ICTS PhD Thesis Defense Seminar

Title : Statistical properties of single and multiple active particles

Speaker : Prashant Singh (ICTS-TIFR, Bengaluru)

Date : Monday, 14th November 2022

Time : 11:00 AM (IST)

Abstract : Active matter refers to a class of driven non-equilibrium systems where the individual unit consumes the supplied energy and transduces it into a systematic movement. Unlike in the boundary-driven systems, the drive is maintained at the local scale which endows self-propulsion to the constituent particles. This self-propulsion gives rise to exotic emergent phenomena which are otherwise not seen in their passive counterparts. A natural question then follows - Compared to thermal systems, how different are active systems at the scale of a single particle or few particles? Especially, with the current advancements in single active particle experiments, it becomes essential to develop theoretical frameworks that can corroborate the experimental observations. This thesis is an attempt to investigate the ramifications of activity on the spatio-temporal properties of an active particle (or few active particles). In this talk, we discuss
1. Extreme-value statistics, path functionals, and convex hull problems for active models
2. Effect of spatial heterogeneity on the dynamics of an active particle
3. Interplay of activity and interaction on the dynamics of a tagged particle in an interacting multi-particle system.

Venue : Online & Madhava Lecture Hall (ICTS)
Zoom link: https://icts-res-in.zoom.us/j/89939182874?pwd=MCtBME53MWcwcjNYeXlKemRuY1BJUT09
Meeting ID: 899 3918 2874
Passcode:141422