

## **Seminar**

# **Collective Heterogeneity of Mitochondrial Potential during Contact Inhibition of Proliferation and Its Biophysical Roots**

**Basil T**

**TIFR, Hyderabad**

In the epithelium, cell density and proliferation are closely connected to each other through contact inhibition of proliferation (CIP). Starting from a low-density state, as the cell density increases, CIP proceeds through three distinct stages: the free growing stage, pre-epithelial transition stage, and post-epithelial transition stage. CIP associated changes in metabolism still remain unclear. By measuring the mitochondrial membrane potential at different cell densities, we reveal a heterogeneous landscape of metabolism in the epithelium, whose length-scale depends on cell density and appears distinct in three distinct stages of CIP. Especially in the pre-transition stage of CIP we observe multicellular clusters of high and low mitochondrial potential which we term as *Collective Heterogeneity*. Such a self-emerging pattern can have critical consequences on the spatiotemporal evolution of epithelial form and function. In the talk, I'll discuss the biophysical roots of *Collective Heterogeneity* in mitochondrial potential.

***Thursday, Jul 6<sup>th</sup> 2023***

***4:00 PM (Tea / Coffee 3.45 PM)***

***Auditorium, TIFR-H***