

Abstract Submitted
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Shear-induced Long Range Order in Diblock Copolymer Thin Films XUAN DING, THOMAS RUSSELL, University of Massachusetts — Shear is a well-established means of aligning block copolymer micro-domains in bulk; cylinder-forming block copolymers respond by orienting cylinder axes parallel to the flow direction, and macroscopic specimens with near-single-crystal texture can be obtained. A stepper motor is a brushless, synchronous electric motor that can divide a full rotation into a large number of steps. With the combination of a stepper motor and several gear boxes in our experiment, we can control the rotating resolution to be as small as 1×10^{-4} degree/step. Also, with the help of a customized computer program we can control the motor speed in a very systematical way. By changing parameters such as the weight (or the uniform pressure) and the lateral force we can carry on experiment to examine the effect of lateral shear on different polymer systems such as PS-*b*-PEO (large χ) and PS-*b*-P2VP (small χ).

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