

Abstract Submitted
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Formation and electrical characterization of directed self-assembled Ge/Si quantum dot¹ DONGYUE YANG, U. Pittsburgh, CHRIS PETZ, U. Virginia, JEREMY LEVY, U. Pittsburgh, JERROLD FLORO, U. Virginia — Directed self-assembly of sub-10 nm Ge islands is a candidate for producing laterally coupled quantum dot molecules with geometrically-defined spin exchange couplings. The islands are created by the nucleation of Ge islands on nanoscale SiC templates defined by direct-write electron-beam lithography.² Ge islands are coupled through ohmic contacts to the Si capping layer, and geometries can be defined that are suitable for either vertical or lateral transport. We describe low-temperature magneto-transport measurements on individual and small arrays of Ge islands grown on semi-insulating silicon substrates.

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

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