

Abstract Submitted
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A Low Temperature Scanning Force Microscope with a Vertical Cantilever and Interferometric Detection Scheme¹ JEEHOON KIM, T.L. WILLIAMS, SANG LIN CHU, HASAN KORRE, MAX CHALFIN, J.E. HOFFMAN, Harvard University — We have developed a fiber-optic interferometry system with a vertical cantilever for scanning force microscopy. A lens, mounted on a Pan-type walker, was used to collect the interference signal in the cavity between the cantilever and the single mode fiber. This vertical geometry has several advantages: (1) it is directly sensitive to lateral forces; (2) low spring constant vertical cantilevers may allow increased force sensitivity by solving the “snap-in” problem that occurs with soft horizontal cantilevers. We have sharpened vertical cantilevers by focused ion beam (FIB), achieving a tip radius of 20 nm. We will show test results of a magnetic force microscope (MFM) with this vertical cantilever system.

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