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Enhanced Self-Assembly Kinetics in Symmetric Ternary Block Copolymer Blends. GREGORY DOERK, PAWEL MAJEWSKI, AARON STEIN, KEVIN YAGER, CHARLES BLACK, Brookhaven Natl Lab, CENTER FOR FUNCTIONAL NANOMATERIALS TEAM — In this talk, we discuss recent work investigating the kinetics of topological ordering in thin films of symmetric, lamellae-forming polystyrene-b-poly(methyl methacrylate) (PS-PMMA) blended with equal parts of much smaller molecular weight PS and PMMA homopolymers. When using thermal annealing to promote order, 50% (w/w) homopolymer blends exhibit a dramatic increase in the power law exponent for pattern coarsening when compared to neat PS-PMMA, resulting in long-range order for short annealing times. The blends are also compatible with solvent vapor annealing in tetrahydrofuran vapor. This enables self-assembly in 50% (w/w) homopolymer blend films comprising PS-PMMA with molecular weight >500 kg/mol where orientational correlation lengths exceed 10 times those of the neat PS-PMMA under the same conditions.

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