DEPARTMENT OF PHYSICS
INDIAN INSTITUTE OF TECHNOLOGY KANPUR

PHYSICS COLLOQUIUM

THE ENGINE BEFORE THE MACHINE: TOWARDS THE PHYSICS OF LIFE

Abstract

Feynman, in his Lectures on Physics, describes how "physicists always have a habit of taking the simplest example of any phenomenon and calling it 'physics,' leaving the more complicated examples to become the concern of other fields." What, then, is the physics of life? And given the complexity, where do we even begin?

In this talk, I argue that metabolism, the very engine of life, offers a way in. I will start by describing our experiments in deconstructing the metabolism of simple organisms, and conclude with recent work suggesting that metabolic activity itself can emerge spontaneously from remarkably simple molecular ingredients.

Speaker

Dr. Shashi Thutupalli currently works at the National Centre for Biological Sciences (TIFR), and the International Centre for Theoretical Sciences (TIFR) in Bangalore. In 2011, he obtained his Ph.D. in physics for his work on active matter at the Max Planck Institute for Dynamics and Self-Organization, Germany. He then moved to Princeton University an HFSP Cross Disciplinary Fellow. Since 2015, Shashi has been running a curiosity-driven research program related to the physics of living systems with a particular focus on the origins and organization of metabolism and replication.

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