Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Defect induced modification in thermal property of Regioreguler Poly(3-hexylthiophene) nanotube composites ANANTA ADHIKARI, College of Nanoscale Science and Engineering, State University of New York, Albany, NY-12203, CHANG RYU, Department of Chemistry and Chemical Biology, Rensselaer Polytechnic Institute Troy, NY-12180, PULLICKEL AJAYAN, Department of Material Science and Engineering, Rensselaer Polytechnic Institute Troy, NY-12180, HASSARAM BAKHRU — The interaction particularly, interfacial bonding between polymer and filler has remained a crucial phenomenon to be understood to optimize their uses in many practical applications. Up to now, most of the work is on the chemical fuctionalization for improving nanotube/matrix interaction. In this paper, we studied the effects of ion irradiation induced defects on thermal behaviors of Poly(3-hexylthiophene) nanotube composites using Thermogravimetry Analysis (TGA) and Differential Scanning Calorimetry (DSC). Where, the irradiation is used to introduce the defects in a control way on pristine nanotube before composite formation. Several interesting effects were observed; including thermal stability enhancement and defects induced enhanced interaction between nanotube and polymer, and substantial changes in spectroscopic behaviors of the composites due to irradiation.

Ananta Adhikari
College of Nanoscale Science and Engineering,
State University of New York, Albany, NY-12203

Date submitted: 22 Nov 2005 Electronic form version 1.4