

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Defect Induced Magnetism in Carbon Nanostructures** S. TALAPATRA, T. KIM, R. VAJTAI, S. KAR, JI YU CHEN, M. SHIMA, P. AJAYAN, Rensselaer Nanotechnology Center, Department of MS&E, RPI, Troy, NY 12180, M. HUANG, Department of Physics, SUNY Albany, NY 12203, USA., D. SRIVASTAVA, NASA Ames Research Center, Moffett Field, CA 94035, USA — We report on the effect of nitrogen (N) and carbon (C) implantations on the magnetic properties of nanosized diamond particles, which show ferromagnetic hysteresis behavior at room temperature. The saturation magnetization in the N-implanted samples exceeds that of the C-implanted samples for dose sizes greater than  $10^{14}/\text{cm}^2$ . The observed enhanced ferromagnetic ordering in N doped samples is explained on the basis of the structural modification (defects) and C-N bonding states, as investigated by high resolution transmission electron microscopy, Raman Spectroscopy and X-Ray Photo Electron Spectroscopy (XPS).

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Date submitted: 02 Dec 2005

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