

ICTS Special Colloquium

- Title** : Challenges in inferring and identifying key nodes in biological networks
- Speaker** : Sharad Ramanathan, Harvard University, Cambridge
- Date** : Friday, August 9, 2019
- Time** : 3:00 PM
- Venue** : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract** : Both cells and organisms make decisions such as progenitor cells in the embryo deciding between bone and muscle fates, or a nematode deciding whether to turn left or right as it searches for food. Recent experimental techniques allow us to measure static snapshots or the dynamics of thousands of these nodes at the same time giving us high dimensional data. From these measurements can we identify key nodes in the network that would allow us to read the mind of the cell or organism as it makes decisions, and even better, force the network to make the decisions we want it to? I will describe fundamental challenges in analyzing these high dimensional data, that make such identification challenging. I will then present some recent work to get around some of these challenges and describe experimental methods that might allow us to identify the key nodes in such networks rapidly. The experiments focus on understanding early human development and manipulating, measuring and controlling the behavior of a small nematode.