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Impact of morphology on conductivity of lamellar block copolymer electrolytes for battery applications VENKAT GANESAN, University of Texas at Austin, VICTOR PRYAMITSYN, The University of Texas at Austin — We use bond fluctuation model based Monte Carlo simulations to study the correlations between structure and the conductivity of the lamella phase of block copolymer electrolytes. We investigate the effects of degree of segregation, polymer molecular weights and the alignment of the lamellae upon the conductivity of the block copolymer lamella. Our results indicate different influences of the preceding factors upon the conductivities parallel and perpendicular to the lamellae. These results are rationalized in terms of the distributions of the ions and the overall inhomogeneous dynamics of the polymer molecules.

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