

Abstract Submitted
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Magneto-transport properties of Si-based Nanowires SUNGMU KANG, JUGDERSUREN BATTOGTOKH, ANDREW C. BUCHELE, DAVID A. MCKWEON, IAN L. PEGG, JOHN PHILIP¹, Catholic University of America, VITREOUS STATE LABORATORY COLLABORATION — We report the growth and magneto-transport properties of Si-based, Mn_5SiC nanowires grown using chemical vapor deposition. High resolution transmission electron microscopy and x-ray diffraction studies show that the nanowires crystallize in Mn_5SiC orthorhombic structure. Ferromagnetic Mn_5SiC nanowires were grown using a coordination complex-based precursor. In the presence of an external magnetic field, Mn_5SiC nanowire-based devices exhibit spin dependent transport properties at room temperature. A large change in current with almost two orders of magnitude increase is observed when a small field is applied parallel to the axial direction of the nanowire. We will discuss in details the magneto-transport properties of Mn_5SiC nanowire based devices.

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