

ICTS Colloquium

Title : Spontaneous emergence of heterogeneity in yeast populations

Speaker : Sandeep Krishna, National Centre for Biological Sciences,
Bangalore

Date : Monday, December 10, 2018

Time : 3:00 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : My colleague Sunil Laxman has observed the spontaneous emergence of subpopulations of cells in different metabolic states in growing populations of budding yeast. I'll talk about two situations - one where the yeast is in a well-mixed chemostat, and the other where it grows on agar plates. The chemostat produces incredibly regular oscillations between quiescence and proliferation which can sustain for days. I'll spend most time in the talk discussing a simple mathematical model that we think captures many aspects of this oscillation. The model helped us deduce that the key metabolites triggering the switch from quiescence to proliferation are probably Acetyl-CoA and NADPH. If there is time, I'll also discuss the results of experiments and modelling of the spatial colonies where cells in two different metabolic states self-organize into a complex intermingled spatial pattern, with one state dependent on the other for metabolic raw material.