Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Enhanced Dispersion in Polymer Nanocomposites by Optimized Hydrogen Bonding MARK DADMUN, ASIF RASHEED, University of Tennessee, PHILLIP BRITT, DAVID GEOHEGAN, ILIA IVANOV, Oak Ridge National Laboratory, HAN GI CHAE, SATISH KUMAR, Georgia Tech — The dispersion of the minor phase in a multi-component polymer system can readily lead to nonlinear enhancement of material properties. In any multi-component polymer system, including polymer nanocomposites, understanding and control of the dispersion of the nanofiller in the polymer matrix is critical to rationally design and create a *useful* new material. This presentation will discuss the work in our group to optimize the specific interactions between components of polymer nanocomposites. We will discuss results that indicate that the optimization of intermolecular interaction between components provides a controllable mechanism to improve the dispersion of nanoscale fillers in a polymer matrix and that the improved dispersion correlates directly to improved thermal, mechanical, and electrical properties.

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Date submitted: 04 Jan 2006 Electronic form version 1.4