

Seminar

A mechanistic model of the resource allocation strategy in bacteria

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Bacteria needs to optimally allocate its resources to survive in different environments. The details of the metabolic reaction network involved in such processes is, in general very complex. I will demonstrate how focusing on the coupled evolution of just two types of proteins, the ribosome and the critical metabolic protein, we can formulate it as a dynamical system under feedback control. I will show how this coarse graining of the complexity helps us understand diverse experimental results like bacterial growth laws, response to nutrient shifts, response to perturbing ribosome assembly, etc., under one unified framework. I will also show how this process can also be studied with a branching process formalism which helps to further understand this process and the influence of stochasticity on it.

Monday, Jan 6th 2020

4:00 PM (Tea/Coffee at 3:30 PM)

Auditorium, TIFR-H