



› Allgemeines Physikalisches Kolloquium

› Donnerstag, 29.10.2015 um 16 Uhr c.t.

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Learning from fluctuations: The mechanics of active and passive cellular assemblies

From a physics perspective living cells are impressive systems. They operate extremely reliably under nonlinear and non-equilibrium conditions, all embedded in a highly fluctuating background that is agitated by thermal Brownian motion. To understand the physical principles used by cells to perform their function, we use optical tweezers as well as high sensitive motion detectors to study both the mechanical properties of cells and the passive (thermal) and active (ATP dependent) fluctuations of cellular systems. This leads to new insights into the non-equilibrium physics used by living cells to maintain their organization even in a highly noisy environment. Combining the experimental data with non-equilibrium Langevin models we are able to extract molecular parameters such as forces and timescales from mesoscopic observables.