

The Dr. 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 HONOURS & AWARDS

- 2019 Fellow, American Institute for Medical and Biological Engineering
- 2021 Advances in Measurement Science Award (ACS Analytical Division)

PREVIOUS DR. STAN BROWN LECTURERS

2023 • J. W. Keillor

2023 • R. J. M. Goss

2020 • P. Schreiner

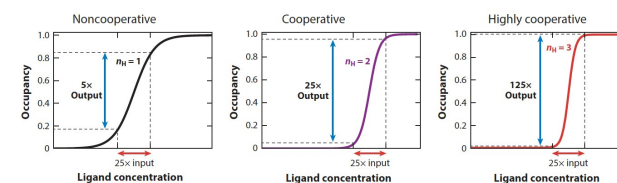


The Department of Chemistry, Queen's University

is honoured to host the 2024 Dr. Stan Brown Lecture:

Dr. Kevin Plaxco
University of California
Santa Barbara

"Molecular vital signs: recent advances in in vivo biosensors"



Friday, April 5, 2024
11:30 AM
Room 117, Chernoff Hall

DR. KEVIN PLAXCO



Kevin Plaxco

Distinguished Professor
Department of Chemistry & Biochemistry
University of California
Santa Barbara

<https://plaxco.chem.ucsb.edu/>

Dr. Kevin Plaxco, a Distinguished Professor at the University of California, Santa Barbara, holds appointments in the Departments of Chemistry and Biochemistry and of BioEngineering. Prior to joining UCSB in 1998 Dr. Plaxco received his Ph.D. from Caltech and performed postdoctoral studies at Oxford and the University of Washington. Dr. Plaxco's research focus is on the physics of biomolecular folding and its engineering applications. A major aim of the group's applied research is to harness the speed and specificity of folding in the development of sensors, adaptable surfaces, and smart materials. Dr. Plaxco has co-authored more than 300 papers and two dozen patents on protein folding, protein dynamics, and folding-based sensors. He serves on the scientific boards of a half dozen biotechnology firms, several of which are commercializing technologies developed by his group, and has also written a popular science book on Astrobiology.

SELECTED RECENT PUBLICATIONS

- Downs, A.M. and Plaxco, K.W. (2022) "Real-time, in-vivo molecular monitoring using electrochemical aptamer-based sensors: opportunities and challenges." *ACS Sensors*, **10**, 2823–2832
- Chamorro-Garcia, A., et al., (2022) "Real-time, seconds-resolved measurements of plasma methotrexate in situ in the living body." *ACS Sensors*, **8**, 150-157
- Gerson, J. et al., (2023) "High-precision monitoring of and feedback control over drug concentrations in the brains of freely-moving rats." *Sci. Adv.*, **9**, eadg3254
- McDonough, M.H., et al., (2023) "Using seconds-resolved pharmacokinetic datasets to assess pharmacokinetic models encompassing time-varying physiology." *Brit. J. Clin. Pharm.*, **89**, 2798-2812