

Students' Annual Seminar

Active suspensions: Propagating waves and disordered states

Rayan Chatterjee

Here I summarize our results on the linear and nonlinear response of an ordered suspension of self-propelled particles subjected to deterministic initial perturbations. Our main findings are :(a) neutrally stable disturbances propagate as waves in which the frequency-wavenumber relation is in close agreement with the dispersion relation given in Simha & Ramaswamy, 2002. (b) There are regimes of convective and absolute growth/decay of disturbances which can be determined a priori, and (c) Linearly unstable disturbances, in the later non-linear stages, disrupt the order of the system, giving rise to turbulent-like disordered states with non-universal spectra and power-law regions.

Tuesday, Jun 6th 2017

4:30 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS