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Supplementary Materials

SI 1. Example fits of eq. 2 to the diffusion data for at (a) 100oC and (b) 140oC for TFSI and (c) and (d) for Li.



SI 2. Fit to the 60°C data in the vicinity of 2q* according to the equation $1/I = 0.1155q^4 + 0.0005q^2 + 0.0014$.



SI 3. (a) Scattering intensity as a function of q and temperature normalized to the fit of the 60°C data in the vicinity of 2q^{*}. (b) Normalized scattering intensity with an exponential baseline subtraction.



SI 4. DSC profiles of electrolytes with salt concentration [Li]/[EO] = r = 0.02, 0.06, 0.08, and 0.30 and neat copolymer (<math>r = 0).



SI 5. TGA curve of neat copolymer. The temperature at 5% degradation is 195 °C.



SI 6. ¹H-NMR of PEO-POSS. A sharp peak due to PEO is visible at chemical shift, δ , 3.70 ppm and POSS at 0.63-0.65 ppm. The corresponding hydrogens are indicated on the PEO-POSS chemical structure labeled (a) from the PEO chain, (b) from the isobutyl groups on the POSS molecule, and (c) from the acrylate chain.



SI 7. Chloroform GPC of PEO-POSS and PEO acrylate. A shift to higher retention time in PEO-POSS diblock copolymer compared to PEO acrylate confirms the polymerization.