Abstract Submitted for the MAR09 Meeting of The American Physical Society

**Defect Structures in Block Copolymer/Nanoparticle Blends** HYUNG JU RYU, MICHAEL BOCKSTALLER, Carnegie Mellon University — We present a systematic study of the implications of nanoparticle additives on the defect formation in block copolymer/nanoparticle blends (BCP). The morphology of lamellar styrene/isoprene-based di- and triblock copolymers blended with polystyrenecoated gold nanocrystals at various filling fractions was analyzed using electron microscopy using stereology and image reconstruction. Three structural characteristics, i.e. the grain size distribution, grain orientation distribution and grain boundary structure, were analyzed as a function of polymer chain architecture, particle filling fraction and film processing conditions. With increasing particle filling fraction the average anisotropy as well as average grain size is observed to decrease as is the rate of grain growth during thermal annealing. The results are interpreted in terms of the stabilization of grain boundary structures through segregation of particle fillers to the grain boundary regions.

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Date submitted: 21 Nov 2008

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