2016-2017 POCC Lecture Series

April 13, 2017, 8:00 PM

Sigma-Aldrich Student Choice Lecture

Prof. David A. Nicewicz

University of North Carolina at Chapel Hill

New Avenues in Synthesis via Organic Photoredox Catalysis

Carolyn Hoff Lynch Lecture Hall
Chemistry Building, University of Pennsylvania

The Philadelphia Organic Chemist's Club

POCClub.org

To join us for dinner before the lecture please contact POCC's secretary Thomas Razler (thomas.razler@bms.com) at least one week ahead of time.

David A. Nicewicz completed his B.S. and M.S. in Chemistry in 2000 and 2002, respectively at the University of North Carolina at Charlotte under the direction of Professor Craig A. Ogle and his Ph.D. with Professor Jeffrey S. Johnson in 2006 at the University of North Carolina at Chapel Hill. From 2007-2009, David was a Ruth L. Kirschstein National Institutes of Health Postdoctoral Researcher in the laboratories of Professor David MacMillan at Princeton University. In July of 2009, Dave returned to the University of North Carolina at Chapel Hill as an Assistant Professor and in 2015, was promoted to Associate Professor.

Research in the Nicewicz laboratory focuses on harnessing photoinduced single electron redox manifolds to discover and invent new and complex transformations in organic synthesis. David has been honored with several awards including a Packard Fellowship in Science and Engineering, a Camille Dreyfus Teacher Scholar Award, and several awards from industry including Boehringer Ingelheim, Eli Lilly and Amgen.

Abstract: Single electron pathways are prevalent in numerous biosynthetic pathways that are crucial to life on our planet. As synthetic chemists, we seek to harness the power of these open-shell processes to achieve uncommon but valuable chemical reactivity. To this end, my laboratory is interested in accessing single electron pathways via the use of organic photoredox catalysis. This lecture will highlight the recent synthetic methods developed by my laboratory, including anti-Markovnikov hydrofunctionalizations of alkenes and C-H functionalization reactions of aromatic compounds. Mechanistic tools such as time resolved and steady state absorption spectroscopy shed light on the mechanism and will be presented in the lecture. Lastly, recently applications to the use of photoredox catalysis for biological applications will be discussed.