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Thermoreversible Ion Gels by Block Copolymer Self-assembly in Ionic Liquids YIYONG HE, TIMOTHY LODGE[1], University of Minnesota — Ion gels, formed by swelling a polymer network with ionic liquids, have been shown to be promising candidates towards highly conductive solid-state electrolytes. Through the self-assembly of triblock copolymers in room-temperature ionic liquids, transparent ion gels could be obtained. Due to the low copolymer concentration, the ionic conductivity of the resulting ion gels is only modestly affected by the triblock copolymer network. By further selecting thermo-responsive end blocks in the triblock copolymers, thermoreversible ion gels were developed. The gelation behavior, ionic conductivity, rheological properties, and microstructure of the ion gels were investigated in detail. The results presented here suggest that triblock copolymer gelation is a promising way to develop highly conductive ion gels.

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