

Nonlinear optomechanics, dissipative coupling, and quantum synchronization

Andreas Nunnenkamp

University of Basel
Basel, Switzerland

In this talk I will first focus on signatures of the intrinsic nonlinear interaction between light and mechanical motion in cavity optomechanical systems that are observable even when the cavity line width exceeds the optomechanical coupling rate [PRL 111, 053603 (2013)]. I will then discuss optomechanical systems in which the position of a mechanical oscillator modulates the linewidth of the cavity [NJP 15, 045017 (2013); arXiv:1304.2685]. Finally, I will present a recent study on quantum synchronization in the simplest scenario possible, i.e., a self-sustained oscillator coupled to an external harmonic drive [arXiv:1307.7044]