

## **Seminar**

### **Cellular behaviour in a complex 3D environment**

**Tapomoy Bhattacharjee**

**NCBS, Bangalore**

How do physical properties of a microenvironment govern active biological processes? The natural niches of most living organisms feature spatiotemporally varying material properties. However, for the most part, present understanding implicates genetic mutations, biochemical signalling, and behavioural patterns as the mechanistic drivers of key biological processes. In this talk, I will discuss our recent efforts towards establishing the role of mechanical properties of the cellular microenvironment as a critical lynchpin of biological regulation. I will first present how physical confinement acts as a potent selective pressure on microbial communities. Next, I will discuss our recent work on the oxo-mechanical regulation of cellular behaviour in 3D ECM-like systems. Together, our work will capture how physical microenvironment affect cellular growth and morphology across different biological scales.

***Thursday, Dec 19<sup>th</sup> 2024***

***16:00 Hrs (Tea / Coffee 15:45 Hrs)***

***Auditorium, TIFRH***