Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

**Schottky nanodiodes based on electrospun polymer nanofibers: Effect of varying fiber diameter**[1] RUT RIVERA, NICHOLAS PINTO, University of Puerto Rico - Humacao, ALAN JOHNSON JR., University of Pennsylvania
— We report on a simple method to fabricate, under ambient conditions and within seconds, Schottky nanodiodes using electrospun polyaniline nanofibers and an inorganic $n$-doped semiconductor. The objective of the present work is to investigate the role of surface states on the device operation by fabricating Schottky nanodiodes using fibers of varying diameter. The standard thermionic emission model of a Schottky junction was utilized in analyzing the data. As the fiber diameter gets smaller, the diode rectification ratio and the diode turn-on voltage shifts to lower values, while the diode barrier height and the ideality factor increase. The simple construction and high surface to volume ratio of the nanofiber also makes these devices attractive candidates in the potential fabrication of low power, supersensitive and rapid response reusable sensors.

[1]This work was supported by NSF

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Date submitted: 29 Nov 2007 Electronic form version 1.4