

ICTS Postdoc/Graduate Student Seminar Series

Title : Statistical properties of active particles

Speaker : Pritha Dolai, ICTS-TIFR, Bangalore

Date : Friday, November 30, 2018

Time : 11:15 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Active matter refers to a generic class of nonequilibrium systems that break detailed balance at the level of the individual particles. These systems exhibit many emergent phenomena at large scales like non-equilibrium ordering transitions, the coherent motion of a large number of particles and motility induced phase separation. Active-Brownian-particles (ABPs) and run-and-tumble-particles (RTPs) are the simplest manifestations of scalar active matter. The mean-squared displacement (MSD) of a tagged RTP scales as the square root of time for a large range of densities and tumbling rates of the RTPs. This MSD scales with the particle density, the active speed and the flipping rate of the RTPs. This scaling is valid even in regimes where the RTPs form large aggregates. We found similar kind of scaling behaviour for ABPs confined in a 1-D channel. At a larger level, we have studied the emergent fluctuation-induced interactions between anisotropic inclusions embedded in a nonequilibrium heat bath of ABPs.

Note: This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students