

ICTS Postdoc/Graduate Student Seminar Series

Title : Causes and Consequences of aging in microtubule catastrophe

Speaker : Jemseena V, ICTS-TIFR, Bangalore

Date : Friday, May 26, 2017

Time : 11:15 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Microtubules form one important class of cytoskeletal filaments in the eukaryotic cell. They perform many different tasks inside the cell, and their versatility owes in large part to their "dynamic instability", a nonequilibrium phenomenon consisting of alternating phases of growth and shortening. The growth-shrinkage transition, called 'catastrophe', has been a subject of intense study for nearly three decades since its discovery. Recent experimental observations suggest that the switching frequency for catastrophe is dependent on the age of the filament, viz, how long the filament has been growing prior to the event; suggesting that catastrophe is a multi-step, rather than single-step stochastic process. In this talk, I will describe our modeling attempts to understand these observations. Our stochastic model successfully predicts aging in catastrophe transition based on a simple assumption; catastrophe is a first passage event, occurring when a critical number of protofilaments become unstable by spontaneous hydrolysis.

Note: This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students