

Abstract Submitted
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dc SQUIDs as displacement detectors for embedded micromechanical resonators SAMIR ETAKI, Delft University of Technology, MENNO POOT, yale, KOJI ONOMITSU, HIROSHI YAMAGUCHI, NTT basic research laboratories, HERRE VAN DER ZANT, Delft University of Technology — Superconducting quantum interference devices (SQUIDs) can detect tiny amounts of magnetic flux and are also used to study macroscopic quantum effects. We employ a dc SQUID as a linear detector of the displacement of an embedded micromechanical resonator with femtometer sensitivity. We have also measured the backaction of the dc SQUID on the resonator, where the resonance frequency and damping of the resonator can be tuned with bias current and applied magnetic flux. The backaction can tune the resonator from strongly damped to self-sustained oscillation and may be used to cool the resonator.

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