

Abstract Submitted
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Transport studies on ultrathin silicide nanowires VIOLETA IANCU, CHANGGAN ZENG, Department of Physics and Astronomy, University of Tennessee, Knoxville, TN, 37996, STEPHEN JESSE, ARTHUR BADDORF, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, 37831, HANNO WEITERING, Department of Physics and Astronomy, University of Tennessee, Knoxville, TN, 37996 — Minute amounts of yttrium deposited on a silicon (100) surface assemble into ultrathin YSi₂ nanowires. Ultrathin nanowires receive a great deal of interest due to their possible uses as interconnects in nano-electronic devices or as nano-electrodes to measure e.g. the transverse current across DNA molecules in nanofluidic channels. Here we present electrical conductance measurements of a nanowire bridged by macroscopic electrodes and the characterization of the nanowire/electrode contact by scanning probe microscopy. The stability of the nanowires after exposure to air, water, and a KCl solution is also addressed for future use in nanofluidics. Research was conducted in part at the Center for Nanophase Materials Sciences, sponsored at Oak Ridge National Laboratory by the Division of Scientific User Facilities, U.S. DOE.

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