



ICTS Thesis Synopsis Seminar

- Title : Mechanics of filaments and spherical particles: role of elasticity and hydrodynamic interactions
- Speaker : Ganga Prasath, ICTS-TIFR, Bangalore
- Thesis Supervisors : Rama Govindarajan, Narayanan Menon
- Date : Thursday, July 25, 2019
- Time : 2:30 PM
- Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract : This talk is divided into two parts. In the first part we look at shape transitions in elastic systems that are understood using the paradigm of confinement vs bendability. The phase diagram of morphological transitions of an infinitely wide sheet wrapping a 2D droplet and coiling of an elastic filament confined to a spherical bubble are described using this framework.

In the second part we investigate the role of history force on the dynamics of spherical particles in fluid flows. The non-local particle evolution equation becomes a local modified Robin boundary condition to heat equation, which is solved for various flow scenarios exactly. A spectrally accurate numerical method arising out of this approach can be used to solve particle evolution in general flow scenarios.