

[7]Helicene-based Pd₃L₆ coordination cage

A. Nguyen*, A. Lützen

University of Bonn, Kekulé Institute of Organic Chemistry and Biochemistry,
Gerhard Domagk Str. 1, 53121 Bonn, Germany

*E-mail: anguyen@uni-bonn.de

The class of helicenes has constantly attracted interest in the chemical community due to their fascinating structure. Initially only a chemical curiosity, the focus has been shifted towards physico-chemical properties and applications. Among others, the rigid structure paired with their helical chirality has been exploited in stereoselective synthesis, supramolecular aggregates and optoelectronics.^[1]

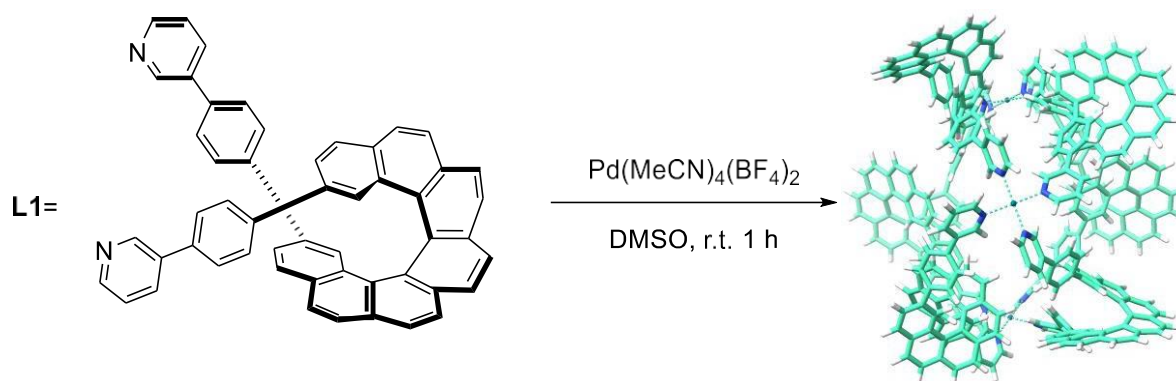


Figure 1: Pd₃L₆ formation from [7]helicene-based bispyridyl ligand L1 and Pd(II) ions.

Herein, we report a helicene-based Pd₃L₆ coordination cage. A racemic mixture of the bis-pyridyl ligand with a [7]helicene backbone assembles with square planar Pd(II) cations to a complex mixture of different Pd₃L₆ cages. Generally, a complex consisting of three Pd(II) centers and six bis-monodentate ligands can adopt up to seven different topologies, four of them being chiral.^[2] Upon resolving the enantiomers of L1 by HPLC, the enantiopure ligands were observed to not only assemble into the cage with the highest symmetry, but likely into all seven possible cages.

References:

- [1] N. Saleh, C. Shen, J. Crassous, Chem. Sci. 2014, 5, 3680-3694.
- [2] D. M. Engelhard, S. Freye, K. Grohe, M. John, G. Clever, Angew. Chem. Int. Ed. 2012, 51, 4747-4750.