SEMINARIOS ITINERANTES

The Wonderland of Organoferrates in Organic Synthesis

Prof. Michael Neidig

University of Oxford

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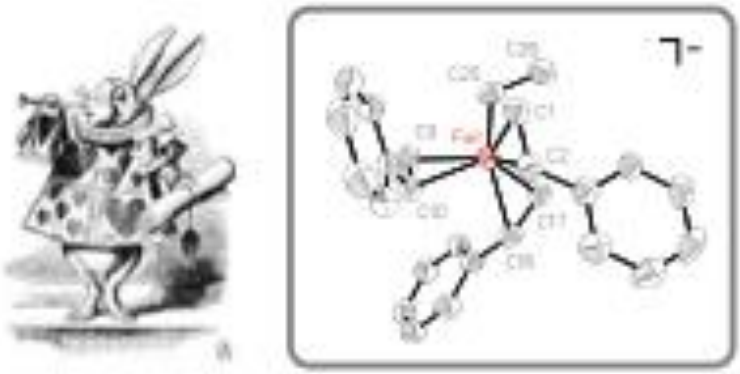
Abstract:

The development of iron-based methods for organic synthesis continues to attract broad research interest, offering both improved sustainability and the potential for novel reactivities in comparison to traditional palladium systems. However, the nature of the iron intermediates and reaction pathways central to effective catalysis remain poorly defined. In order to push iron to its ultimate synthetic potential via mechanism-driven methods development, it is essential that we develop molecular-level insight into the iron species involved in bond making (C-C, C-B, etc.) and bond breaking (C-H, C-C) reactions central to modern organic synthesis. Towards this goal, mechanistic studies from our group over the past decade have identified organoferrates as key iron intermediates in many of these reactions. This presentation will highlight the diversity of organoferrates in organic synthesis across reactions including cross-coupling, C-H activation and olefin functionalisation.



Biosketch:

Originally from a dairy farming community in rural Pennsylvania, Mike received his B.A. in chemistry from Colgate University in 1999. Following studies at the University of Cambridge as a Churchill Scholar leading to an M.Phil. degree in chemistry, he moved to Stanford University where he received his Ph.D. in chemistry in 2007 in the group of Prof. Edward Solomon. After brief stops at Dow Chemical as a Senior Research Chemist and Los Alamos National Lab as a Director's Postdoctoral Fellow, Michael joined the Department of Chemistry at the University of Rochester as an Assistant Professor in 2011 with subsequent promotion to Associate Professor in 2017, Professor in 2020 and the Marshall D. Gates, Jr. Professor of Chemistry in 2021. He joined the University of Oxford as Professor of Chemistry in 2022 and Tutorial Fellow in Inorganic Chemistry at Magdalen College. His research interests are in organometallic chemistry, catalysis and physical-inorganic chemistry, with a focus on iron catalysis for sustainable organic synthesis.