

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Nanoparticle Ordering in Diblock Copolymer-based Supramolecular Systems** THOMAS SCHILLING, UC Berkeley, MSE, TING XU, UC Berkeley, MSE & Chemistry, SHIH-HUANG TUNG, UC Berkeley, MSE, YUE WU, UC Berkeley, Chemistry — A well-controlled nanoparticle dispersion within a polymer matrix can have a significant impact on a wide range of material properties. A simple, efficient strategy to direct nanoparticle assembly within nanoscopic domains has been developed. Cadmium selenide (CdSe) nanoparticles were directly blended with diblock copolymer-based supramolecules wherein small molecules were attached to the side chain of one block via hydrogen-bonding. Co-assembly of nanoparticle and supramolecule were examined using SAXS and TEM, confirming fine ordering of the nanoparticles. The influence of nanoparticle concentration on supramolecule microphase separation and nanoparticle ordering was studied. Various functionalities should be readily incorporable into these systems by simply varying the nanoparticle type. The hierarchical assembly of supramolecule and nanoparticles presents many new opportunities for the fabrication of functional nanodevices.

Thomas Schilling  
UC Berkeley, MSE

Date submitted: 03 Dec 2007

Electronic form version 1.4