Stannyloligosilanes, Preparation, Crystal Structure

Stannyloligosilanes 1 and 2 with terminal organotin groups are available by reacting alkali metal tri- or diorganostannides with $\alpha,\omega$-dichloro- or difluorosilanes, or by treatment of organochlorostannanes with $\alpha,\omega$-difluorosilanes in the presence of magnesium. Attempts to functionalize the triorganotin derivatives 2 by halogenation reagents did not result in the halogen compounds 5; instead cleavage of silicon-tin bonds is observed. In contrast, reactions of the hydridotin derivatives 1 with CHX$_3$ (X = Cl, Br) lead to the quantitative formation of the bis(chloro- or bromostannylo)ligasilanes 5. All compounds were characterized by NMR, IR, MS and elemental analysis. In addition, the triorganotin compound 2i and the hydridotin species 1b have been characterized by X-ray crystallography.