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

Seminar

Light-Induced Self-Assembly in Precision Noble Metal Nanoclusters: New Directions and Applications

Shibu E S

UoC, Calicut

Atomically precise noble metal nanoclusters (NCs) have recently emerged as ideal building blocks for constructing self-assembled multifunctional superstructures. In this talk, the light-induced assembly of Au_{25} NCs fabricated with two different chromophores (azobenzene and coumarin thiols) will be discussed in detail. In the presence of 345 nm light, azobenzene-tethered NCs showed a disc-like assembly, whereas the coumarin-tagged NCs formed a toroidal assembly due to the difference in the photochemistry behind each chromophore. Though the trans- to -cis photo switching followed by the dipolar attractions played a major role in the first case, an efficient photocycloaddition-assisted dynamic covalent chemistry resulted in the selective formation of toroids. The same chemistry has been further extended to study the interplay of chromophore spacer lengths in the assembly and drug loading/unloading.

Friday, Aug 16th 2024

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFR-H