ulm university universität ulm

Physikalisches Kolloquium — Physics Colloquium

Einladung — **Invitation**

Monday, 04 November 2019

Lecture Hall N24/H13, 16:15

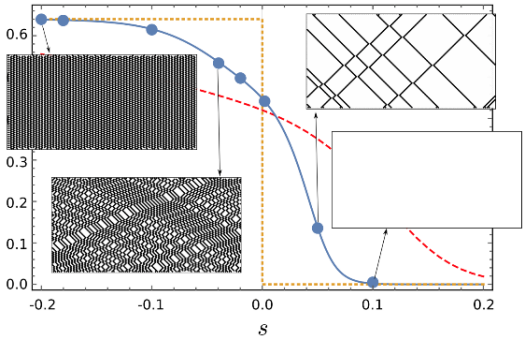
Coffee and cookies will be served in front of the lecture hall from 16:00

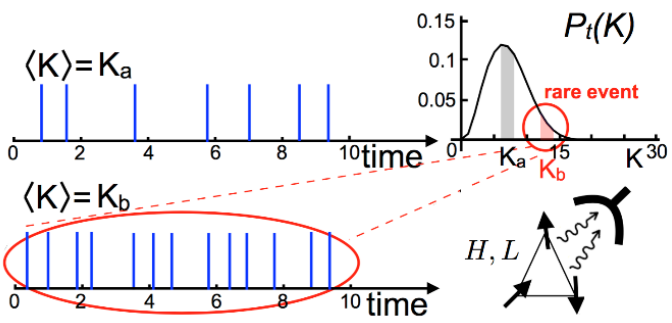
Large deviation methods in classical and quantum non-equilibrium

Prof. Juan P. Garrahan

School of Physics & Astronomy
University of Nottingham, UK
PERSONAL

Very often many-body systems - both classical and quantum - have dynamical behaviour that is more complex and richer that what can be anticipated from their static properties. For systems with stochastic dynamics, it is possible to define a statistical mechanics of trajectories, that is, a framework for studying ensembles of trajectories in a manner analogous to ensembles of configurations in equilibrium statistical mechanics. This provides a natural platform to describe and characterise complex non-equilibrium behaviour borrowing concepts and methods from equilibrium thermodynamics. This approach is based on the mathematics of large deviations. I will illustrate these ideas in a range of contexts, such as classical glassy systems, and open quantum systems displaying intermittency and metastability, and show that many of their interesting dynamical features stem from phase transitions in the space of trajectories. Time permitting, I will connect to ideas about (continuous) matrix product states, state smoothing (aka prediction/retrodiction), and feedback and control.





Host: Prof. Dr. Susana Huelga, Institute of Theoretical Physics

Organisation: Prof. Dr. Fedor Jelezko, Institute of Quantum Optics, fedor.jelezko@uni-ulm.de, +49-731-50-23751