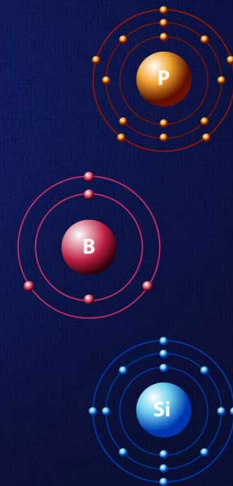


PBSi 2017

International Conference On
Phosphorus, Boron and Silicon

July 3-5, 2017 | Paris



Carborane Meets Phosphorus

PROF. EVAMARIE HEY-HAWKINS
Leipzig University, Germany

Carboranyl derivatives which contain phosphorus-based substituents (phosphines, phosphites, phosphonates, etc.) can be employed as (chiral) ligands in catalysis [1] or in medical areas [2]. Furthermore, the carboranyl backbone also allows the targeted synthesis of four- and five-membered phosphorus-containing heterocycles having endocyclic P–P bonds which are difficult to obtain via other routes [3]. In this presentation, 1,2-bisphosphanyl-substituted ortho-carboranes, the precursors for 1,2-diphosphetanes and 1,2,3-triphospholanes, and other carboranyl-substituted heterocycles will be discussed [4]. Especially, 1,2-P-alkynyl-substituted ortho-carborane derivatives are highly attractive target molecules due to the additional functionality of the C≡C triple bond. Furthermore, the synthesis of related carboranyl-based heterocycles and following reactions (redox reactions, ring-opening reactions [5] etc.) will also be presented.

[1] S. Bauer, E. Hey-Hawkins, Phosphorus-Substituted Carboranes in Catalysis, in: Boron Science, New Technologies and Applications, ed. N. S. Hosmane, CRC Press: Boca Raton, FL, USA, 2011, ch. 22, 513-559.

[2] S. Stadlbauer, E. Hey-Hawkins, Bioconjugates of Carboranyl Phosphonates, ch. 2, in: Boron Science, New Technologies and Applications, ed. N. S. Hosmane, CRC Press: Boca Raton, FL, USA, 2011, 21-40.

[3] L. Weber, M. Frebel, R. Boese, Chem. Ber. 1990, 123, 733.

[4] A. Kreienbrink, M. B. Sárosi, E. G. Rys, E. Hey-Hawkins, Angew. Chem. Int. Ed. 2011, 50, 4701.

[5] A. Kreienbrink, P. Lönnecke, M. Findeisen, E. Hey-Hawkins, Chem. Commun. 2012, 48, 9385.