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

Internal Seminar

Asymmetric Conjugate Addition and Cycloaddition Reactions to α,β-Unsaturated 2-Acyl Imidazoles

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Asymmetric catalysis plays a crucial role in the synthesis of complex chiral molecules. It involves the employment of chiral ligands or catalysts in sub-stoichiometric concentrations to afford enantiomerically pure compounds from prochiral substrates. Our research has led to the synthesis of highly functionalised chiral pyrrolidine and 1-pyrroline derivatives which are important scaffolds in several biologically and pharmaceutically active compounds. We have done this through Cu(I)/(S,S)-BPE-catalysed asymmetric umpolung (3+2) cycloaddition and Michael addition of iminoesters to α,β-unsaturated 2-acyl imidazoles. Additionally, we developed the first Sc(III)-pybox catalysed enantioselective vinylogous Mukaiyama-Michael reaction (VMMcR) of vinyl ketene silyl acetals with α,β-unsaturated 2-acyl imidazoles to construct enantioenriched 1,7-dioxo compounds. The detailed study will be discussed in the talk.

Thursday, May 9th 2024

14:30 Hrs

Seminar Hall, TIFR-H