Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Gallium oxide nanostructures ROMANEH JALILIAN, University of Louisville, Department of Physics, GAMINI SUMANASEKERA, University of Louisville, Department of Physics, B. K. PRADHAN COLLABORATION, M. M. YAZDANPANAH COLLABORATION — Crystalline β-Ga_2O_3 nanowires with two distinct morphologies have been synthesized through simple physical evaporation of Te doped GaAs powder in argon atmosphere. Nanowires as long as hundreds of micrometers with diameters in the range of 10-100 nm have been produced with a high yield. Absence of Tellurium in the nanowires indicates that the growth mechanism is not VLS based. Substitution of sulfur in place of tellurium resulted in similar nanostructures. Some of the nanowires exhibit herringbone structure morphology and the TEM images showed hexagonal crystallites ordered in regular spacing along the nanowires axis and the crystal planes of the nanowires were parallel to one of the facets of the crystallite. The other nanowires morphology is essentially single crystalline nanoribbons. The structures of the nanowires were characterized by SEM, TEM, XRD, EDX, and Raman spectroscopy.

Romaneh Jalilian
University of Louisville, Department of Physics

Date submitted: 29 Nov 2004 Electronic form version 1.4