

The Walter A. Szarek Lecture Series

Walter A. Szarek was born on April 19, 1938 in St. Catharines, Ontario. He received his B.Sc. in Honours Chemistry in 1960, and his M.Sc. in 1962, from McMaster University. In 1962 he began studies towards the Ph.D. Degree with Professor J. K. N. Jones at Queen's University; he completed his studies in 1964 in the area of carbohydrate chemistry. He then went on to do postdoctoral work with Professor Melville L. Wolfrom who had developed the outstanding school of carbohydrate chemistry at The Ohio State University, Columbus, Ohio. Within a year he was offered the position of Assistant Professor of Biochemistry in the Department of Physiology and Biochemistry at Rutgers University in New Jersey. After launching his independent research program, but longing to be part of a Chemistry Department, in 1967 he returned to Queen's as Assistant Professor of Chemistry where he rose through the ranks to Full Professor in 1976. During the period 1976–1985 he was also Director of the Carbohydrate Research Institute at Queen's. In 2003 he became Professor Emeritus, and continued to be very active in research for several years. Professor Szarek's outstanding achievements in carbohydrate chemistry were recognized by the receipt of the American Chemical Society Claude S. Hudson Award in 1989 and the Melville L. Wolfrom Award in 1992.

Professor Szarek's research in carbohydrates was truly comprehensive, encompassing many diverse aspects, both chemical and biological. His knowledge was encyclopedic and he quickly became known as The Godfather of the carbohydrate family and The Prince of hospitality. In addition, he had a very active research program in the areas of Medicinal Chemistry and Drug Development. He is the author of over 300 peer-reviewed publications and has held numerous patents in the areas of Alzheimer's Disease, Cancer, Malaria, Anti-bacterial Agents, and therapeutic drugs for the treatment of chronic and acute pain. He was a co-founder of Neurochem, Inc. (now Bellus Health, Inc.) and was associated with PainCeptor Pharma Corp., and Osta Biotechnologies, Inc.

Professor Szarek was, at all times, a principled educator at both the undergraduate and graduate levels, having won four teaching awards including the Queen's University Arts and Science Undergraduate Teaching Excellence Award in 1989. His distinguished research career involved the direction of 23 M.Sc and 32 Ph.D. students, and ~85 postdoctoral fellows. His caring and insightful mentorship both in chemistry and in life evoked in his students, postdoctoral fellows, and colleagues, great respect and affection.

The Walter A. Szarek Lecture Series was established through an endowment initiated by a former student, B. Mario Pinto, and with generous contributions from past students, postdoctoral fellows, and colleagues. It is testament to his profound influence on the next-generations of scientists. A substantial donation was also made by the Szarek family in memory of Professor Szarek's brother, John.

SELECTED RECENT PUBLICATIONS

- Semiconducting single crystals comprising segregated arrays of complexes of C₆₀ (J. C. Barnes, E. J. Dale, A. Prokofjevs, A. Narayanan, I. C. Gibbs-Hall, M. Jurícek, C. L. Stern, A. A. Sarjeant, Y. Y. Botros, S. I. Stupp, J. F. Stoddart), *J. Am. Chem. Soc.* **2015**, 137, 2392–2399.
- Carbohydrate-mediated purification of petrochemicals (J. M. Holcroft, K. J. Hartlieb, P. Z. Moghadam, J. G. Bell, G. Barin, D. P. Ferris, E. D. Bloch, M. M. Algaradah, M. S. Nassar, Y. Y. Botros, K. M. Thomas, J.R. Long, R. Q. Snurr, J.F. Stoddart), *J. Am. Chem. Soc.* **2015**, 137, 5706–5719.
- Tunable solid-state fluorescent materials for supramolecular encryption (X. Hou, C. Ke, C. J. Bruns, P. R. McGonigal, R. B. Pettman, J. F. Stoddart), *Nat. Commun.* **2015**, 6, Article 6884.
- Design and synthesis of non-equilibrium systems (C. Cheng, P. R. McGonigal, J. F. Stoddart, R. D. Astumian), *ACS Nano* **2015**, 9, 8672–8688.
- Induced-fit catalysis of corannulene bowl-to-bowl inversion (M. Jurícek, N. L. Strutt, J. C. Barnes, A. M. Butterfield, E. J. Dale, K. K. Baldrige, J. F. Stoddart, J. S. Siegel), *Nature Chem.* **2014**, 6, 222–228.
- ExBox: A polycyclic aromatic hydrocarbon scavenger (J. C. Barnes, M. Jurícek, N. L. Strutt, M. Frasconi, S. Sampath, M. A. Giesner, P. L. McGrier, C. J. Bruns, C. L. Stern, A. A. Sarjeant, J. F. Stoddart), *J. Am. Chem. Soc.* **2013**, 135, 183–192.
- Great Expectations: Can artificial molecular machines deliver on their promise? (A. Coskun, M. Banaszak, R. D. Astumian, J. F. Stoddart, B. A. Grzybowski), *Chem. Soc. Rev.* **2012**, 41, 19–30.

