



## **ICTS Seminar**

- Title : Spatiotemporal organization of action potential duration alternans in arrhythmogenesis
- Speaker : Rupamanjari Majumdar, Leiden University Medical Center, Netherlands
- Date : Friday, September 22, 2017
- Time : 11:30 AM
- Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract : The hearts adapts to damage and aging through changes in its structure and function. This process is referred to as remodeling and includes (i) fibrosis and (ii) reduced intercellular coupling. If sustained, these features could contribute to abnormalities in electrical impulse generation and propagation, which predispose to heart rhythm disorders, known as cardiac arrhythmias. In the absence of structural heterogeneities, high-frequency impulse generation can induce arrhythmias via the development of dynamical instabilities. However, the complexity and stochasticity of arrhythmias make it impossible to understand the combined mechanistic influences of structural and dynamical heterogeneities on arrhythmogenesis. In this talk, I investigate arrhythmogenesis using in vitro and in silico monolayer models of neonatal ventricular tissue with increased fibrosis and reduced intercellular coupling. We find that arrhythmia incidence and complexity increase with decreasing coupling efficiency. This coincides with the occurrence of a special type of spatially discordant bistability, characterized by the phase-domain formation.