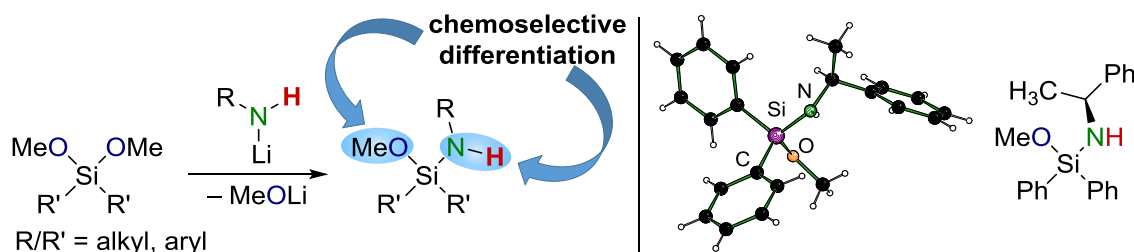


Stepwise Substitution of Alkoxysilanes to Form Unsymmetrical Multifunctional Aminoalkoxysilanes

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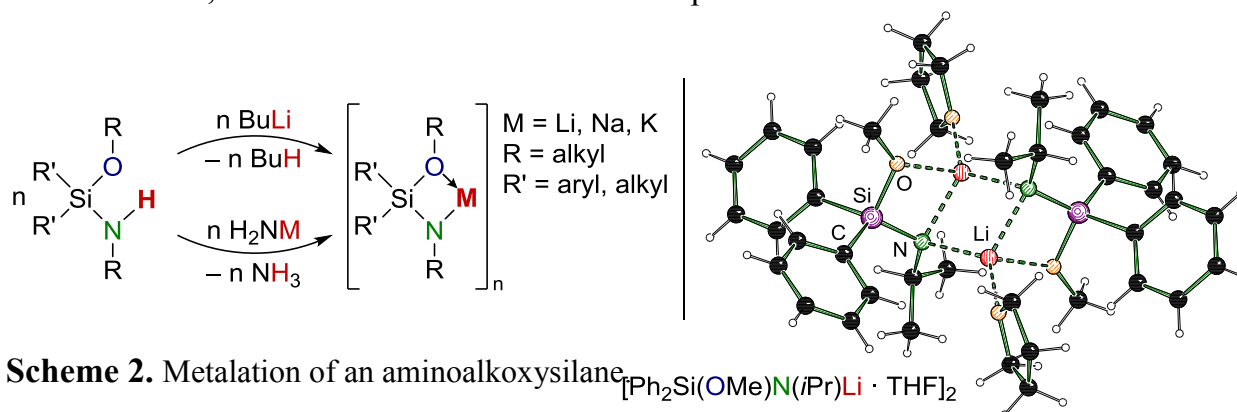
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The Si–O bond is one of the most common chemical bond, which is consistent with the high affinity of oxygen for silicon. Also this is the reason for the generally known high sensitivity of Si–N bonds towards alcohols and water. In the past we developed a one-step conversion of methoxysilanes to aminosilanes. Here we present further synthetical potential of the substitution of silicon bonded alkoxygroups by lithium amides. Whereas this reaction is used very successfully with secondary amides,^[1,2] a corresponding novel reaction with primary amides is hitherto unknown.



Scheme 1. Stepwise substitution of an alkoxysilane with a primary lithium amide.

The use of primary amides leads to aminoalkoxysilanes with an acidic hydrogen atom, which allows further functionalisations and enables a variety of other applications.^[3] For example the functionalisation by metalation leads to interesting and previously inaccessible N,O-functionalised silanes for CVD processes.^[3,4]



Scheme 2. Metalation of an aminoalkoxysilane $[\text{Ph}_2\text{Si(OMe)N(iPr)Li} \cdot \text{THF}]_2$

[1] J. O. Bauer, C. Strohmann, *Chem. Commun.* **2012**, 48, 7212–7214.

[2] J. O. Bauer, C. Strohmann, *Angew. Chem. - Int. Ed.* **2014**, 53, 720–724.

[3] M. Veith, J. Böhnlein, *Chem. Ber.* **1989**, 122, 603–607.

[4] M. Veith, P. Spaniol, *Z. Anorg. Allg. Chem.* **1998**, 624, 1891–1895.