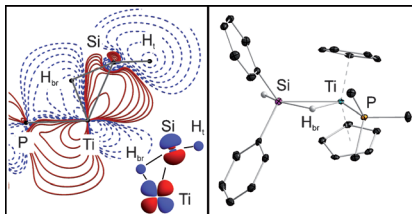


### Nonclassical Silane Complexes

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J. E. Barquera-Lozada, C. Hauf,  
A. Obenhuber, A. Brück,  
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D. Leusser, D. Stalke — 6092 – 6096



A Unifying Bonding Concept for Metal  
Hydrosilane Complexes



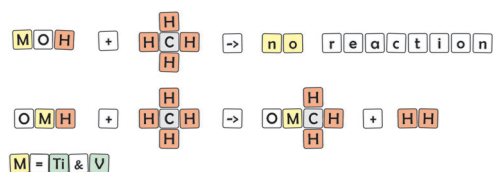
Experimental and theoretical charge density studies and molecular orbital analyses suggest that the complexes  $[\text{Cp}_2\text{Ti}(\text{PMe}_3)\text{SiH}_2\text{Ph}_2]$  (**1**) and  $[\text{Cp}_2\text{Ti}(\text{PMe}_3)\text{SiHCl}_3]$  (**2**) display virtually the same electronic structures. No evidence for a significant interligand hypervalent interaction could be identified for **2**. A bonding concept for transition-metal hydrosilane complexes aims to identify the true key parameters for a selective activation of the individual M–Si and Si–H bonds.

### Methane Activation

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Isomer-Selective Thermal Activation of  
Methane in the Gas Phase by  $[\text{HMO}]^+$  and  
 $[\text{M}(\text{OH})]^+$  (M = Ti and V)



**Methane scrabble:** To have the right elements is sometimes just not sufficient, as shown by  $[\text{M}(\text{OH})]^+$  (M = Ti, V), which do not react with methane. However, reshuffling of the “tiles” to  $[\text{HMO}]^+$

changes the reactions behavior completely, leading to the first example of C–H bond activation of methane by an early first-row transition-metal cation.

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## 50 Years Ago ...

*Angewandte Chemie International Edition* was first published in 1962, the mother journal first in 1888. In this monthly flashback, we feature some of the articles that appeared 50 years ago. This look back can open our eyes, stimulate discussion, or even raise a smile.

Promethium was first produced at Oak Ridge National Laboratory in 1945, but it was only in 1963 that metallic promethium was isolated. F. Weigel reported in a Communication how a sample of processed promethium (which contained other lanthanoid isotopes) from Oak Ridge was purified by ion-exchange chromatography and used to prepare promethium trifluoride, which was then heated under high vacuum to produce metallic promethium.

Hubert Schmidbaur and Hermann Hussek outlined the synthesis of lithium trimethylstannolate ( $\text{LiOSn}(\text{CH}_3)_3$ ) in a Communication. The target compound was prepared by reaction of hexamethyldistannoxane with methyllithium, and could be used to prepare alkyl(di)stannosiloxanes. Schmidbaur was previously Chairman of the Editorial Board of *Angewandte Chemie* and his Essay on coordination chemistry at carbon was published in our recent Jubilee Issue

celebrating 125 years of *Angewandte Chemie* (*Angew. Chem. Int. Ed.* **2013**, 176–186).

The Mössbauer Effect was discovered in 1958, and its origins and applications were discussed in a Review by E. Fluck et al. Compounds that had been investigated by using Mössbauer spectroscopy included potassium ferrates, iron carbonyls, and Prussian Blue.

[Read more in Issue 6/1963](#)