

ICTS Seminar

Title : Emergent patterns of activity in heterogeneous biological excitable media

Speaker : Ria Ghosh, Institute of Mathematical Science

Date : Wednesday, February 19, 2020

Time : 3:00 pm

Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore

Abstract : Diffusively coupled electrically excitable and passive cells are ubiquitous in many biological tissues like the neurons, heart muscles, interstitial Cajal-like cells of the pancreas etc. Mathematical models have been used to investigate the widely varying spatiotemporal profiles of the dynamical activity of these cell-types. In order to unravel the emergent collective behaviour of such systems, we systematically investigate various motifs of cell assemblies and characterize different dynamical phenomenon, such as synchronization and spiral waves, that occur as a result of spatial heterogeneities in the system. Our results assume significance in the context of the pregnant uterus where the appearance of coordinated activation waves are observed even in the absence of pacemaker cells.