

Abstract Submitted
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Influence of external pressure and surface energies on the phase evolution of ultrathin blend films under symmetrical confinement¹ ZHENG ZHANG, ZHEN WANG, YIFU DING, Univ of Colorado - Boulder — We investigate the phase evolution of an ultrathin (100 nm) PS/PMMA blend film strongly confined between two parallel rigid plates with identical surface energy. The symmetry was achieved by pressurizing a spun-cast PS/PMMA film on a silicon wafer with a native oxide layer against another silicon wafer under a nanoimprinter. During subsequent annealing without pressurization, preferential wetting of a component (PMMA) occurred on both substrates, leading to phase inversion. The correlation wavelength in the final morphologies was reduced in half, compared with non-capped systems. When annealed while maintaining an external pressure, the predominant preferential substrate wetting of PMMA was prevented completely.

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