Properties of ionogels prepared by mixing of ionic liquid and lithium salt

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Novel ionic mixtures of LiTf₂N and an imidazolium-based cation with phosphate anion bearing ethylene oxide unit were prepared. The prepared ionic mixtures exhibited better ion transport behavior than pure ionic liquid despite the mixture had solid-like viscoelasticity behavior. Based on the experimental results including optical properties, small angle X-ray scattering (SAXS) and electrochemical analysis, we suggested that the ionic mixtures had been self-assembled with smectic ordered structure due to the Coulombic interactions between ion species.