

MAR09-2008-004159

Abstract for an Invited Paper  
for the MAR09 Meeting of  
the American Physical Society

### **Interaction, Structure and Transport of Polymer Grafted Nanoparticles<sup>1</sup>**

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Grafting polymers to nanoparticles has proven to be an effective means to disperse isotropic and anisotropic nanoparticles in polymer matrices. Depending on the grafting density, polydispersity and nature of polymer - nanoparticle interaction, such grafted nanoparticles can either be liquid-like, gel-like or crystalline solids. We examine here the nature of interactions between such grafted nanoparticles and correlate those to the structure, dynamics and transport in both solvent and polymer media.

<sup>1</sup>Thank NIST for beam time allocation and NSF for funding.