

Properties of $[\text{Si}_9]^{4-}$, $[\text{Ge}_9]^{4-}$ and Specifically Functionalized Derivatives as well as Reactions of those Including $[(\text{Me}_5\text{C}_5)\text{Si}]^+$

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Homoatomic Zintl ions of Si and Ge have been proven to be an excellent source for main-group element rich molecules comprising Si and Ge atoms with low oxidation states. Beside transition-metal complexes (examples are shown in Figure 1a),^[1] for Ge clusters also silyl-derivatives including reactive ethenyl ligands known.^[2] More recently we succeeded with the synthesis of phosphine derivatized clusters such as $[(\text{R}_2\text{P})_3\text{Ge}_9]^-$ (Figure 1b).^[3] In this contribution, we will present our results on reactions of functionalized clusters resulting in the addition of the fragment $[\text{CuNHC}^{\text{Dipp}}]^+$, $[\text{Zn}(\text{C}_5\text{H}_5)]^+$ and most intriguingly $[\text{Si}(\text{C}_5\text{Me}_3)]^+$ (NHC = N-heterocyclic Carbenes, Dipp = diisopropylphenyl, Me = CH_3).^[4]

In addition, ²⁹Si-NMR experiments on $[\text{Si}_9]^{x-}$ anions are presented.

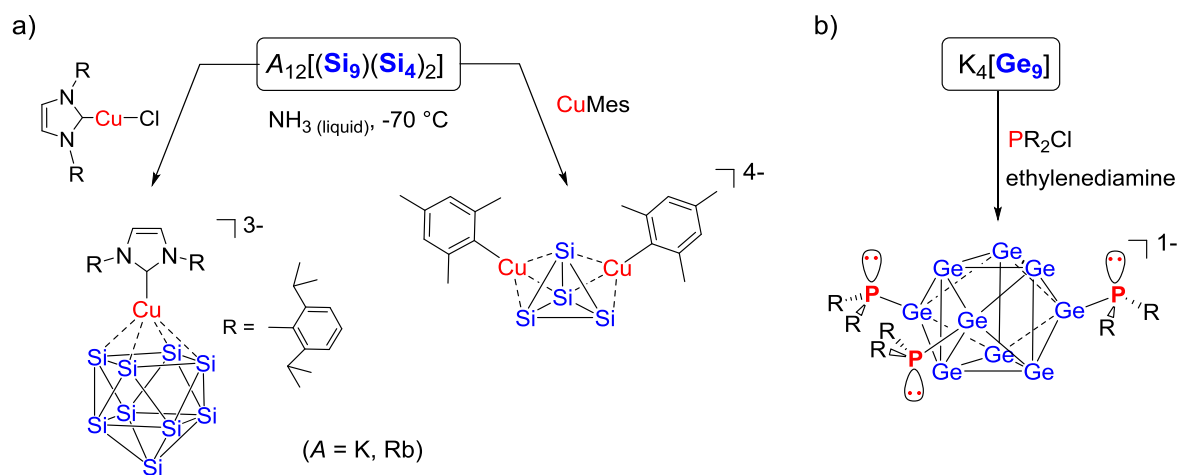


Figure 1. Reactions including $[\text{Si}_9]^{4-}$, $[\text{Si}_4]^{4-}$, and $[\text{Ge}_9]^{4-}$ Zintl ions.

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