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Effect of Nanoparticles on the Phase Morphology of Block copolymers. DAVID BUCKNALL, DEEPALI PALTA, Georgia Institute of Technology — In this study we show that addition of nanoparticulates to copolymer self-assembling molecular templates causes variations in the phase morphologies. We report the results of the bulk phase behavior of poly(styrene-dimethyl siloxane) (PS-PDMS) and poly(styrene-butadiene-styrene) (SBS) block copolymer systems with inclusion of different percent loadings of 1-50 nm particles of gold and endohedral fullerenes. The copolymer samples (both with and without nanoparticles) have been prepared and characterized using AFM, TEM, SAXS and ^{13}C-NMR measurements. We present results which show that even at relatively low concentrations nanoparticle inclusions (less than 2 wt./vol.%) the block copolymer phase morphology is altered from that of the native copolymer.

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