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From Si_2Cl_6 to silafullerane nanocages: quantum dots and precursors for group-IV semiconductors

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Hexachlorodisilane (Si_2Cl_6), still mainly known as a side product of the silicon industry, readily undergoes Si–Si-bond heterolysis in the presence of chloride ions. The resulting trichlorosilanide anion, $[\text{SiCl}_3]^-$, is a versatile nucleophile that can be employed for the synthesis of novel organosilanes, oligosilanes, and mixed Si,Ge-compounds. This presentation will highlight the use of $[\text{SiCl}_3]^-$ for the assembly of precursors for semiconductor deposition, of Si,Ge-heteroadamantanes, and of silafulleranes, such as the chloride-containing siladodecahedrane $[\text{Cl}@\text{Si}_{20}\text{H}_{20}]^-$.