Rigid Condensation Polymers Based on Ionic Liquids

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Ionic liquids (ILs) are well known for their tunable structures and it has been proposed that at least 10^6 "simple" ILs are possible based on readily available starting materials. Here, we extend this concept to the synthesis of vast array of unprecedented polymer materials based on cations linked by rigid groups. Our approach provides opportunities for control over polymer properties (e.g. Tg, free volume) but may also promote supramolecular assembly between polymer chains which can result in highly ordered and porous nanostructures. This talk will focus on material design, synthetic methods, polymer characterizations and modeling.