

RESEARCH SEMINAR

Cell mechanics: cytoskeleton fluctuations & structural relaxation

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Animal life, from a crawling amoeba to complex tissues, are active materials, whose properties dynamically respond to the environment. This behavior is unique in the physical world, and is produced by the cytoskeleton, a collection of biopolymers, which generates forces and provides the dynamic structure of cells.

In this talk I will discuss some of the ways that nature uses active biological components to create these active "fickle" structures, which can change between gel and fluid-like. I will discuss several ways that the cell mediates this process; through stochastic fluctuations of the cytoskeleton, and strain-dependent binding behavior of the actin cross-linking proteins filamin and alpha-actinin dynamically switch cell mechanics. Finally, I will outline future directions of how we might use these properties to recreate materials that display the dynamic properties we find in life.

Monday, March 25
10:00 a.m.
MD 497