

Abstract Submitted
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Molecular Interaction Control in Diblock Copolymer Blends and Multiblock Copolymers with Opposite Phase Behaviors¹ JUNHAN CHO, Dankook University — Here we show how to control molecular interactions via mixing AB and AC diblock copolymers, where one copolymer exhibits upper order-disorder transition and the other does lower disorder-order transition. Linear ABC triblock copolymers possessing both barotropic and baroplastic pairs are also taken into account. A recently developed random-phase approximation (RPA) theory and the self-consistent field theory (SCFT) for general compressible mixtures are used to analyze stability criteria and morphologies for the given systems. It is demonstrated that the copolymer systems can yield a variety of phase behaviors in their temperature and pressure dependence upon proper mixing conditions and compositions, which is caused by the delicate force fields generated in the systems.

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