

Abstract Submitted
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Elucidating the correlation between morphology and ion dynamics in polymerized ionic liquids.¹ MAXIMILIAN HERES, TYLER COSBY, Univ of Tennessee, Knoxville, CIPRIAN IACOB, JAMES RUNT, The Pennsylvania State University, ROBERTO BENSON, HONGJUN LIU, STEPHEN PADDISON, JOSHUA SANGORO, Univ of Tennessee, Knoxville — Charge transport and dynamics are investigated for a series of poly-ammonium and poly-imidazolium-based polymerized ionic liquids (polyIL) with a common bis(trifluoromethylsulfonyl)imide anion using broadband dielectric spectroscopy and temperature modulated differential scanning calorimetry. A significant enhancement of the Tg independent ionic conductivity is observed for ammonium based polyIL with shorter pendant groups, in comparison to imidazolium based systems. These results emphasize the importance of polymer backbone spacing as well as counter-ion size on ionic conductivity in polymerized ionic liquids.

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