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Imaging Double Quantum Dots in InAs/nP Nanowires HALVAR J. TRODAHL, ERIN E. BOYD, R. M. WESTERVELT, Dept. of Physics and SEAS, Harvard University, KRISTIAN NILSSON, LINUS E. FROBERG, LARS SAMUELSON, Dept. of Solid State Physics and Nanoscale Science Consortium, Lund University — Coupled quantum dots formed in InAs/InP heterostructure nanowires are attractive candidates for nanoelectronics, spintronics and quantum information processing. The ability to manipulate the charge state of a single quantum dot defined in these nanowire systems using a low temperature scanning probe microscope (SPM) tip has been shown previously [1] and provides a tool to investigate the properties of nanowire systems down to the tens of nanometer scale. In order to realize the above applications, multiple InAs quantum dots can be formed in an InAs/InP nanowire system by using InP barriers. Using a conducting SPM tip as a movable electrostatic gate, the charge can be tuned independently on each dot of a double quantum dot defined in a semiconductor nanowire. [1] A. C. Bleszynski-Jayich, et al., PRB 77, 245327 (2008)

Halvar Trodahl
Harvard University

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