

Ph.D. Open Seminar

Department of Chemistry, IISER Bhopal

Speaker: **Rajesh Kumar**

Roll No. **1220212**

Thesis Advisor: **Dr. Aasheesh Srivastava**

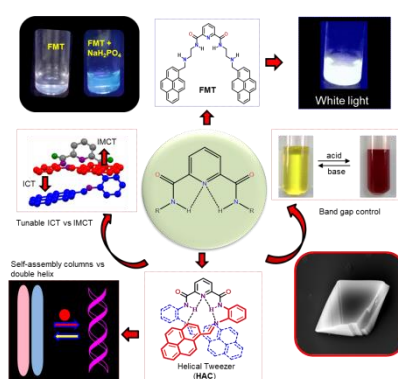
Title: Fluorescent Molecular Tweezers Based on Pyridine-2, 6-dicarboxamide Framework: Sensing and Photophysical Aspects

Date: 05/06/2018

Time: 4:00 PM

Venue: AB-II-401

Abstract: Molecular tweezers are acyclic hosts that can interact with specific guests through a combination of H-bonding, π - π and charge-transfer interactions (CTI).^[1] This thesis discusses the distinctive design of fluorescent molecular tweezers (FMTs) based on Pyridine-2,6-dicarboxamide (PDC) framework. In this seminar, I will introduce concepts related to molecular foldamers and supramolecular self-assembly. I will discuss the design of molecular tweezers based on PDC molecular scaffold, and their metal complexes for C-H activation. In Chapter 2, flexible fluorescent molecular tweezer is reported which can selectively sense inorganic anions as well as possessed a unique spectral property-anion induced white light emission.^[2a] In Chapter 3, the design and synthesis of novel helical molecular tweezer “Heli(aza)cene (**HAC**)” with tunable charge transfer properties is reported. The tunability of the band gap of **HAC** through extended conjugation is discussed through simple acid/base chemistry.^[2b] In chapter 4, supramolecular **HAC** has been shown to be helical host for selective separation of electron deficient organic guest TCNB which as a result exhibited the unique switchable/reversible supramolecular self-assembly and photophysical properties.^[2c]



References:

1. (a) Petitjean, A. *et al. ChemPhysChem* **2011**, *12*, 1043-1051 (b) Salle, M. *et al. Chem. Soc. Rev.* **2011**, *40*, 30-43
2. (a) Kumar, R.; Semwal, S.; Choudhury, J.; Srivastava, A. *Chem. Eur. J.* **2017**, *23*, 15012-15016 (b) Kumar, R.; Srivastava, A. *Chem. Eur. J.* **2016**, *22*, 3224-3229 (c) Kumar, R.; Srivastava, A. *Manuscript under preparation.*