JOHN A. MCRAE

Dr. John Alexander McRae, M.A. (Queen's), Ph.D., D.Sc. (Manchester), LL.D. (Queen's), F.R.I.C., F.R.S.C., was Head of the Department of Chemistry from 1941 to 1956 and member of the chemistry staff for 44 years. After retiring, Dr. McRae was Emeritus Professor of Chemistry until his death in 1960.

Dr. McRae graduated from Queen's University with an M.A. in 1909 and joined the University as a lecturer this same year. From 1910 to 1911, he was a lecturer at the University of Toronto, returning to Queen's the following year. With the exception of the years 1919-1921, during which he attended Manchester University to obtain his Ph.D. and D.Sc., he carried out the remainder of his career at Queen's.

John McRae was elected a Fellow of the Royal Society of Chemistry in 1938 and was a fellow of the Royal Instituted of Chemistry and of the Chemical Institute of Canada. After retiring in 1956, Dr. McRae was honoured with a degree of Doctor of Laws from Queen's.

The McRae memorial lectures were established by donations from former students, with the first J.A. McRae Memorial lecture being given by R.H.F. Manske in 1964.

SELECTED RECENT PUBLICATIONS

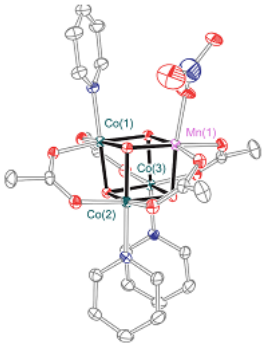
- "Homogeneous Catalysis with Methane. Hydromethylation of Olefins Based on s-Bond Metathesis at Scandium" A. D. Sadow and T. D. Tilley, J. Am. Chem. Soc. 2003, 125, 7971-7977. http://dx.doi.org/10.1021/ja021341a
- "Synthetic Development and Chemical Reactivity of Transition-Metal Silylene Complexes." R. Waterman, P. G. Hayes and T. D. Tilley. Acc. Chem. Res. 2007, 40, 712–719. http://dx.doi.org/10.1021/ar700028b
- "Mechanism of Olefin Epoxidation with H2O2 and a Highly Selective Surface-Modified TaSBA15 Catalyst." D. A. Ruddy and T. D. Tilley, J. Am. Chem. Soc. 2008, 130, 11088-11096. http://dx.doi.org/10.1021/ja8027313
- "Assembly of Macrocycles by Zirconocene-Mediated, Reversible C-C Bond Formation" V. Gessner, J. Tannaci, A. Miller, and T. D. Tilley, Acc. Chem. Res. 2011, 44, 435-446. http://dx.doi.org/ 10.1021/ar100148g
- "A Remote Lewis Acid Trigger Dramatically Accelerates Biaryl Reductive Elimination from a Platinum Complex" A. Liberman-Martin, R. G. Bergman and T. D. Tilley, J. Am. Chem. Soc. 2013, 135, 9612–9615. http://dx.doi.org/10.1021/ja404339u
- "Mechanism of the Electrocatalytic Reduction of Protons with Diaryldithiolene Cobalt Complexes." C. S. Letko, J. A. Panetier, M. Head-Gordon and T. D. Tilley, J. Am. Chem. Soc. 2014, 136, 9364-9376. http://dx.doi.org/10.1021/ja5019755

Queen's Chemistry

Department of Chemistry
Queen's University

is honoured to host the
2017 McRae Lecturer:

Prof. T. Don Tilley
Department of Chemistry, University of California, Berkeley



"Highly Oxidized Metal Species in Water Splitting and Solar Fuels Production"

Friday, February 3, 2017
11:30 AM
Room 117, Chernoff Hall

PROFESSOR T. DON TILLEY

T. Don Tilley

Department of Chemistry
University of California
Berkeley, CA

Professor T. Don Tilley received his B.S. degree in chemistry from the University of Texas in 1977, and then moved to the University of California at Berkeley where he completed graduate studies in organolanthanide chemistry under the direction of Richard Andersen (Ph.D. 1982). After his graduate work at Berkeley he was appointed as an NSF-sponsored exchange postdoctoral fellow to work jointly with Bob Grubbs and John Bercaw at the California Institute of Technology (1981-2), and with Luigi Venanzi and Piero Pino at the ETH in Zürich (1982-3). During this period, he developed the chemistry of the(pentamethylcyclopentadienyl)ruthenium fragment. In 1983 he began his independent research career as an Assistant Professor at the University of California at San Diego. There he was promoted to Associate Professor in 1988, and then to Professor in 1990. In 1994, he accepted appointments as Professor of Chemistry at the University of California at Berkeley and as Faculty Senior Scientist at the Lawrence Berkeley National Laboratory.

Research in Professor Tilley's group involves exploratory synthetic, structural, and reactivity studies on novel inorganic and organometallic systems. Reactivity studies focus on compounds that exhibit unusual electronic and/or coordination environments for the metal center, and discovery of new chemical transformations. Reactivity studies are guided by mechanistic investigations that shed light on how reactions proceed. Metal-mediated routes to new organic-based electronic materials are explored, and molecular, chemical approaches to the designed construction of advanced solid state materials and heterogeneous catalysts are developed. Molecular, nanostructured and surface-attached catalysts are being studied for applications in solar-to-fuels technologies, and primary reactions of interest are water oxidation, proton reduction to hydrogen, and carbon dioxide reduction to hydrocarbons.

SELECTED HONOURS & AWARDS

While at UC San Diego, Tilley received an Alfred P. Sloan Fellowship (1988), a Union Carbide Innovation Recognition Award (1991-92), and a Japan Society for the Promotion of Science Fellowship (1993). At UC Berkeley, Tilley received an Alexander von Humboldt Award for Senior Scientists (1998) and was elected to the American Association for the Advancement of Science (1998). Tilley was elected Chair of the Division of Inorganic Chemistry of the ACS for 2003, and was named a Miller Research Professor for 2004-5. He was the recipient of the ACS award in Organometallic Chemistry (2002), the Wacker Silicon Award (2003), the Centenary Lectureship and Medal of the Royal Society (2007-8), the ACS Frederic Stanley Kipping Award in Silicon Chemistry (2008) and the ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry (2014). He has been a Visiting Professor at the ETH in Zürich (1998), the University of Montpellier (2000) and the University of Strasbourg (2010). In 2013, he was awarded the Edward Mack Jr. Memorial Award from Ohio State University, and was elected as a Fellow of the American Academy of Arts and Sciences. In 2014, he was named an ACS Fellow. Since 2005, Tilley has served as the North American Associate Editor for Chemical Communications, covering Inorganic, Organometallic and Materials Chemistry.