Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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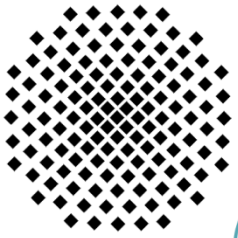

Dienstag, 16. Juli 2013	17:15 Uhr	Hörsaal V 57.01

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Prof. Udo Seifert, Universität Stuttgart, Telefon: 0711 - 685-64927

Statistical mechanics in the nanoscale: from physics to biology

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Abstract

The possibility to manipulate and apply forces on individual biomolecules offers to the physicist a new viewpoint to investigate the thermodynamics of small systems. A detailed understanding of the general principles governing energy exchange processes in the nanoscale is relevant to understand the astonishing high efficiency of molecular machines and the emergence of biological order in living systems. Biomolecular systems operate out of equilibrium in aqueous environments in a regime where free energy transduction occurs at the edge of Brownian motion where energy fluctuations are on the scale of kT (where k is the Boltzmann constant and T the absolute temperature). In this talk I will review the most relevant single molecule experiments probing energy fluctuations in the nanoscale, the theories describing them and outline future open problems in this exciting field.