Abstract Submitted
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Non-linear coupled microwave and mechanical resonators[1] PRABIN ADHIKARI, MOHAMMAD HAFEZI, Joint Quantum Institute; University of Maryland, College Park, JACOB TAYLOR, Joint Quantum Institute; National Institute of Standards and Technology, Gaithersburg, MD — Optomechanical systems provide an intriguing test bed for examining concepts such as cooling a macroscopic quantum system to its ground state, and also for practical applications like squeezing and quantum information processing. A key difficulty at present is the weakness of the radiation pressure force in the optical domain at the single photon level. However, this changes in the microwave domain. To test this, we theoretically investigate a system, consisting of two coupled oscillators (photonic and phononic). We focus on the non-linear properties of the system and its potential implementation based on current experimental approaches, and show applications to metrology and quantum information science.

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