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Block Copolymer Exhibiting Simultaneous Electronic and Ionic Conduction SHRAYESH PATEL, ANNA JAVIER, NITASH BALSARA, University of California, Berkeley and Lawerence Berkeley National Lab — Poly(3-hexylthiophene)-block-Poly(ethylene oxide) (P3HT-PEO) allows for the simultaneous conduction of electronic and ionic charges at the nanometer length scale needed for lithium battery electrodes. In order to study the charge transport properties of P3HT-PEO, we characterized a series of P3HT-PEO block copolymers with and without the addition of lithium bis(trifluromethanesulfonyl) imide (LiTFSI). We specifically looked at the relationship between morphology and the transport of both electronic and ionic charges. Previously reported work has primarily focused on transport of one charged species. In particular, the results of the study shed light on the effects of LiTFSI on electronic conduction and the intrinsic electronic conduction of the P3HT microphase.

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