

## **Colloquium**

# **Liquid Crystal Colloids: Role of Topological Defects in their Self-Assembly and Transport**

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Topological defects have been objects of intense studies in various disciplines, starting from cosmology to condensed matter, optics and more recently active matter. Colloidal particles dispersed in liquid crystals create elastic distortion and act as an elastic multipolar source that results in a variety of topological defects. Invariably such defects have been considered an undesirable feature in liquid crystal display devices. The defect-decorated particles interact via novel anisotropic elastic forces which are tunable and the particles can be guided to create 2D and 3D colloidal crystals. Another interesting manifestation is the ability of the particles to propel due to the breaking of symmetry in electrohydrodynamic flow. Studies on motility as well as collective dynamics of such particles as for active colloids are natural experimental and theoretical challenges. In this talk, I will present a summary of our recent works on liquid crystal colloids, a fast-growing area of soft matter research for directed assembly and controlled transport.

***Friday, Nov 11<sup>th</sup> 2022***

***2:30 PM (Tea/Coffee at 2:15 PM)***

***Auditorium, TIFR-H***