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Laser cooling of a microcantilever using a medium-finesse optical cavity. ANDREW JAYICH, BENJAMIN ZWICKL, JACK HARRIS, Yale University — We report on a Fabry-Perot optical cavity formed between a 30 μm-wide metal-coated microcantilever and a commercial concave dielectric mirror. A finesse of 55 is achieved with the mirrors 75 mm apart in a near-hemispherical geometry. This finesse was limited by loss in the metal coating of the cantilever; diffraction loss from the microcantilever was negligible. The cantilever was passively laser cooled from 300 K to 50 K when the cavity was detuned.

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