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Ion transport through block copolymer electrolytes SCOTT MULLIN, ASHOUTOSH PANDAY, NITASH BALSARA, UC Berkeley — Poly(styrene)-*block*-poly(ethylene oxide) (SEO) is a candidate material for electrolytes for rechargeable lithium metal batteries. The PS phase suppresses lithium dendrite growth on the anode during recharge, and the PEO phase solvates lithium bis(trifluoromethane)sulfonimide (LiTFSI) salt to form conducting pathways. Complete electrochemical characterization of PEO/LiTFSI mixtures requires measurement of conductivity, salt diffusion coefficient, and lithium ion transference number. The present study covers SEO copolymers that exhibit lamellar and cylindrical morphologies in the absence of salt. The addition of salt affects morphology but the relationships between morphology and electrochemical characteristics have not yet been clarified. Some aspects of these relationships will be presented.

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