

Title:

Introduction to large deviation theory and its applications in stochastic thermodynamics

Speaker:

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Abstract:

The theory of large deviations is concerned with determining the probability of rare events in stochastic processes, arising in physics as rare transitions between stable and metastable states or as larger-than-expected fluctuations of observables measured in time, such as the entropy production or the heat exchanged with a heat bath. In this tutorial, I will give an introduction to this theory, emphasising the latter type of fluctuations, which are relevant for stochastic thermodynamics. We will consider Markov processes, and especially diffusions, as the basic model of physical system and will see how the distribution of observables is determined from the spectral properties of the generator of these processes.