

Abstract Submitted
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Morphologies of miktoarm polymer in thin film HYEYOUNG KIM, Univ of Mass - Amherst, BEOM-GOO KANG, Princeton, SERGEY CHERNY, Technical University of Denmark, MATTHIAS ARRAS, Oak Ridge National Laboratory, ZHIWEI SUN, JAEWON CHOI, Univ of Mass - Amherst, GREGORY SMITH, Oak Ridge National Laboratory, THOMAS RUSSELL, Univ of Mass - Amherst — The morphologies of A2B and ABC mikto-arm polymer in thin film were examined. The asymmetry of chain architecture of A2B mikto-arm polymer affects to the morphologies in thin film state. The change in the morphology under solvent vapor annealing for different ratio of solvent and different periods of time was observed by AFM. By comparing corresponding di-block copolymer, we proved that the phase diagram is shifted to higher volume fractions of the one block because of its asymmetric conformation. We also observed the long-range ordering formed on the saw-tooth pattern. The morphologies of ABC mikto-arm terpolymer consisted of polystyrene, polyisoprene and poly(2-vinyl pyridine) (PS-PI-P2VP) were examined by SAXS, AFM and TEM. We studied the structures for different annealing temperatures. The various types of self-assembly structures were observed because the interaction energy between each arms are changed depending on the temperature.

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