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Department of Chemistry

Student Seminar Series

9:45 a.m. Tuesday, September 15, 2015 • 331 Smith Hall

Professor

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Aerobic Oxidation Reactions for Organic Chemical Synthesis

Website:
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Abstract

Molecular oxygen is the quintessential oxidant. While O_2 is the oxidant of choice for production of commodity chemicals, it is seldom used in process-scale synthesis of fine chemicals, agrochemicals or pharmaceuticals, and it is rarely used in laboratory syntheses of organic molecules. Over the past decade, our research has focused on understanding and exploiting fundamental chemical principles that could enable widespread use of O_2 as an oxidant for chemical synthesis. This talk will introduce some of the fundamental and practical challenges facing this field, together with a presentation of efforts we have made to address these challenges, emphasizing the recent development and characterization of copper/nitroxyl-catalyzed aerobic alcohol oxidation reactions.

Professor Shannon Stahl earned his bachelor's degree in chemistry at the University of Illinois at Urbana-Champaign. He then went on to earn his doctorate as an National Science Foundation (NSF) Pre-doctoral Fellow at the California Institute of Technology, under the supervision of Professor John E. Bercaw.

After finishing his doctorate, Professor Stahl broadened his research interests as an NSF Post-doctoral Fellow under the guidance of Professor Stephen J. Lippard at the Massachusetts Institute of Technology. Currently, he is a the John and Dorothy Vozza Research Professor in the Department of Chemistry at the University of Wisconsin-Madison.

Work in the Stahl lab has been focused on using molecular oxygen as the terminal oxidant to perform aerobic oxidations of organic molecules. Most of the research has been focused on the selective oxidation of alcohols using transition metal catalysts.

Professor Stahl is the recipient of many awards, including the NSF CAREER Award, Alfred P. Sloan Research Fellowship, Camille Dreyfus Teacher-Scholar Award, American Chemical Society (ACS) Arthur C. Cope Scholar Award, and the ACS Presidential Green Chemistry Challenge Award.

Host:
Nicholas "Nick" Serratore