

Abstract Submitted
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Transport Measurements on Sb doped Silicon Nanowires

PRATHYUSHA NUKALA, Dept. of Electrical Eng. University of North Texas, MARZIEH ZARE, GOPAL SAPKOTA, Dept. of Physics University of North Texas, PRADEEP GALI, USHA PHILIPOSE, Dept. of Electrical Eng. University of North Texas — Semiconductor nanowires (NWs) present an alternative approach for device scaling. N-type Si NWs are generally grown with silane as source with phosphine and arsenic as dopants, all of which are toxic in nature. We present a safe, cost-effective approach for synthesis of n- doped Si NWs using Sb. Structural and compositional characterization using electron microscopy and X-ray spectroscopy will be presented for crystallographic information on the quality and morphology. Ohmic contacts established to a single and on an array of doped and undoped NWs in an FET type of device configuration will provide information on several parameters such as type of majority carriers, mobility and concentration. We will highlight the promise of Sb doped Si NWs for electronic applications such as nano-scale field effect transistors and sensors.

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