Speaker: Prof. Dr. Peter Rabl, TU-München

Title: Dissipative Bosonic Transport

Abstract:

In this talk I will address the dissipative transport of bosonic particles along a 1D lattice with asymmetric hopping rates. Such a setting can be realized with cold atoms, long-lived polaritons in nanophotonic lattices, superconducting circuits and many other systems with incoherent, but number-conserving hopping processes. In spite of its simplicity, this transport model exhibits many surprising features that arise as a direct consequence of the asymmetry in the hopping rates and the bosonic particle statistics. Specifically, I will discuss the appearance of an unconventional Bose-condensation transition, which is induced by a thermal current through the system. In the second part I will then address the universal scaling of current fluctuations, an unexpected similarity between bosonic and fermionic transport and how this is connected to the physics of surface growth.