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Bimodal-Sized Magnetic Nanoparticles in Polymers ADAM HOLFERTY, PINAR AKCORA, University of Missouri-Columbia — Functionalization of iron oxide nanoparticles with polymer chain attachments offers the formation of equilibrium self-assembled structures. These structures find profound applications where reversible mechanism of self-assembly can be examined in a new model system. Here, we will present our initial results from the bottom-top synthetic approach of magnetic nanoparticles. Particles with varying sizes (bimodal size distribution) that are grafted with poly(styrene) chains are mixed in poly(styrene) in solution and their aggregation level and the effect of particle size ratio on the structures and mechanical behavior will be presented. The effects of collinear dipolar interaction and repulsion from grafted chains on the organization of particles within polymers are going to be discussed.

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