ORAL DEFENCE ANNOUNCEMENT

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Development of New Reactions and Reagents in Carbene-Catalyzed Addition of Carbon and Nitrogen Nucleophiles to Unsaturated Acyl Azolium Intermediates

This thesis focuses on development of efficient protocols for access to advanced complex molecules enabled by N-heterocyclic carbene (NHC) catalyzed activation of enal or its ester derivatives. With the in-situ formed unsaturated acyl azolium intermediate, the enantioselective cascade process for access to multi-cyclic lactones was explored to constitute the core structure of iridoids. Further reaction development involving the aza-Michael addition to this key intermediate was achieved to prepare diverse heterocycles, such as pyrazolidinones and bicyclic β-lactones. In addition, simple and inexpensive polyhalide reagents was discovered as efficient oxidants for oxidative NHC catalysis, providing efficient methods for functionalization of α, β and γ atoms of aldehydes.

Date: 26 October 2017
Time: 3.30 PM
Venue: Conference Room, SPMS Level 2
Research & Graduate Studies Office
Supervisor: Prof Robin Chi