

Abstract Submitted
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Magnetic Field Alignment of Block-Copolymer / Nanoparticle Composites MATTHEW R. HAMMOND¹, HERVE DIETSCH, OLIVIER PRAVAZ, PETER SCHURTENBERGER, Adolphe Merkle Institute, University of Fribourg, Switzerland — In composites of spindle-type magnetic nanoparticles dispersed in a cylinder-forming block copolymer (BCP), the nanorods can effectively template the orientation of nearby BCP cylinders. Specifically, the preferred cylinder alignment is predominantly parallel to the long axis of a neighboring particle. By application of a uniaxial magnetic field during composite casting from solution, the particles can be partially aligned, imparting an overall alignment to the final composite. At present, the alignment that has been achieved is only very modest, yet the method appears to be general, and future improvements should be forthcoming.

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