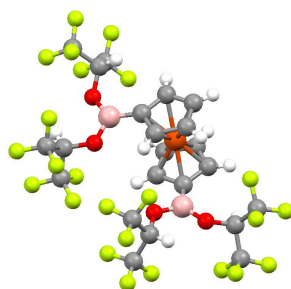


## Boronbased Bifunctional Lewis Acids

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Even though the potential utility of bidentate Lewis acids in chemical synthesis have been recognized early on, progress in this area has lagged far behind the extensive chemistry associated with chelating Lewis bases. This development partly results from the difficulties in preparing molecules with multiple Lewis acids sites so far. More recently, impressive advances have been made in the synthesis and the use of boron based bifunctional Lewis acids.<sup>[1],[2]</sup> We aim to develop a Lewis acid that can be used as catalyst for the inverse electron demand Diels-Alder reaction of 1,2-diazene. We have already succeeded in synthesizing the ferrocene based 1,1'-bis(dihexafluoroisopropoxyboryl)ferrocene (Fig. 1), which could be oxidized to a ferrocenium compound to increase the Lewis acidity.



**Fig. 1:** X-ray crystal structure of 1,1'-bis(dihexafluoroisopropoxyboryl)ferrocene.

We have further characterized crystals of the compound Tris(2H-hexafluoroisopropoxy)borane B(OHFIP)<sub>3</sub>. By using acetonitrile as solvent we obtained an adduct which has an exceptionally long BN-distance. All experiments were attended by DFT calculations.

[1] W. E. Piers, G. J. Irvine, V. C. Williams, *Eur. J. Inorg. Chem.* **2000**, 2131.

[2] H. Li, T. J. Marks, *Proc. Natl. Acad. Sci.* **2006**, 103, 15295.