Plenary Talk PLV VIII Thu 8:30 HSZ 01

Nanomechanics: Tunes of the nanoguitar — •Eva Weig — Technical University of Munich, Garching, Germany

Nanomechanical resonators - freely suspended, vibrating nanostructures - show great promise as versatile elements in hybrid nanosystems, as sensors or signal transducers both in the classical and in the quantum realm. Here I will focus on nanomechanical string resonators. These seemingly simple devices exhibit remarkably large room temperature quality factors and enable electrostatic control. Nanostrings are thus an ideal testbed to explore a variety of dynamical phenomena. I will review recent progress in controlling the coherent as well as the nonlinear dynamics of nanostring resonators. This includes the realization of a nanomechanical two-mode system mimicking the coherent dynamics of a quantum two-level system, and novel insights into squeezing and frequency comb generation.