Directed Synthesis and Chemistry of Unsymmetric Dicationic Diboranes and Their Use in Frustrated Lewis Pair-like Chemistry

Lucas Kistner, Dario Kowatsch, Andreas Marz, Elisabeth Kaifer, Hans-Jörg Himmel

1 Ruprecht-Karls-Universität Heidelberg, Anorganisch-Chemisches Institut, Im Neuenheimer Feld 270, 69120 Heidelberg, Germany

E-mail: l.kistner@stud.uni-heidelberg.de

Frustrated Lewis Pairs (FLPs) have been intensively investigated in the past years due to their intriguing ability to activate small molecules.[1] So far, no FLPs based on dicationic diboranes with two B\(\text{II}\) atoms that are engaged in direct B–B bonding have been realized. Here, we report the first glimpse on the FLP-like chemistry with unsymmetrically substituted dicationic diboranes. Reaction of the electron-rich ditriflato-diborane B\(_2\)(hpp)\(_2\)(OTf)\(_2\) with phosphino-pyridines leads to triflate elimination and formation of dicationic diboranes with new B–N and B–P bonds. Steric constraints lead to a delayed B–P bond formation in the case of 2-PyCH\(_2\)P\(_{\text{Bu}_2}\), allowing intervention in the process (see Figure 1). A test reaction with an aldehyde demonstrates the applicability of this intermediate in FLP-like chemistry.

![Figure 1](image.png)

**Figure 1.** New FLP-like chemistry with a dicationic diboron intermediate.[2]

References:
