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

Internal Seminar

Design and synthesis of redox-active linkers for metal–organic frameworks

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Over the past few decades, visible light–mediated photoredox catalysis has become a powerful and versatile strategy in organic synthesis. However, heterogenising photoredox catalysts remains a significant challenge, especially for practical and recyclable systems. To address this issue, we aim to incorporate photoactive molecules into metal-organic frameworks (MOFs), either as linkers or through encapsulation. In the first part of my talk, I will present the strategy to design a novel redox active linker for MOFs. In the second part, I will discuss the coordinative encapsulation of a naphthalene monoimide (NI) into a MOF-808 structure via a post-synthetic modification (PSM) approach. Finally, I will show how the emission of the encapsulated NDI can be selectively quenched through the formation of charge transfer complex with various isomers of electron rich aromatic diamines, providing insights into structure–property relationships and potential applications in molecular recognition or sensing.

Wednesday, Jul 16th 2025

11:30 Hrs

Seminar Hall, TIFRH