

Speaker: Jané Kondev

Affiliation: Brandeis University & HHMI

Time: 3:00 pm – 4:00 pm

Title: Physics of cellular proportions

Abstract: When exploring a new field of science usually a good place to start is to ask the question: “What sets the scale of X?”. The question of what sets the size of the internal structures within the cell, like the cell’s nucleus, has animated cell research for over a hundred years. In this talk, I will reflect on this history through experiments and theory that have addressed the question of size in cell biology. The case of actin cables is particularly interesting in this context, as it provides an example of self-assembly of a long, filamentous structure, whose length matches the length of the cell. I will describe our single-cell experiments and theory pertaining to self-assembly of actin cables in yeast, which gets at the general question of how cells measure length.

Bio: Jane grew up in New York and Yugoslavia. He obtained a degree in Physics from the University of Belgrade and did his doctoral work in Theoretical Physics at Cornell. After research fellowships at Brown and Princeton, he joined the faculty at Brandeis where he is the William R. Kenan, Jr. Professor of Physics, a Professor of the Howard Hughes Medical Institute, and a Simons Investigator. He is the coauthor of the book “Physical Biology of the Cell” which won the Society of Biology Book Award.