

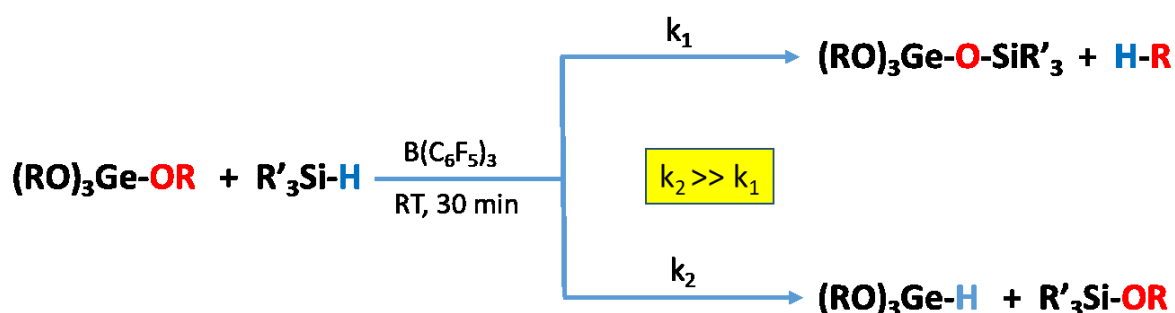
## Unexpected Reaction of Silyl Hydrides with Germanium(IV) Alkoxides in the Presence of $B(C_6F_5)_3$

Sławomir Rubinsztajn\*<sup>1</sup>, Julian Chojnowski<sup>1</sup>, Marek Cypryk<sup>1</sup>, Witold Fortuniak<sup>1</sup>, Urszula Mizerska<sup>1</sup>, Piotr Pospiech<sup>2</sup>, Malgorzata Basko<sup>1</sup>

<sup>1</sup> Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Sienkiewicza 112, 90-363 Lodz, Poland, E-mail: srubin@cbmm.lodz.pl

<sup>2</sup> Lodz University of Technology, Zeromskiego 116, 90-924 Lodz, Poland

One of the important reactions of silyl hydrides is their dehydrocarbon condensation with alkoxy silanes promoted by tris(pentafluorophenyl)borane.<sup>1</sup> This process, known as Piers-Rubinsztajn reaction,<sup>2</sup> leads to the formation of Si-O-Si bond and release of benign hydrocarbon as a byproduct. Since germanium is the element directly neighboring with silicon within the same 14<sup>th</sup> group of the Periodical Table a similarity could be expected between chemistries of both elements. However, our attempt to prepare Ge-O-Si bond via dehydrocarbon condensation produced an unexpected outcome. The reaction of  $Ge(OBu)_4$  with  $PhMe_2SiH$  in the presence of catalytic amount of  $B(C_6F_5)_3$  proceeded smoothly at room temperature to the complete consumption of reactants. The expected product  $Ge(OSiPhMe_2)_4$  was not detected, instead  $GeH_4$  and  $PhMe_2SiOBu$  were formed in high yields. The selective exchange of functional groups between Ge-OR and Si-H was demonstrated for the first time. The discovered reaction proceeds in mild conditions and could be used to generate  $GeH_4$  *in situ* from easily available and safe substrates.



[1] S. Rubinsztajn, J. Cella, *Macromolecules* **2005**, *38*, 1061-1063

[2] M.A. Brook, J.B. Grande, F. Ganachaud, *Adv. Polym. Sci.* **2010**, *235* (Silicon Polymers), 161-183