The Stan Brown Lecture Series

Stan Brown was born in High River, Alberta, and attended the University of Alberta for his B.Sc. (1964-1968) where he graduated with first class standing. Following undergraduate studies, Stan headed south to the UC, San Diego where he obtained his M.Sc. and then Ph.D. in chemistry (1968-1972) with the late Teddy G. Traylor. It was here that Stan's fascination with reaction mechanisms took root as he made seminal discoveries in the 'vertical' stabilization of cations by s-bonds. Stan then moved on to the great Ronald Breslow's lab at Columbia University for postdoctoral work where he studied enzyme mimetic reactions. This would become a research theme throughout his academic career. In 1974 Stan returned to U of A to begin his independent research career where he rose to the position of full Professor in 1984. Over 21 years at U of A the Brown lab flourished, carving out major discoveries in photoelectron spectroscopy of bonding, substituent effects on ionization potentials, the hydrolysis of amides, acyl and phosphoryl transfer reactions, and enzyme model systems involving metal ions. His research also addressed the formation of the bromonium ion, and in 1994 his lab managed to obtain the X-ray crystal structure of a stable version of this iconic intermediate. In 1995 Stan was ready for a new challenge and moved his lab to Queen's University to become Head of the Department of Chemistry (1995-2001). During his time as Head, Stan further shaped the future of our department by orchestrating the hiring of Gang Wu, Hugh Horton, Hans-Peter Loock, Richard Oleschuk, Stephen Brown, Suning Wang, Natalie Cann, Victor Snieckus and Cathleen Crudden. At Queen's, Stan and his team developed a series of enzyme inspired, metal ion-based catalysts that accelerated the solvolysis of esters, amides, and phosphate esters. This discovery had immediate applications for the destruction of stockpiles of chemical warfare agents like VX and Soman, which quickly garnered the attention of the United States Army, and led to several patents. Over his research career, Stan has authored over 180 publications, 10 book chapters, and delivered more than 110 invited seminars. Stan holds a tremendous record of service in the Chemistry community, which has won him many awards over the years, including two Killam awards, the Syntex Award (CSC), the Alfred Bader Award (CSC), the Queen's Chemistry 'Prof of the Year', the Queen's University Prize, the Queen's University Award for Excellence in Graduate Student Supervision (2016), the R.U. Lemieux Award (CSC), the Montreal Medal (CIC), and the Catalysis Award (CIC). Stan is a fellow of the Chemical Institute of Canada, the Royal Society of Canada, and the International Union of Pure and Applied Chemistry.

SELECTED RECENT PUBLICATIONS

- Formation of Glyoxylic Acid (HCOCOOH) in Interstellar Ices – A Key Entry Point for Prebiotic Chemistry. André K. Eckhardt, Alexandre Bergantini, Santosh K. Sing, Peter R. Schreiner and Ralf I. Kaiser
Angew. Chem. Int. Ed. **2019**, *58*, 5663–5667.

- Competitive nitrogen versus carbon tunnelling. Cláudio M. Nunes, André K. Eckhardt, Igor Reva, Rui Fausto, Peter R. Schreiner *J. Am. Chem. Soc.* **2019**, *141*, 14340–14348.

- 1,3-Dioxolane-4-ol Hemiacetal Stores Formaldehyde and Glycolaldhyde in the Gas Phase. André K. Eckhardt, Raffael C. Wende, and Peter R. Schreiner *J. Am. Chem. Soc.* **2018**, *140*, 12333–12336.

- Diamantane suspended single copper atoms. Hong-Ying Gao, Marina Šekutor, Lacheng Liu, Alexander Timmer, Hannah Schreyer, Harry Mönig, Saeed Amirjalayer, Nataliya A. Fokina, Armido Studer, Peter R. Schreiner and Harald Fuchs
J. Am. Chem. Soc. **2019**, *141*, 315–322.

- Spectroscopic Evidence for Aminomethylene ($HC\ddot{N}H_2$) – The Simplest Amino Carbene. André K. Eckhardt and Peter R. Schreiner
Angew. Chem Int. Ed. **2018**, *57*, 5248–5252.

