

## **Internal Webinar**

### **Tailored Design of Functionalised Organic Polymers to Induce Hierarchical Helical Self-assembly**

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Helix plays one of the critical roles in our biological system. Inspired by the biological macromolecule, the research contained in the thesis shows the rational design and synthesis of optically active imidazolium-based new chiral polymers and further experiences their induced helical sense. The newly designed polymers appear in polyelectrolyte form with random coil-type behaviour. To enhance the concept of “random coil to helix” transition, we have targeted its counter anion, which was both chiral as well as achiral, and observed an immediate transition of the random coil into a preferred handed helix, which is evidenced through induced CD and microscopic analysis i.e., SEM and TEM. There are significant remarkable changes also observed in the helical sense of polymer by increasing the length of the linker, functionality of the linker as well as functionality of the pendant which are confirmed through CD and microscopic analysis. Further, the helical polymers were successfully used as chiral additives for enantioselective crystallisation of *rac-alanine*, where the polymers show a high separation efficiency with enantiomeric excess up to 90%.

**Tuesday, Sep 24<sup>th</sup> 2024**

**11:30 Hrs**

