

Abstract Submitted
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Charge sensing in Si/SiGe quantum dots using single electron transistors FENG PAN, TIM GILHEART, ALEXANDER RIMBERG, Dartmouth College, KEITH SLINKER, LISA MCGUIRE, MARK ERIKSSON, University of Wisconsin-Madison, J. O. CHU, IBM Research Division, T. J. Watson Research Center — Qubit schemes based on silicon technology have obvious economic appeal as well as compelling physical motivations, such as a long spin-spin dephasing time. Proposed silicon solid-state qubit schemes include quantum dots coupled to fast readout devices, such as a quantum point contact or single electron transistor (SET). Recently, Si/SiGe quantum dots defined by Schottky gates deposited on a Si/SiGe heterostructure containing a high mobility two-dimensional electron gas have been fabricated.[1] Here we report the integration of a SET with such a Si/SiGe quantum dot. Several such devices have been produced, and recent measurements, including transport and sensing of the dot charge with the SET, will be discussed. [1] K A Slinker et al 2005 New J. Phys. **7** 246

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