

# KIDS TALK

## “Criticality in non-equilibrium steady states of 1D lattice systems”

**Speaker:** Matthias Moos, AG Fleischhauer

### **Abstract:**

The interaction of an open system with its environment leads in general to an irreversible time evolution of the system. The time evolution of such a system is described by a quantum optical master equation. In this talk, I discuss lattice systems that are coupled to local reservoirs and evolve under a master equation in Lindblad form to a non-equilibrium steady state. By engineering the reservoirs, different steady states can be tailored that are separated by critical points, where criticality is defined in the sense of a divergent correlation length. In particular, for bosonic lattice systems with linear reservoir couplings generically a dynamical instability is accompanying the criticality. By introducing nonlinear couplings to reservoirs, such as a saturation of the gain processes the instability can be overcome leading to a quasi phase transition. To derive correlations and investigate the universal behavior in vicinity of these quasi phase transitions mean-field approximations as well as numerical methods are used.

**When:** Friday, June 24<sup>th</sup> 2016, **10:00 am**

**Where:** **Room 11-201**

All undergraduate and graduate students as well as postdocs are welcome and encouraged to join our discussion!

\*\*\*\*\* COFFEE AND COOKIES WILL BE SERVED \*\*\*\*\*

For questions, comments or suggestions: [othomas@physik.uni-kl.de](mailto:othomas@physik.uni-kl.de)

