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Dynamics of polystyrene/polystyrene-capped gold nanoparticle mixtures PETER GREEN, HYUNJOON OH, University of Michigan, Ann Arbor — Studies of the chain dynamics and of the glass transition, T_g, of low molecular weight, unentangled, bulk mixtures of polystyrene (PS) with polystyrene-capped gold ($AuPS_{10}$) nanoparticles were performed using dielectric spectroscopy, capacitive scanning dilatometry and differential scanning calorimetry. Mixtures containing up to 5 weight percent of nanoparticles were examined; the nanoparticles were well distributed throughout all samples. A significant reduction of T_g was observed with the addition of the $AuPS_{10}$ nanoparticles. The dielectric spectroscopy measurements reveal significantly decreases in α relaxation times in these nanocomposites compared to pure PS.

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