

Abstract Submitted  
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**Order and Disorder in a Lamella Forming Fluid Near an Attractive Substrate** ANDREW CROLL, Dept. Polymer Science and Engineering, University of Massachusetts, AN-CHANG SHI, KARI DALNOKI-VERESS, Dept. Physics & Astronomy and the Brockhouse Institute of Materials Research, McMaster University — By using wedged thin films, we have measured the effect of interfaces on the ordering of a diblock copolymer in real space. Symmetric diblocks can form lamellae and the strong preference of the substrate for one of the blocks can induce this ordering well above the order-disorder transition (ODT) temperature. However, the induced order decays away from the substrate  $\sim \exp(-x/\xi)$ . The lengthscale,  $\xi$ , diverges as the temperature is decreased at ODT, and two distinct regions are observed in the scaling of  $\xi$  with the temperature attributable to the two interfaces of the film (air and substrate). The dynamics of ordering and disordering near the substrate is found to be exponential in time, though the mechanisms differ. In disordering the distance from the substrate is unimportant, and all layers relax identically. However, the timescale of the formation of lamellae is found to vary significantly with the distance from the substrate.

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