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**Influence of Substrate Surface Energy on the Morphological Evolution of PS/PMMA Blend Thin Films** YIFU DING, DAE-UP AHN, ZHEN WANG, IAN CAMPELL, MARK STOYKOVICH, University of Colorado at Boulder — In this study, the morphological evolutions of PS/PMMA blend thin films are systematically characterized during thermal annealing on both preferential and non-preferential surfaces. The evolution of phases on preferential surfaces was dictated by the preferential wetting of the components, and the coarsening process of the PMMA domains. PS droplets with high spatial correlation were formed in a moderately asymmetric PS/PMMA blend because of PS dewetting via a controlled nucleation mechanism. In contrast, a more asymmetric blend evolved into PS droplets via a random nucleation process, such that the PS droplets did not exhibit spatial correlation and had a broad size distribution. The morphological evolution of the blends on relatively non-preferential surfaces was also dictated by domain coarsening, but proceeds without the formation of PMMA wetting layer. As a result, a diverse set of non-equilibrium, micro- and nanoscale morphologies were observed.

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