Speaker: Udo SEIFERT, Stuttgart University, Germany

Title: **The thermodynamic uncertainty relation**

Abstract

The thermodynamic uncertainty relation discovered in 2015 is arguably one of the most promising insights arising from stochastic thermodynamics. It relates the mean and fluctuations of any current to the overall entropy production in a non-equilibrium steady state. It provides a lower bound on the inevitable cost of temporal precision of processes, leading, e.g. to the minimal cost for measuring time in a finite temperature environment. As a tool for thermodynamic inference, it gives a model-free universal upper bound on the efficiency of molecular motors in terms of experimentally accessible observables.
Recent generalizations are applicable to periodically and time-dependently driven systems.