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

Internal Webinar

Peptide Based Supramolecular Polymer and Receptor

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Developing small molecule-based sensor based on bio-organic chemistry, supramolecular chemistry, and supramolecular polymer is highly studied and investigated area of research. Here we have designed and fabricated different peptide, peptidomimetic & NDI-peptide conjugates, and applied them for different materialistic applications. We have worked on designing self-healing conductive hydrogel from a dipeptide and applied them for online HCl sensing, developing robust foldamer for in-field selective naked eye ultratrace detection of nitro explosives, creating reversible colorimetric cascade sensor for fluoride and water, and applying it in re-writable and security devices, synthesizing supramolecular metallo polymer as a selective fluorescence sensor of Arsenic (III) in aqueous media and engineering pathway for naked eye selective detection of hydrazine through NDI-peptide conjugate by synthesizing cyclic NDI nanorims. I have also done some Suzuki–Miyaura and Negishi C-C cross-coupling reactions by utilizing organogle pocket, coumarin based foldamer for solvent dependent tuning of helicity and study their two-photon absorption and thermal nonlinear refraction, engineering miniature β-hairpin mimetic foldamers which were stabilized by C-H···π interactions, and studying the structure-mechanical property relationship of a pentapeptide crystal.

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2:00 PM