

Synthesis of a calcium coordination polymer with flexible components

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Recently, coordination polymer (CP) liquids/glasses have garnered significant attention due to their absence of grain boundary and high processability.^{1,2} In terms of the metal cation for CP liquid/glasses, existing research primarily focused on heavy metal cations, while CP liquid/glasses with light metal cations are relatively scarce. Considering that calcium cation offers several advantages, including biocompatibility, affordability, and abundance, this study targeted Ca CP liquid/glasses.

The 1D Ca CP $[\text{Ca}(\text{NTf}_2)(\text{bppdo})(\text{H}_2\text{O})_2] \cdot \text{NTf}_2$, in which NTf_2 (bis(trifluoromethanesulfonyl)imide) and bppdo (1,3-bis(4-pyridyl)propane-*N,N'*-dioxide) are flexible components to construct CP liquid/glasses, was synthesized from $\text{Ca}(\text{NTf}_2)_2$ and bppdo in methanol solution. The secondary building units of $[\text{Ca}_2(\text{pyridine-}N\text{-oxide})_2]$ are bridged by the bppdo ligand to form a 1D doubly linked chain structure (Figure 1). The detailed phase transition behavior will be presented.

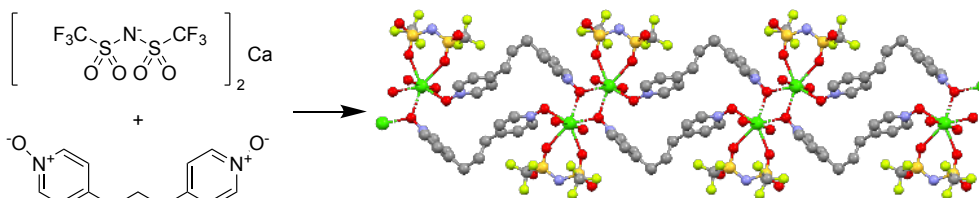


Figure 1. Structure of 1D Ca CP.

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