The Influence of Additives on the Interfacial Width and Line Edge Roughness in Block Copolymer Lithography

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Supporting Information
Figure S1: FTIR spectra of [BMPR][TFSI]

Figure S2: Real component of the scattering length density ($\rho_R$) as a function of distance from the substrate for the samples measured at 280 eV shown in Figure 3.
In order to check for the possibility of accumulation of the ionic liquid at the center of the lamellae at high concentrations a model which allowed for optical constant variation within the PMMA lamellae was tested on the sample with $\phi_{IL} = 0.10$ at 282 eV. The results of this fit are shown in Figure S4, which compares the model with a uniform distribution to the fits obtained for the model which assumes accumulation of the ionic liquid at the center of the PMMA domain. When relaxing the constraints on the accumulation model it

![Graphs showing comparison between uniform distribution model and IL localized to center of PMMA model](image)

Figure S3: Comparison of the uniform distribution model (top) with the model which forces the IL to accumulate at the center of the PMMA lamellae, demonstrating a uniform distribution of the IL throughout the PMMA lamellae.
Figure S4: Area per junction as a function of [BMPR][TFSI] volume fraction