



Grafting and Incorporation of Transition metals to Unsaturated Silicon Clusters (Siliconoids)

N. Poitiers,^[a] L. Giarrana^[a] and D. Scheschkewitz^[a]

^[a] Saarland University, 66123 Saarbrücken, Germany, E-Mail: scheschkewitz@mx.uni-saarland.de

Unsaturated silicon clusters (siliconoids) are intermediates of the gas phase deposition of silicon, plausible constituents of amorphous silicon, and suitable model systems for bare surfaces of crystalline silicon.^[1] In combination with transition metals, silicon is central to an increasing number of heterogenous catalytic processes.^[2] Based on the ensuing hypothesis that silicon-rich ligands may also be advantageous in a homogenous setting, we became interested in the interaction of the by now well-established stable siliconoids with transitions metal centers. As direct grafting through salt metathesis only worked in case of Group 4 metallocene chlorides, we resorted to the attachment of pending auxiliary ligand moieties, namely tetrylenes of the Roesky-type.^[3]

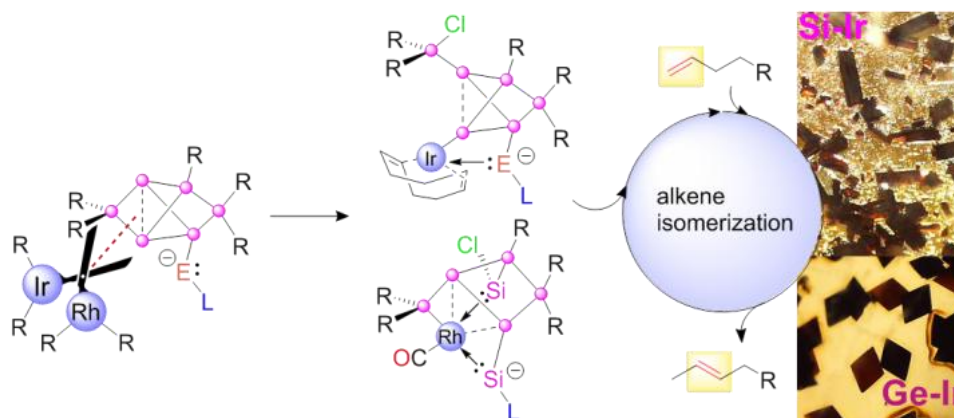


Figure 1. Emblematic illustration of the coordination of iridium and rhodium to silylene-substituted siliconoids. [4]

Depending on the nature of the introduced transition metal center either exohedral coordination or partial incorporation into the cluster scaffold produced unique silicon-rich coordination environments.^[4] Some of the resulting complexes show promising catalytic activity in alkene isomerization (Figure 1).

References

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