

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Imaging Few-Electron Double Quantum Dots in InAs/InP Nanowires¹ HALVAR J. TRODAHL, ERIN E. BOYD, Dept of Physics, Harvard Univ, ANIA BLESZYNSKI, Dept of Physics, Yale Univ, R. M. WESTERVELT, Dept of Physics and Div of Engineering & Applied Sciences, Harvard Univ, LINUS E. FROBERG, LARS SAMUELSON, Dept of Solid State Physics, Lund Univ — InAs quantum dots formed in InAs/InP nanowire heterostructures are attractive candidates for nanoelectronics, spintronics and quantum information processing. Tunnel-coupled double InAs dots defined by InP barriers can be grown using chemical beam epitaxy; each dot can be small enough to hold just a few electrons. It is difficult to lithographically define gates small enough to individually address each dot. With use of a liquid-He cooled scanning probe microscope (SPM), the Coulomb blockade conductance of a single InAs quantum dot in an InAs/InP nanowire has been imaged, using the SPM tip as a movable gate [1]. This approach can individually tune the charge on each InAs dot in an InAs/InP nanowire. We plan to use this technique to investigate tunnel-coupled InAs double dots.

[1] A. Bleszynski et al., 28th Int. Conf. on the Physics of Semiconductors, 2006.

¹Supported at Harvard by the ARO (W911NF-04-0343) and our NSEC (NSF PHY-01-17795)

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Date submitted: 02 Dec 2006

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