NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Physical and Mathematical Sciences
College of Science

ORAL DEFENCE ANNOUNCEMENT

MAJHI PANKAJ KUMAR

CARBENE-CATALYZED DYNAMIC KINETIC RESOLUTION FOR ASYMMETRIC ACCESS TO PHTHALIDYL ESTERS AND BENZOFURANONE DERIVATIVES

N-heterocyclic carbene (NHC) catalyzed dynamic kinetic resolution strategies have been developed. Firstly, NHC-catalyzed dynamic kinetic resolution and asymmetric acylation reaction of hydroxyphthalides have been achieved. This method allows quick access to enantiomerically enriched phthalidyl esters with proven applications in medicines. It also enables asymmetric modification of natural products, such as Corollosporine and Fimbricalyxlactone C. Secondly, NHC-catalyzed asymmetric synthesis of benzofuranone derivatives bearing an all-carbon stereocenter adjacent to a quaternary chiral center, through dynamic kinetic resolution approach has been disclosed. The reaction undergoes via intermolecular reversible aldol reaction followed by acylation between benzofuranyl carbonate and *N*-protected isatin derivatives in one pot.

Date: 6 May 2020
Time: 3pm
Supervisor: Prof Robin Chi