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

Seminar

Inflating Molecular Complexity through Sustainable C–H Activations

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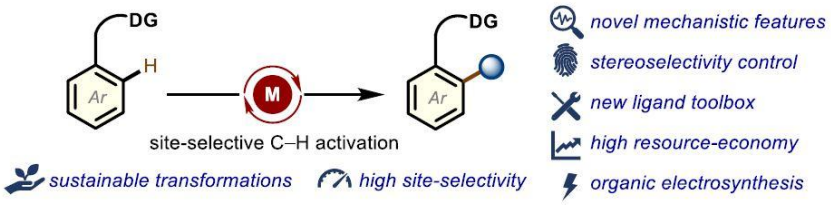
Transition-metal catalysed C–H activation reactions have turned out as an alluring retrosynthetic tool to diversify simple progenitors into value-added organic molecules. In this presentation, first the advantages of atom-economic C–H activations in the context of modern organic synthesis will be discussed. Then, the development of Ru(II)-catalysed cross-dehydrogenative dimerization of aromatic carboxylic acids harnessing non-covalent interactions will be elaborated in context of Ru(II)- catalysed native functionality assisted oxidative C–H/C–H couplings.

As a part of the discussion, the importance of metallaelectro-catalysed C–H activations and asymmetric organic electrosynthesis will be emphasised. Then the pioneering contributions in the realm of enantioselective 3d metallaelectro-catalysed C–H activation reactions will be deliberated. To elaborate the influence of chiral ligands in these transformations, the strategic development of new classes of chiral oxazoline ligands and their use in the synthesis of axially and point chiral molecules will be presented. Throughout this journey, the key mechanistic features and the sustainability aspects will also be reflected upon.



Thursday, Jul 22nd 2025

14:30 Hrs (Tea / Coffee 14:15 Hrs)

Auditorium, TIFRH