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A cantilever-based measurement of short-range deviations from Newtonian gravity THOMAS BAY, Stanford University, AHARON KAPITULNIK — We describe an apparatus for measuring deviations from Newtonian gravity down to a length scale of $20\ \mu\text{m}$. The apparatus consists of a cryogenic gas-bearing drive mass actuator used to excite the resonance of the test-mass-bearing microcantilevers. A Fabry-Pérot interferometer measures the cantilever position. An optical radiation pressure feedback system is used to adjust the cantilever Q_{eff} and T_{eff} without loss of measurement sensitivity. We discuss expected increases in detector sensitivity as a result of recent upgrades and future related experiments.

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