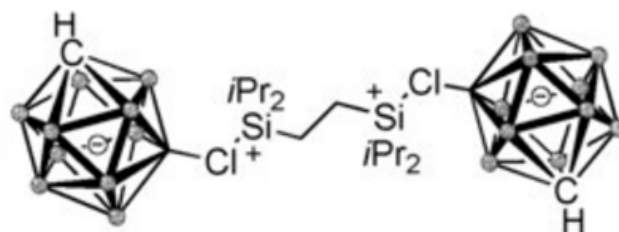


Synthesis of a Counteranion-Stabilized Bis(silylium) Ion

Start Time: Friday, April 17, 2020

End Time:



Dr. Qian Wu, Avijit Roy, Dr. Guoqiang Wang, Dr. Elisabeth Irran, Dr. Hendrik F. T. Klare, Prof. Dr. Martin Oestreich

A single silylium ion is already hard to handle but what happens if two of such superelectrophiles prevail in a single molecule in close proximity? Depending on the distance between these Lewis acidic sites, such a previously elusive bidentate Lewis acid can be synthesized, characterized, and even stored at room temperature.

The preparation of a molecule with two alkyltethered silylium-ion sites from the corresponding bis(hydrosilanes) by two-fold hydride abstraction is reported. The length of the conformationally flexible alkyl bridge is crucial as otherwise the hydride abstraction stops at the stage of a cyclic bisilylated hydronium ion. With an ethylene tether, the open form of the hydronium-ion intermediate is energetically accessible and engages in another hydride abstraction. The resulting bis(silylium) ion has been NMR spectroscopically and structurally characterized. Related systems based on rigid naphthalen-*n,m*-diyl platforms can only be converted into the dicationic species when the positively charged silylium-ion units are remote from each other (1,8 versus 1,5 and 2,6).

