Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad - 500107

Students' Annual Seminar

Interacting active grains: trapping and segregation

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Vibrated monolayers of macroscopic grains show dramatic collective behavior. They serve as useful laboratories to test ideas on active matter, exploring the roles of confinement and obstacles. In active matter, energy is fed directly locally to each local constituent particle which uses it to move, align and order. In this talk I will discuss the transitions of polar active particles, in the presence of a V-shape obstacle, and account theoretically for our observations as competition between motility induced phase separation and collective expulsion of smectic tilt-boundary structure that form inside the wedge.

I will also talk about vibrated motile rod-bead system. In a low bead density medium rods flock via a "hydrodynamic" interaction. But at high bead density the reason is still unknown. We try to understand the interaction of rods in a crystalline bead medium via evolution of hexatic order parameter as rods approach each other. I will present my findings in this case.

Thursday, Apr 19th 2018

04:00 PM (Tea/Coffee at 03:30 PM)

Seminar Hall, TIFR-H