

Abstract Submitted
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Reduced defectivity in lamellae through combined thermal and solvent annealing CORINNE CARPENTER, KRIS DELANEY, GLENN FREDRICKSON, Univ of California - Santa Barbara — We present a combination of string calculations and self-consistent field theoretic (SCFT) calculations of a symmetric block copolymer (BCP) in the presence of a small molecule solvent in order to examine its effects on the stability of dislocations and disclinations in confined lamellar systems. The use of string calculations provides information about the relevant energy barriers in the melting pathways of the two relevant defects at a range of solvent concentrations. As the defect is resolvated, we expect its extensive free energy difference from the perfect lamellar structure to increase, leading to a lower concentration of these defects at equilibrium. By combining these defect energies and their solvent conditions, we propose potential experimental annealing conditions for the removal of the two most prominent defects in the confined lamellar system.

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