

Silicon Plus

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This talk tells the story of how our work on tamed silicon cations [1-3] led us to introduce the new concept of transfer hydrosilylation [4,5], even with monosilane [6]! The electron-deficient boron Lewis acid tris(pentafluorophenyl)borane catalyzes the release of hydrosilanes from cyclohexa-2,5-dien-1-yl-substituted silanes. The same boron catalyst will then activate the Si-H bond for the reaction with representative pi- and sigma-donating substrates. The net transformation is a transfer hydrosilylation. The same approach is also applicable to cyclohexa-1,4-dienes, thereby enabling the Lewis acid-catalyzed transfer hydrogenation of the aforementioned unsaturated substrates [7].

The catalytic generation of silicon cations by cooperative Si-H bond activation will also be presented, including a detailed mechanistic analysis of the heterolytic Si-H bond cleavage [8]. The new catalytic entry into these main-group electrophiles is of broad synthetic utility as highlighted by electrophilic C-H bond silylation [9] as well as partial heterocycle reduction [10].

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Academic Career

2011 – today	Professor (Synthesis & Catalysis), Technische Universität Berlin, Berlin / Germany
2010	Visiting Fellow at the Australian National University, Canberra / Australia (w/ Prof. Dr. Michael S. Sherburn)
2006 – 2011	Professor (Organic Chemistry), Westfälische Wilhelms-Universität Münster, Münster / Germany
2005 – 2006	Visiting Professor at Cardiff University, Cardiff / Wales (w/ Prof. Dr. Thomas Wirth)
2001 – 2005	Habilitation, Albert-Ludwigs-Universität Freiburg, Freiburg im Breisgau / Germany (Prof. Dr. Reinhard Brückner)
1999 – 2001	Postdoc, University of California at Irvine, Irvine / USA (Prof. Dr. Larry E. Overman)
1996 – 1999	PhD, Westfälische Wilhelms-Universität Münster, Münster / Germany (Prof. Dr. Dieter Hoppe)
1991 – 1996	Diploma, Philipps-Universität Marburg, Marburg an der Lahn / Germany (Prof. Dr. Paul Knochel)
	Undergraduate Training: Heinrich-Heine-Universität Düsseldorf, Düsseldorf / Germany (1991 – 1993), UMIST, Manchester / England (1994 – 1995), Philipps-Universität Marburg, Marburg an der Lahn / Germany (1993 – 1996)
•	October 19, 1971 in Pforzheim / Germany



Activities

2016 – 2019	Mitglied des Vorstandes der Liebig-Vereinigung (Gesellschaft Deutscher Chemiker)
2016 – 2018	<i>Organometallics</i> (American Chemical Society), Editorial Advisory Board
2013 – 2017	<i>European Journal of Organic Chemistry</i> (ChemPubSoc Europe), International Advisory Board
2009 – today	<i>Science of Synthesis, Knowledge Updates</i> (Thieme Publishers), Editor (Volume 4, Silicon Chemistry)

Awards / Fellowships

2015	David Ginsburg Memorial Lecture, Technion, Haifa/Israel
2013	Steinhofer Lecture, Albert-Ludwigs-Universität Freiburg, Freiburg im Breisgau/Germany
2011	"Goldener Brendel" Wanderpreis für hervorragende Lehre, Westfälische Wilhelms-Universität Münster/Germany
2006	ORCHEM-Preis für Naturwissenschaftler, Liebig-Vereinigung der GDCh
2005	ADUC-Jahrespreis für Habilitanden 2004
2004	Förderpreis der Dr.-Otto-Röhm-Gedächtnisstiftung
2002	Thieme Journal-Preis
2011 – 2015	Einstein-Professur der Einstein-Stiftung Berlin
2006 – 2008	Karl Winnacker-Stipendium, Aventis Foundation
2001 – 2006	Emmy Noether-Nachwuchsgruppe der Deutschen Forschungsgemeinschaft (Oe 249/2-1, 2, 3 and 4)
1999 – 2001	Emmy Noether-Forschungsstipendium der Deutschen Forschungsgemeinschaft (Oe 249/1-1)
1997 – 1999	Kekulé-Stipendium des Fonds der Chemischen Industrie