Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Aluminum Nitride Nanofibers fabricated using Electrospinning and Nitridation[1] XENIA BARBOSA, University of Puerto Rico at Humacao, EVA CAMPO, JORGE SANTIAGO, University of Pennsylvania, IDALIA RAMOS, University of Puerto Rico at Humacao, UPPEN-UPR PREM COLLABORATION[2] — Aluminum Nitride (AlN) and other nitride semiconductors are important materials in the fields of optoelectronics and electronics. AlN nanofibers were synthesized using electrospinning and subsequent heating under N_2 and NH_3 atmospheres. The precursor solution for electrospining contains aluminium nitrate and cellulose acetate. The electrospun nanofibers were heated in N_2 to eliminate the polymer and produce Al_2O_3, and then nitridized at a temperature of 1200 $^\circ$C under NH_3 flow. Scanning Electron Microscopy (SEM) observations demonstrate the production of fibers with diameters ranging from a few nanometers to several micrometers. X-Ray Diffraction and UV-VIs analyses show the production of AlN nanofibers with hexagonal wurzite structure and a band gap of approximately approximately 6 eV. Current-Voltage measurements on a single AlN fiber with gold electrodes suggest the formation of a Schottky contact The fabrication method and results from the fibers characterization will be presented.

[1]This work was funded by NSF-DMR-0934195
[2]This work was funded by PENN-UPR No. NSF-DMR-0934195

Xenia Barbosa
University of Puerto Rico at Humacao

Date submitted: 11 Nov 2011 Electronic form version 1.4