

The 2019 Abbott
Chemistry Lectures
May 2 & 3, 2019

Given by
Dr. Christopher Cummins

*Henry Dreyfus Professor of Chemistry
Massachusetts Institute of Technology*



Christopher “Kit” Colin Cummins benefited from formative undergraduate research experiences carried out sequentially in the laboratories of Professors Susan E. Kegley, James P. Collman, and Peter T. Wolczanski, respectively of Middlebury College, Stanford University and Cornell University. He graduated from the latter institution with an A.B. degree in 1989. Following this he undertook inorganic chemistry graduate studies under the direction of Professor Richard R. Schrock at the Massachusetts Institute of Technology, from which he obtained his Ph.D. degree in 1993 with a thesis entitled “Synthetic Investigations Featuring Amidometallic Complexes”. Also in 1993 Kit joined the chemistry faculty at MIT as an Assistant Professor; in 1996 he was promoted to the rank of Professor, and in 2015 he was named the Henry Dreyfus Professor of Chemistry.

Research themes in the Cummins group showcase exploratory synthesis and reactivity studies. General areas of interest include transition-metal coordination chemistry, organometallic chemistry, small molecule activation, metal-ligand multiple bonds, and group transfer reactions. We are developing anthracene-based molecular precursors to novel reactive intermediates and potential interstellar molecules. Such anthracene-based precursors are also of interest as group transfer reagents with applications in synthesis. We are in pursuit of reagents for selective chemical polyphosphorylation. Reactions of relevance to phosphorus sustainability are under development with the goal of minimizing waste and energy consumption in the upgrading of phosphate raw materials to value-added chemicals.

The research accomplishments of Kit’s group have been recognized with Harvard University’s E. Bright Wilson Prize, the Phi Lambda Upsilon National Fresenius Award, a Packard Fellowship for Science and Engineering, an Alfred P. Sloan Foundation Fellowship, the ACS Award in Pure Chemistry, the NSF Alan T. Waterman Award, the TR100 Award, an Alexander von Humboldt Research Award, the Dannie-Heineman Preis of the Akademie der Wissenschaften zu Göttingen, the ACS F. Albert Cotton Award in Synthetic Inorganic Chemistry, the Raymond and Beverly Sackler Prize in the Physical Sciences, the inaugural Inorganic Chemistry Lectureship Award, the RSC Ludwig Mond Award, and the Linus Pauling medal. Kit has been a Fellow of the Hagler Institute for Advanced Study at Texas A&M University, he is a corresponding member of the Akademie der Wissenschaften zu Göttingen, an honorary member of the Israel Chemical Society, and an elected member of both the American Academy of Arts and Sciences and the National Academy of Sciences.

Thursday, May 2, 7:00 PM

Abbott Hall Room 101

*“Phosphorus: from the Stars
to Land and Sea.”*

Friday, May 3, 12:00 PM

Abbott Hall Room 138

*“Phosphorus-Element
Bond-Forming Reactions.”*

George A. Abbott, 1874-1973



Dr. George Alonzo Abbott, Professor Emeritus at the University of North Dakota, had a long and fruitful career of service to the State of North Dakota and the science of Chemistry. He was born July 7, 1874, in Alma, Illinois. Dr. Abbott received both the B.S. and M.A. pro merito from DePauw University. From 1896 until 1904 he taught chemistry in high schools in Evansville, Indiana; Duluth, Minnesota; and Indianapolis, Indiana. In 1903, through a contact with Professor Talbot, he received the Austen Research Fellowship at Massachusetts Institute of Technology. Under the guidance of A. A. Noyes, Professor of Physical Chemistry at M.I.T., he received the Ph.D. in 1908. In this first class of doctorates in chemistry were such notables as Edward Washburn, Charles Kraus and Richard Tolman. Dr. Abbott joined the chemistry staff of the North Dakota Agricultural College (North Dakota State University) in 1909. In

1910 he was appointed Professor and Chairman of the Department of Chemistry at the University of North Dakota. His devotion to teaching and the application of chemistry for the betterment of North Dakota was one of his outstanding contributions. His interests in quality water and in natural products such as lignite, for which North Dakota is recognized, gave him national recognition. For half a century he was the only toxicologist in a wide area of the upper midwest. He found time to do a weekly radio program "Science from the Sidelines" which was broadcast for over twenty years. Professor Abbott was a founder and charter member of the North Dakota Academy of Science. He was a member of the Red River Valley Section of the American Chemical Society, a Fellow of the American Institute of Chemists, member of Sigma Xi, and a charter member of the University of North Dakota Phi Beta Kappa chapter. Dr. Abbott retired from administration in 1948 and from teaching in 1952. He continued toxicological work until 1970.

The George A. Abbott Lectureship was established by gifts from the University of North Dakota Alumni.

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