Speaker: Simon Gröblacher

Title: Quantum optomechanics at room temperature

Abstract: Mechanical oscillators coupled to light via the radiation pressure force have attracted significant attention over the past years for allowing tests of quantum physics with massive objects and for their potential use in quantum information processing. Recent advances have allowed to demonstrate non-classical behavior of mechanical motion by coupling a micro-fabricated acoustic resonator to single optical photons. These experiments include the heralded generation and on-demand readout of single phononic excitations, as well as entanglement between two mechanical modes. So far these quantum experiments have almost exclusively operated at cryogenic temperatures. Here we would like to discuss efforts with silicon nitride resonators aiming at bringing these quantum optomechanics experiments to room temperature.