Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Sustainable N-Heterocyclic Carbene (NHC) Organocatalysis

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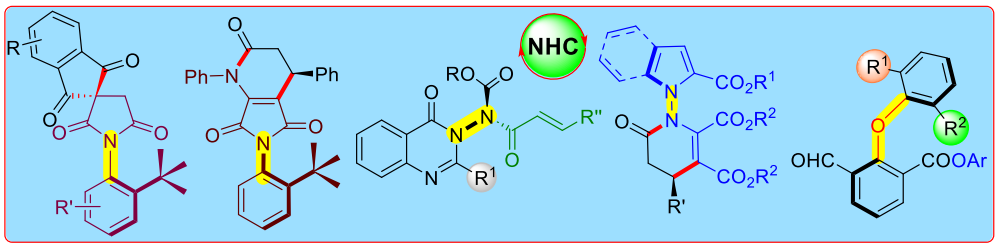
IISc, Bangalore

Organocatalysis using N-heterocyclic carbene (NHCs) has been widely utilised for the polarity reversal of aldehydes (*umpolung*). Although NHC catalysis is well demonstrated for the enantioselective synthesis of target molecules, related application to the synthesis of axially chiral molecules is limited (especially the heteroatom-containing axis). We have recently reported the NHC-catalysed atroposelective synthesis of N-aryl succinimides having an axially chiral C-N bond via the desymmetrisation of N-aryl maleimides. Moreover, using the acid activation strategy in NHC catalysis, we have demonstrated the atroposelective synthesis of C-N axially chiral phthalimides and maleimides. In addition, NHC-catalysed selective amidation and (3+3) annulation reactions resulted in the atroposelective synthesis of N-N axially chiral 3-amino quinazolinones, indoles and pyrroles. Further, we have uncovered the NHC-catalysed synthesis of C-O axially chiral diaryl ethers via atroposelective esterification of dialdehyde-containing diaryl ethers via a desymmetrisation strategy. The details of these works will be presented.



Friday, Jun 6th 2025

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFRH