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Quantum optics experiments with micromechanical oscillators SIMON GROEBLACHER, AMIR SAFAVI-NAEINI, JEFF HILL, JASPER CHAN, OSKAR PAINTER, Caltech — Mechanical oscillators coupled to optical fields via the radiation pressure force have been of great interest lately as they allow for quantum experiments with macroscopic systems. Recent experiments have shown ground-state preparation and measurement of such resonators via sideband-resolved laser cooling. We will discuss our recent work that aims at achieving quantum control over nanoscale optomechanical crystal devices, both using strong coherent optical beams as well as single photons.

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