

Internal Webinar

Colloidal Self-Assembly with Magnetic and Patchy Particles

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Understanding how microscopic interactions give rise to collective behaviour is crucial for designing functional soft materials. This talk covers our study of magnetic colloids and patchy elliptic particles, where competing interactions and anisotropies lead to diverse self-assembled structures and glassy states. Using molecular dynamics and Monte Carlo simulations, we explore coarsening, the emergence of magnetic order in density-driven morphologies, arrested aggregates, and design strategies for colloidal building blocks enabling bent-core liquid crystalline phases. Furthermore, I will discuss some aspects of active patches. These results provide new insights into controlling disorder and developing responsive materials with tuneable properties.

Friday, Oct 24th 2025

11:30 Hrs

