Bulky Carbazolyl Ligands in Complexes of Group 14 and Group 2 Elements

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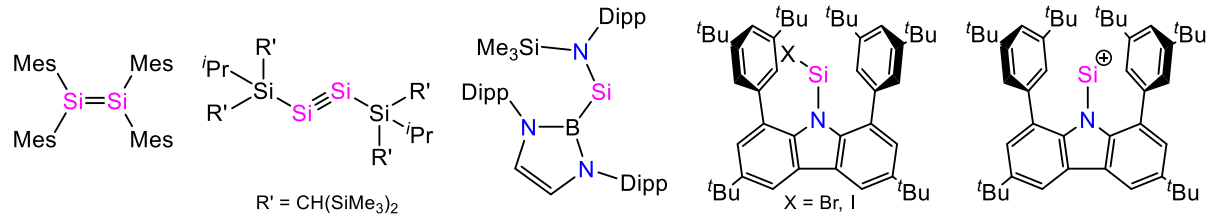
Kinetic stabilisation by bulky substituents enabled the synthesis of molecules with unusual structural motifs and low coordination numbers. These discoveries range from heavy alkene analogues (**A**) to alkyne analogues (**B**) and acyclic silylenes (**C**).[1–3] In many instances new types of reactivity could be discovered, allowing the stoichiometric transformation of small molecules.[4]



A **B** **C** **D** **E**

To contribute to this field of chemistry, our group developed a carbazole-based bulky substituent with properties that were designed to combine desirable features of established terphenyl and aryl(silyl)amido substituents. This approach allowed the preparation of the first dicoordinated halosilylenes **D**, which were subjected to halide abstraction reactions to afford the mono-coordinated Si(II) cation **E**.[5]

In this contribution recent developments of carbazolyl complexes of group 2 and group 14 elements will be discussed.

References:

[1] R. West, M. J. Fink, J. Michl, *Science* **1981**, *214*, 1343–1344. [2] A. Sekiguchi, R. Kinjo, M. Ichinohe, *Science* **2004**, *305*, 1755–1757. [3] A. V. Protchenko, K. H. Birjkumar, D. Dange, A. D. Schwarz, D. Vidovic, C. Jones, N. Kaltsoyannis, P. Mountford, S. Aldridge, *J. Am. Chem. Soc.* **2012**, *134*, 6500–6503. [4] P. P. Power, *Nature* **2010**, *463*, 171–177.[5] A. Hinz, *Angew. Chem. Int. Ed.* **2020**, *59*, 19065–19069.