Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Josephson inductance detector for nanomechanical motion JUNHO SUH, JIHWAN KIM, MINJIN KIM, Korea Research Inst of Standards and Science (KRISS) — We study a Josephson inductance detector suitable for detecting nanomechanical motion near quantum limit. A gate-tunable critical current of a SNS junction is employed, and its Josephson inductance is modulated by nanomechanical motion via electrostatic coupling. A microwave resonant circuit is built with the Josephson inductance, arriving at an optomechanical system with strong microwave-nanomechanics coupling. We present an estimated measurement sensitivity and show our progress in device fabrication and measurements.

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Date submitted: 11 Nov 2016 Electronic form version 1.4