Dependence of lamellar nanostructures in block copolymer thin films on processing parameters

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Supporting Information

Fast Fourier transforms (FFT) of SEM images provide information about the periodicity ($L_o$) of the block copolymers used in this study. This allows the defect densities of block copolymers with different periodicities to be compared on an areal basis relative to the periodicity. Figures S1, S2, and S3 correspond to the FFT of PS-b-PMMA (53k:54k), PS-b-PMMA (47k:58k), and PS-b-PMMA (25k:26k), respectively. The periodicities were found to be 51.8 nm, 50.2 nm, and 34.5 nm for PS-b-PMMA (53k:54k), PS-b-PMMA (47k:58k), and PS-b-PMMA (25k:26k), respectively. The values found by our analysis agree well with values from the literature.¹

¹ Liu, G. L.; Stoykovich, M. P.; Ji, S. X.; Stuen, K. O.; Craig, G. S. W.; Nealey, P. F. *Macromolecules* 2009, 42, (8), 3063-3072.
Figure S1. Fast Fourier transform (FFT) of PS-b-PMMA (53k:54k). $L_o$ was determined to be 51.8 nm. The image used is shown on the left, the spectra is shown on the right, with the raw FFT inset. The markers correspond to values and the line serves to guide the eye. The presence of higher order peaks in the FFT spectra is indicative of a well-ordered lamellar morphology.

Figure S2. Fast Fourier transform (FFT) of PS-b-PMMA (47k:58k). $L_o$ was determined to be 50.2 nm. The image used is shown on the left, the spectra is shown on the right, with the raw FFT inset. The markers correspond to values and the line serves to guide the eye. The presence of higher order peaks in the FFT spectra is indicative of a well-ordered lamellar morphology.
Figure S3. Fast Fourier transform (FFT) of PS-b-PMMA (25k:26k). $L_0$ was determined to be 34.5 nm. The image used is shown on the left, the spectra is shown on the right, with the raw FFT inset. The markers correspond to values and the line serves to guide the eye. The presence of higher order peaks in the FFT spectra is indicative of a well-ordered lamellar morphology.