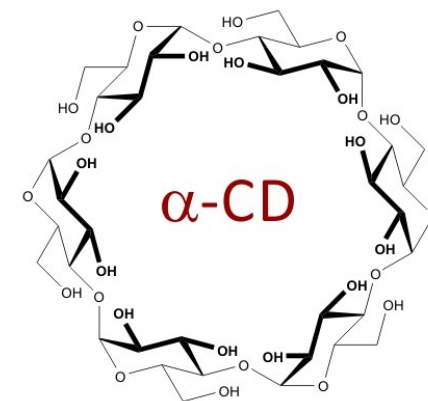


The Department of Chemistry,
Queen's University

is honoured to host the
Inaugural Walter A. Szarek
Lecture:

Sir Fraser Stoddart
Northwestern University

"Materials Beyond
Cyclodextrins:
Emergence Opens Up a Whole
New World of Wonders"



Friday, April 13, 2018
11:30 AM

Room 117, Chernoff Hall

SIR FRASER STODDART



Sir Fraser Stoddart
Northwestern University
Department of Chemistry
Evanston, IL 60208

Professor Sir J. Fraser Stoddart was born in Edinburgh, Scotland in 1942, and received his B.Sc. (1964) and Ph.D. (1966) degrees from the University of Edinburgh. During the period 1967—1970 he held a National Research Council Fellowship in the Department of Chemistry at Queen's University in Kingston, Canada, a position that was followed by an Imperial Chemical Industries (ICI) Fellowship at the University of Sheffield in the UK. He was appointed Lecturer in Chemistry (1970—1978) at the University of Sheffield and in 1981 was promoted to the position of Reader in Chemistry (1981—1990) at Sheffield; during the period 1978—1981 he was on secondment to the ICI Corporate Laboratory at Runcorn in the UK. In 1990 he became Professor of Organic Chemistry (1990—1997) at the University of Birmingham (UK) and was Head of the School of Chemistry during the period 1993—1997 at Birmingham. The University of Birmingham had long been regarded as one of the world's great "shrines" of Carbohydrate Chemistry. A major turn occurred in Professor Stoddart's career in 1997, when he was appointed to the prestigious Saul Winstein Chair in Organic Chemistry (1997—2003) at the University of California in Los Angeles (UCLA), succeeding Nobel laureate Donald Cram. It is interesting to note that, while he was at Queen's University, in 1969 the Department of Chemistry hosted Professor Winstein as the McRae Lecturer. In 2003 Professor Stoddart was appointed again to a very highly prestigious Chair at UCLA, namely, the Fred Kavil Chair in Nanosystems Sciences (2003—2007). In 2008 Professor Stoddart moved to Northwestern University in Evanston, IL as Board of Trustees Professor of Chemistry, a position that he holds currently. During the period 2010—2017 he was also the Director of the Center for the Chemistry of Integrated Systems at Northwestern.

Professor Stoddart's research interests are, in his words, "in chemistry beyond the molecule". His systems include nanoscopic, microscopic and macroscopic levels. Studies have been in the area of supramolecular chemistry and nanotechnology. He has conducted outstanding and leading-edge research in molecular recognition and self-assembly, and has made available efficient template-directed routes to mechanically interlocked molecular systems such as catenanes and rotaxanes, and has shown that the approaches can lead to molecular switches. The structures have been applied to the production of nanoelectronic devices and nanoelectromechanical systems. In 2016 Professor Stoddart, together with Jean-Pierre Sauvage and Ben L. Feringa, won the 2016 Nobel Prize in Chemistry for the design and synthesis of molecular machines.

The tremendous influence and impact of Professor Stoddart's work are readily discerned from the very high number of citations of his more than 1130 publications; he has an h-index of 141. During 45 years, more than 400 Ph.D. students and Postdoctoral Fellows have studied and worked under his tutelage, and more than 100 of these have achieved successful and independent, academic careers. In 2016 an impressive book was published, written by Professor Stoddart and one of his former graduate students, Carson J. Bruns, entitled "The Nature of the Mechanical Bond: From Molecules to Machines". Professor Stoddart, truly a pioneer and master in the field, tells the story in the book of the newest bond in chemistry, namely, the mechanical bond.

SELECTED HONOURS & AWARDS

- 2018 Foreign Membership of the Chinese Academy of Sciences
- 2017 Membership of the EU Academy of Sciences
- 2017 Honorary Doctor of Science Degree (University of Nottingham)
- 2016 Nobel Prize in Chemistry (Royal Swedish Academy of Sciences)
- 2014 Membership of the National Academy of Sciences, USA
- 2010 Royal Medal of the Royal Society of Edinburgh presented by Prince Philip, Duke of Edinburgh
- 2010 Honorary Doctor of Science Degree (St. Andrews University, UK)
- 2010 Honorary Doctor of Science Degree (Trinity College Dublin, Ireland)
- 2009 Honorary Doctor of Science Degree (University of Sheffield, UK)
- 2008 Honorary Fellowship of the Royal Society of Edinburgh, UK
- 2008 Arthur C Cope Award (American Chemical Society)
- 2007 Albert Einstein World Prize in Science
- 2007 King Faisal International Prize in Science
- 2007 Tetrahedron Prize for Creativity in Organic Chemistry
- 2007 Appointed Knight Bachelor by HM Queen Elizabeth II
- 2006 Honorary Doctor of Science Degree (University of Twente, The Netherlands)
- 2005 Fellowship of the American Association for the Advancement of Science, USA
- 2005 Honorary Doctor of Science Degree (University of Birmingham, UK)
- 1994 Fellowship of the Royal Society of London, UK