

Abstract Submitted
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Morphology and charge transport in ammonium based polymerized ionic liquids¹ MAXIMILIAN HERES, JOSEPH MINUTOLO, JACOB SHAMBLIN, MAIK LONG, Univ of Tennessee, Knoxville, STEFAN BERDZINSKI, VERONIKA STREMEL, Department of Chemistry and Institute for Coatings and Surface Chemistry, Hochschule Niederrhein University of Applied Sciences, Krefeld, Germany, JOSHUA SANGORO, Univ of Tennessee, Knoxville — Ionic conduction, structural dynamics and morphology in a series of ammonium based polymerized ionic liquids are investigated using broadband dielectric spectroscopy, temperature-modulated differential scanning calorimetry, and neutron as well as x-ray scattering techniques. The dielectric spectra are dominated on the low frequency regime by electrode polarization while hopping conduction is the underlying mechanism at higher frequencies. At their respective calorimetric glass transition temperatures, a strong correlation between the morphology and ionic conductivity is found. These results are discussed within the recent approaches proposed to explain the decoupling of charge transport from structural dynamics.

¹UT/ORNL Science Alliance

Maximilian Heres
Univ of Tennessee, Knoxville

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