

Abstract Submitted
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Fluctuation Effects on Phase Behavior of Gradient Copolymer Systems GUNJA PANDAV, VENKAT GANESAN, University of Texas at Austin — We consider the effect of sequence polydispersity on fluctuation induced shift in order-disorder transition (ODT) temperature for symmetric systems of gradient copolymers. Using single chain in mean field simulations, a systematic change in scaling prediction for shift in ODT with Ginzburg parameter is reported. We demonstrate that gradient strength and overall blockiness of sequences has a significant impact on shift in ODT temperature. The weak gradient copolymers having high compositional polydispersity mimic random copolymers whereas, strong gradient copolymers possess inherent blockiness and are close to diblock copolymers. The blockiness parameter has a minimal impact on shift in ODT in strong gradient copolymers. Also, ternary blends of homopolymer/gradient copolymer are investigated to capture effect of compositional polydispersity on phase diagram and formation of microemulsion structures.

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