Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Metal-coated carbon nanotube tips for scanning probe microscopy ERHAN YENILMEZ, Student, ZHIFENG DENG, JOSH LEU, J.E. HOFFMAN, ERIC STRAVER, KATHRYN A. MOLER, HONGJIE DAI — Metal coating has been introduced in order to improve the resolution and capabilities of carbon nanotube scanning probe microscopy tips. We demonstrate magnetic force microscopy of magnetic recording tracks using Co coated nanotube tips. The resolution achieved is better than 20 nanometers. We also use Au coated nanotube tips to perform electrostatic force microscopy of a cut single nanotube with a narrow gap. The metal coating on nanotubes is found to enable the use of micrometers long nanotubes as scanning probes for topographic imaging of high aspect ratio structures. The metal-coated nanotube tips are shown to significantly decrease the convolution effects from the pyramidal silicon tip in these force microscopy techniques.

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Date submitted: 01 Dec 2004 Electronic form version 1.4