W-231, TRC, DCS, IISER Kolkata
9832678135
cmahato50@gmail.com
https:/scholar.google.com/citations?user=IJrPV08AAAAJ&hl=en
@CMChem50

Chiranjit Mahato

Brief Summary of Research

There is a critical gap in understanding the chemical process of life: its origins, evolution, and current state. We can utilize the tools of synthetic organic chemistry and methodology via systems chemistry to explore how these systems could evolve (e.g. transform or self-assemble) to confer certain benefits (e.g. stability and function) and to mimic complexity of biological process which ultimately leading to modulation or creation of new biological functions. One of the major objectives of my research work will be the search for possible origin of advanced enzymatic functions and complexity of biological process from short peptides that are capable of accessing paracrystalline phases. On a further note, chemistry as a discipline has not yet developed the rules to understand properly the non-equilibrium structure of living organisms which is one of the grand challenges. Another objective will be design of substrate-driven non-equilibrium self-assembly with life-like properties.

Achievements

- Merit Cum Means Scholarship (2012-2014)
- Merit Cum Means Scholarship (2014-2017)
- Chemical Science Outstanding Poster Presentation Prize at the ChemSci 2021: Leaders in Field Symposium
- GATE 2020
- CSIR Lectureship - 2018 (June & Dec)
- CSIR JRF (2019 June, Rank -76)

Publications

1. Ayan Chatterjee[#], Chiranjit Mahato[#], Dibyendu Das*, Complex cascade reaction networks via cross β amyloid nanotubes. *Angew. Chem. Int. Ed.* **2021**, *60*, 202-207. (# = Equal contribution).
2. Syed Pavel Afrose, Chiranjit Mahato, Pooja Sharma, Lisa Roy, Dibyendu Das*, Nonequilibrium Catalytic Supramolecular Assemblies of Melamine-and Imidazole-Based Dynamic Building Blocks. *J. Am. Chem. Soc.* **2022**, 144, *2*, 673–678.
3. Chiranjit Mahato, Sneha Menon, Abhishek Singh, Syed Pavel Afrose, Jagannath Mondal, Dibyendu Das*, Short peptide-based cross-β amyloids exploit dual residues for phosphoesterase like activity. *Chem. Sci.* **2022**, *13*, 9225-9231.

Chiranjit Mahato
Student

Dr. Dibyendu Das
Associate Professor, DCS
IISER Kolkata