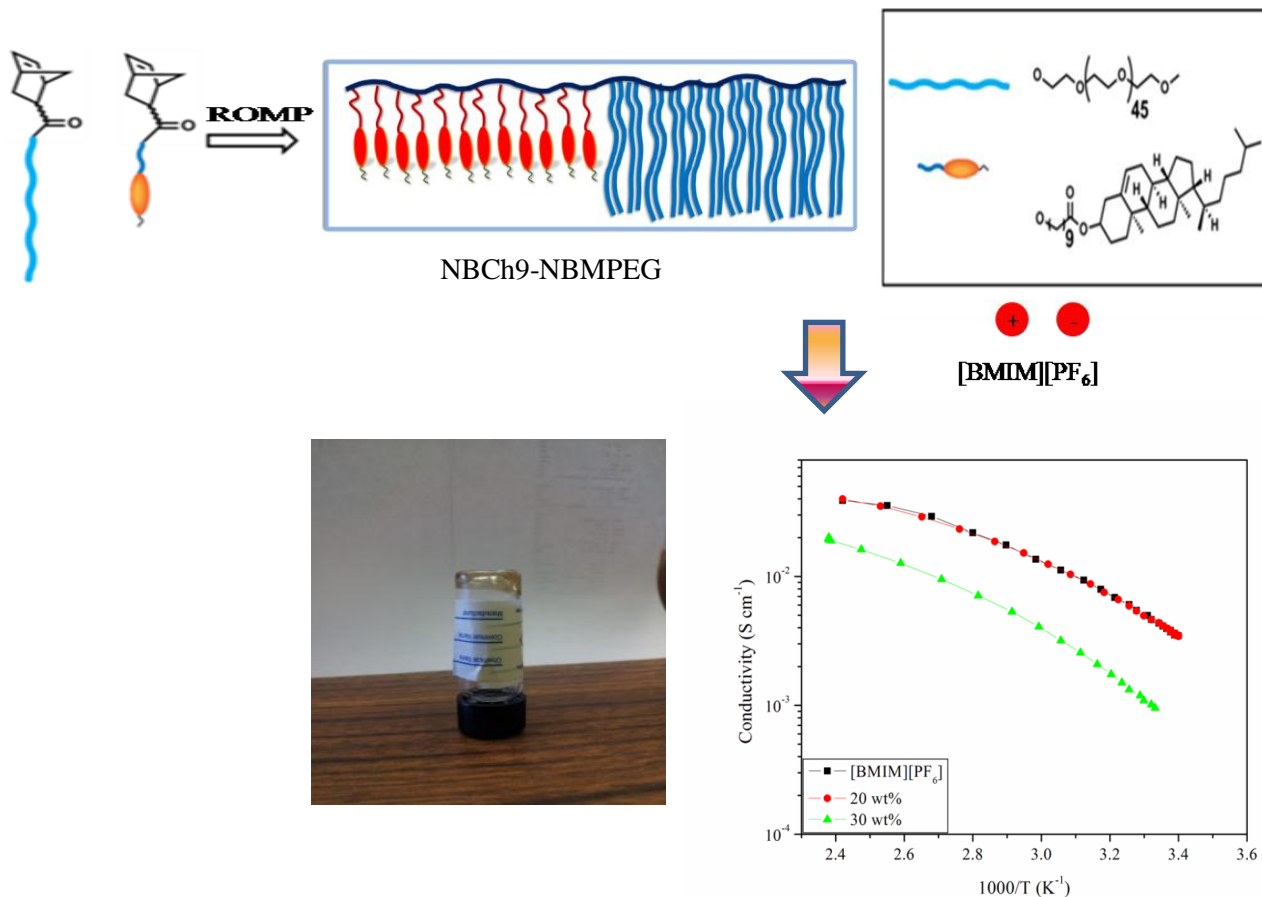


Ion gels from block copolymers composed of liquid crystalline units and brush-like moieties in ionic liquids

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We describe a new set of ion-gels prepared *via* self-assembly of NBCh9-b-NBMPEG diblock copolymer in a room temperature ionic liquid (IL), 1-butyl-3-methylimidazolium hexafluorophosphate [BMIM][PF₆]. At moderately concentrations of 20 wt%, we demonstrate the formation of strong ion-gel with high gelation temperature ($T_{\text{gel}} \sim 56^\circ\text{C}$) and high ionic conductivities similar to bulk [BMIM][PF₆]. Ionic conductivity studies on these gels have shown moderate affect due to structuring soft materials as compared to bulk IL and thus are good candidates for electrolyte applications. We will investigate the modification of polymer architecture and brush length to optimize mechanical properties and ionic conductivity. .