Formation and electrical characterization of directed self-assembled Ge/Si quantum dot\textsuperscript{1} 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.\textsuperscript{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.

\textsuperscript{1}This work is supported by DOE DE-FG02-07ER46421.