

## **ICTS Colloquium**

Title : Morphogenetic patterns: biochemical signalling, mechanics and geometry

Speaker : Vijaykumar Krishnamurthy, ICTS-TIFR, Bangalore

Date : Monday, November 20, 2017

Time : 3:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Morphogenesis-- the emergence of the three-dimensional shape and functional form in developing embryos, involves a strong interplay between active mechanochemical forces and biochemical signalling. Mechanical forces in cells and tissues arise from the adenosine-triphosphate (ATP) consuming activity of molecular motors in the cellular cytoskeleton. In this talk, we will discuss the generic physical principles of the establishment of active mechanochemical patterns in the actomyosin cytoskeleton. This self-organization of the cytoskeleton can couple to signalling proteins that are involved in various morphogenetic processes, like the establishment of cell polarity and the emergence of body axes in developing embryos. We will end with a discussion of our ongoing work on studying active patterns on curved deformable surfaces, and speculate on how the geometry of the underlying domain can select the emergent mechanochemical patterns.