Title: Reimagining Ancient Reactions for the 21st Century

Abstract:



The ability to prepare highly functionalized molecules in general and predictable ways is central to modern drug design and discovering new treatments for human disease. The aim of our program is to create new methods to solve the longstanding synthetic challenge of asymmetrically constructing biologically active small molecules. Classical synthetic approaches based on CH activations are ubiquitous but limited by the inherent directing effects of embedded heteroatoms. This presentation will discuss our recently discovered scheme to access highly basic ion pairs with organolithiums which provides a new pathway to override intrinsic heteroatom directing effects. In addition, we will describe our progress in developing new methods for carbon-oxygen bond formation reactions that utilizes primary ozonide intermediates.

Photo

A person in a suit and tie

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Bio

Dr. Andy Thomas is currently an assistant professor at Texas A&M University. He received both his B.S. and M.S. degrees in chemistry from the University of North Carolina at Charlotte with Prof. Craig A. Ogle. In 2011 he moved to the University of Illinois at Urbana Champaign to begin his Ph.D. with Prof. Scott E. Denmark. Upon completion of his Ph.D. in 2017 he began his NIH postdoctoral fellowship at Massachusetts Institute of Technology with Prof. Stephen L. Buchwald. In the Fall of 2020 Andy joined the chemistry faculty at Texas A&M University as an assistant professor. He is a recent recipient of NSF Career and NIH MIRA awards. His research group focuses on using physical organic chemistry to develop new synthetic methods by investigating the chemical reactivity of highly reactive intermediates.

Website

<https://www.aathomasgroup.com>