

Abstract Submitted
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Decay length of phase coherent block copolymer films: neutron reflectivity, analytical theoretical and simulation studies¹ JUNHAN CHO, Dankook University, KWANWOO SHIN, Sogang University, KWANGSOO CHO, Kyungpook University, WONYOUNG JUNG, SANGBO NA, Dankook University — Phase coherent thin films of symmetric diblock copolymers are investigated to study relationship between processing condition and thermodynamic responses for the manufacture of nanopatterned copolymer films. Temperature effects on phase coherent profiles and their decay lengths for some styrenic block copolymer films are firstly probed by using neutron reflectivity measurements. Pressure effects on those properties are secondly probed by using a recent field-theoretic simulation method for compressible systems. An analytical Landau theory in connection with a molecular model for perturbed hard chains is then introduced to give a molecular prediction of the reflectivity and simulation results for the copolymers.

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