Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Scanning Probe Microscopy of Semiconducting Nanowires[1] A.C. BLESZYNSKI, Dept. of Physics, Harvard Univ., R.M. WESTERVELT, Dept of Physics and Div. of Engineering and Applied Sciences, Harvard University, F.A. ZWANENBURG, J.A. VAN DAM, S. DE FRANCESCHI, L.P. KOUWENHOVEN, Kavli Institute of Nanoscience Delft, Delft Univ. of Technology, A.L. ROEST, E.P.A.M. BAKKERS, Philips Research Laboratories, Eindhoven — A liquid He cooled scanning probe microscope (SPM) with a conducting tip has been used to image conduction through InAs and InP nanowires. The nanowires, grown using a vapor-liquid-solid technique, have diameters between 50 nm and 100 nm and resistances on the order of 10 kΩ. Ti/Al electrodes were defined using e-beam lithography to form source and drain contacts with a spacing of 1 to 3 μm. The charged SPM tip is scanned in an area above the nanowire; the resulting change in nanowire conductance is recorded to form the image. These conductance images are used to study the behavior of electrons in the nanowire on a local scale.

[1]This work was supported at Harvard University and at Delft University by the NSEC, NSF PHY-01-17795

Ania Bleszynski
Harvard University

Date submitted: 01 Dec 2004

Electronic form version 1.4