

Carbene Catalyst-Enabled New Activation Modes and Rapid Access to Functional Molecules

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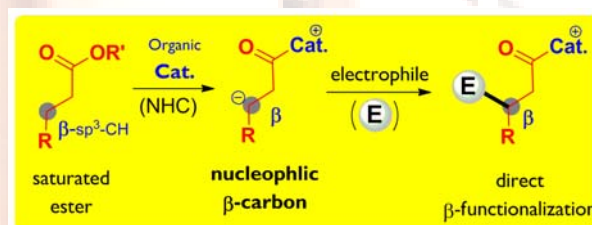
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Abstract

The Chi group works on the discovery and development of sustainable organic catalysis and new synthetic strategies for organic synthesis, pharmaceutical manufacturing, and materials assemblies or modifications. One focus is to develop basic new action modes for the functionalization of relatively inert C-H, C-C, N-S, and other non-reactive chemical bonds by using N-heterocyclic carbene (NHC) organic catalysts or through the combination of multiple catalysts. Recent advancements for new activation mode development include NHC-catalyzed activation of stable saturated esters (for both α , and β sp^3 -CH), and cooperative organic (NHC) and transition metal catalysis. Applications of these new activation modes for rapid (essentially one step) assembly of functional molecules for biomedical and agriculture uses have also been carried out either in our laboratories or through collaborations. Recently, we have realized single electron transfer (SET) chemistry (radical chemistry) for unusual activation of organic molecules using carbene catalysis. We also actively apply our catalytic methods in rapid synthesis of functional molecules for medicinal and agriculture use.



Speaker

Dr Yonggui Robin CHI received BS / MS degrees from Tsinghua University and Hong Kong Baptist University respectively, and the Ph.D. degree from University of Wisconsin-Madison, USA, and then served as Postdoc in the University of California, Berkeley, USA. From 2009, he was an Assistant Professor in the Division of Chemistry and Biological Chemistry of the Nanyang Technological University, and then an Associate Professor since 2014.

****Welcome****