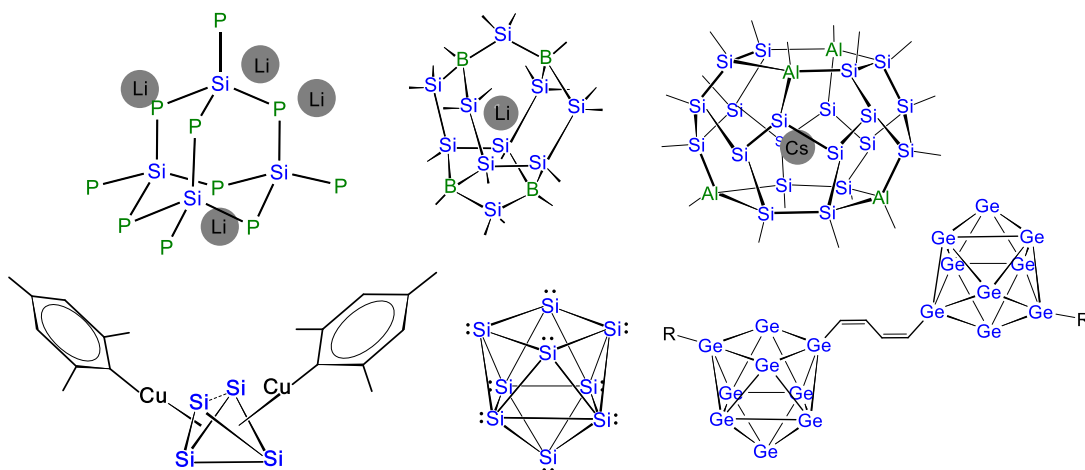


ALKALI METAL SILICIDES FOR SILICON BASED MATERIALS AND AS PRECURSORS FOR SILICON-RICH MOLECULES

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Even though solid state routes to silicon-based materials and synthetic protocols for Si-rich molecular compounds are well established, a crossing frontiers approach namely to use solid state materials as precursors for Si-rich molecules is rather unexplored. Alkali metal silicides and germanides show a rich plethora of compounds reaching from Li-rich tetrelides used as anode materials through materials with open tetrahedral frameworks to compounds that contain discrete Si- or Ge-atom clusters. The latter are especially suitable to develop a molecular chemistry. We report here on the devolvement in this field with focus on compounds with Si-B-, Si-Al, and Si-P frameworks (1) as well as on compounds with discrete Si and Ge atom clusters such as the recently found soluble Si_4^{4-} and Si_9^{4-} (2) as well as related $\text{Si}_{4-x}\text{Ge}_x^{4-}$ and $\text{Si}_{9-x}\text{Ge}_x^{4-}$ clusters. (3) We further discuss on the intriguing chemical properties and the usage for the formation of microporous $\text{Ge}_{1-x}\text{Si}_x$ thin films.



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