- Sterically-controlled mechanochemistry under hydrostatic pressure. Hao Yan, Fan Yang, Ding Pan, Yu Lin, J. Nathan Hohman, Diego Solis-Ibarra, Fei Hua Li, Jeremy E. P. Dahl, Robert M. K. Carlson, Boryslav A. Tkachenko, Andrey A. Fokin, Peter R. Schreiner, Giulia Galli, Wendy L. Mao, Zhi-Xun Shen and Nicholas A. Melosh
Nature **2018**, *554*, 505-510.

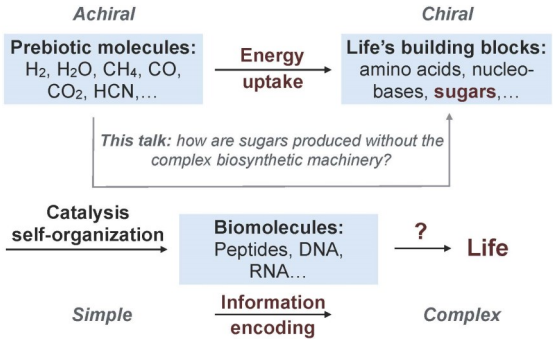
Queen's Chemistry

The Department of Chemistry, Queen's University

is honoured to host the
Inaugural Stan Brown Lecture:

Dr. Peter R. Schreiner
Institut für Organische Chemie
Justus Liebig University Giessen

"Carbohydrate formation in the absence of biosynthesis"



Friday, February 28, 2020
11:30 AM
Room 117, Chernoff Hall

DR. PETER R. SCHREINER

Peter R. Schreiner
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Justus Liebig University
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Peter R. Schreiner (b. 1965) is professor of organic chemistry and Liebig-Chair at the Institute of Organic Chemistry at the Justus Liebig University Giessen, Germany. He studied chemistry in his native city at the University of Erlangen-Nürnberg, Germany, where he received his Dr. rer. nat. (1994) in Organic Chemistry. Simultaneously, he obtained a PhD (1995) in Computational Chemistry from the University of Georgia, USA. He completed his habilitation (assistant professorship) at the University of Göttingen (1999), before becoming associate professor at the University of Georgia (Athens, USA), and head of the institute in Giessen in 2002. P. R. Schreiner is an elected member of the Leopoldina – German National Academy of Sciences, the North Rhine-Westphalian Academy of Sciences, Humanities, and the Arts, the Academy of Science and Literature (Mainz), and is a Fellow of the Royal Society of Chemistry. He has been a visiting professor at the CNRS in Bordeaux, the Technion in Haifa, the Australian National University in Canberra, and the University of Florida in Gainesville.

Dr. Schreiner's research interests include organic reaction dynamics and reactive intermediates, quantum mechanical tunneling as well as London dispersion interactions as probed in the realm of nanodiamonds and organocatalysis. He discovered the mechanism of tunneling control of chemical reactions as a third paradigm of chemical reactivity besides thermodynamic (energetically most favorable) and kinetic control (associarted with the lowest barrier). He is one of the pioneers of organocatalysis, in which metal-containing catalysts are replaced by more environmentally friendly customized organic catalysts, in particular, thiourea organocatalysts. Schreiner also found a way to extract and functionalize nanodiamonds, which occur in natural gas as well as petroleum and have nanoscale dimensions.

SELECTED HONOURS & AWARDS

- Academy Award of the Berlin-Brandenburg Academy of Science (2020)
- Boehringer-Ingelheim Lectures, Boston College, USA, (2019)
- The Royal Society of Chemistry Physical Organic Chemistry Award (2019/20)
- Tarrant Distinguished Visiting Professor, U Florida,Gainesville, USA (2019)
- Novartis Lecture, Yale U, New Haven, USA (2018)
- Japanese Society for the Promotion of Science (JSPS) Invitation Fellowship, Japan (2018)
- Adolf-von-Baeyer Memorial Medal of the GDCh (2017)
- Kurt-Alder Lecture, University of Cologne, Germany (2015)
- Swiss Chemical Society Lectureship (2014)
- Honorary lifetime membership, Polish Chemical Society (as of 2013)
- Schulich Visiting Professorship (03/2012), Israel Institute of Technology (Technion), Haifa, Israel
- Honorary lifetime membership, Israel Chemical Society (as of 2009)
- Dirac Medal (2003), World Association of Theoretically Oriented Chemists (WATOC)