

Eugene Wigner Colloquium

event of SFB 910



Thomas Speck

Johannes Gutenberg-Universität Mainz

“Multi-scale Modeling Out of Equilibrium”

Two tasks at the very heart of statistical physics are to guide the building of models and to make these models computable. For dynamics obeying detailed balance, both is made possible through the Boltzmann weight, which gives exponential weight to a small region of phase space and which underlies numerous advanced numerical techniques such as umbrella sampling, replica exchange, and meta-dynamics. Depending on the quantities of interest, treating all microscopic degrees of freedom is neither possible nor necessary. This has led to the development of numerical schemes coupling different scales, which again exploit detailed balance and the Boltzmann factor. But for systems coupled to reservoirs that break detailed balance, this strategy is not available and little is known. I will give a brief introduction to multi-scale modeling and then sketch a strategy for coarse-graining of steadily driven systems guided by stochastic thermodynamics.

Thursday, 20.06.19 · 16:15h · EW 202

Technische Universität Berlin · Institut für Theoretische Physik · Hardenbergstraße 36 · 10623 Berlin

www.itp.tu-berlin.de/sfb910