity and enormous optical activity. Helicene chemistry is being considered as an expanding and modern field of research, leading to various applications[1] in supramolecular chemistry, nanoscience, chemical-biology, polymers, or materials science. Surprisingly, coordination chemistry of helically chiral phosphines and their use as chirality inductors is still strongly under-developed. Although several pilot experiments have already been carried out in this area, a larger study of the preparation of metal complexes bearing helical ligands is still missing.[2] In this work, synthetic pathways providing suitable phosphorous derivatives of helicenes and their transition metal complexes in both the racemic and the chiral forms were investigated in asymmetric Suzuki reaction.



References

1. Gingras, M. *Chem. Soc. Rev.* **2013**, *42*, 1051–1095.
2. Aillard, P.; Voituriez, A.; Marinetti, A. *J. Chem. Soc., Dalton Trans.* **2014**, *41*, 15263–15278.