

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Low-temperature conductive tip scanning measurements of single walled carbon nanotubes.** MATTHEW PRIOR, ALEXANDER MAKAROVSKI, ALEXEI ZHUKOV, GLEB FINKELSTEIN, Department of Physics, Duke University — We have built a low-temperature atomic force microscope (AFM) that fits inside a 38 mm bore cryostat. The scanning probe is attached to a quartz tuning fork, and a frequency shift is used as the feedback signal. By using a conductive tip we can locally tunnel into single walled carbon nanotubes grown on a non-conducting (SiO<sub>2</sub>) substrate. The nanotubes are contacted by a metal grid \*electrode\* evaporated on top of the sample. The tip is used as a second, movable contact. We measure the nanotube conduction as a function of the tip position and the gate voltage.

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Date submitted: 30 Nov 2005

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