Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Photocatalytic Activity in Nitrogen-doped TiO_2 Nanowires[1] DE NYAGO TAFEN, Dept. of Physics, West Virginia University, Morgantown, WV 26506, JIN WANG, NIANQIANG WU, Dept. of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506, JAMES P. LEWIS, Dept. of Physics, West Virginia University, Morgantown, WV 26506 — We present a comprehensive experimental and theoretical study of the electronic properties and photocatalytic activity of nitrogen-doped anatase TiO_2 nanowires. UV-Vis spectra showed enhanced absorption in the visible light range for nitrogen doped nanowires compared to the plain sample. The nitrogen doped nanowires exhibit improved photocatalytic activity compared to the plain sample upon visible light irradiation while under exposure to UVA light the photocatalytic activity decreased after nitrogen doping. Furthermore, the incorporation of nitrogen introduces localized states in the band gap.

[1]Funded by NSF RII Grant EPS 0554328 with matching support from the WVU Corporation and the WV EPSCoR Office, and by NSF HP GS1280 system at the Pittsburgh Supercomputing Center.

De Nyago Tafen
West Virginia University

Date submitted: 29 Nov 2008 Electronic form version 1.4