



سمینار هفتگی ماده چگال نرم

Reconstruction of cell membranes using a movie and a ruler

Abstract

Membranes are the essential building block of living matter. They form a wall between a living organism and the outside world. Biomembranes (cell membranes) have fascinating mechanical properties that greatly resemble the behavior of lipid bilayers. The mechanical response of microorganisms such as vesicles, red blood cells, viral capsids, polymer capsules, and the nuclear envelope of eukaryote cells is primarily due to the material properties of their exterior membrane.

Surface fluctuation analysis is a noninvasive method used to measure the elastic properties of these microorganisms. The fluctuation spectrum is different for liquid and solid (tethered) membranes and it is a function of the membrane elastic moduli, tension, and pressure difference along with other factors. We would like to know if it is possible to reconstruct and model a membrane by measuring the fluctuation amplitudes. In other words, if we find ourselves with a movie of a fluctuating membrane, to what accuracy can we reconstruct the membrane in a simulation environment?

Ali Farnudi

Sharif University of Technology,
École Normale Supérieure de Lyon

زمان: شنبه ۱۴۰۰/۸/۲۲ ساعت ۱۵:۳۰

مکان: کلاس مجازی دکتر اجتهادی

<https://vc.sharif.edu/ch/ejtehadi>