

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Formation of directed self-assembled Ge/Si quantum dots<sup>1</sup>**

DONGYUE YANG, JEREMY LEVY, University of Pittsburgh, JERROLD FLORO, CHRIS PETZ, University of Virginia — Directed self assembly of sub-10-nm Ge islands are candidates for producing laterally coupled quantum dot molecules with geometrically defined spin exchange couplings. We describe low-temperature magnetotransport measurements on small arrays of Ge islands grown on semi-insulating silicon substrates. The islands are created by a technique for precise nucleation of Ge islands using nanoscale SiC templates defined by direct-write electron-beam lithography.<sup>2</sup> Ge island arrays are coupled through ohmic contacts to the Si capping layer, and geometries are defined that are suitable for either vertical or lateral transport.

<sup>1</sup>Support from DOE DE-FG02-07ER46421 is gratefully acknowledged.

<sup>2</sup>O. Guise, J. Ahner, J. John T. Yates, V. Vaithyanathan, D. G. Schlom, J. Levy, Appl. Phys. Lett. **87**, 1902 (2005).

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Date submitted: 14 Dec 2009

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