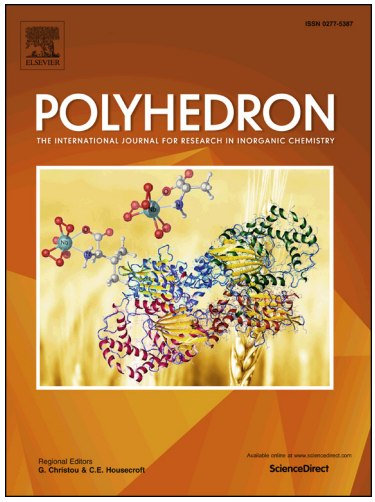

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Self-assembly of three cationic silver(I) coordination networks with flexible bis(pyrazoly)-based linkers

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Abstract

Three new cationic silver(I) coordination polymers, $\{[Ag(\mu\text{-bpmb})](SO_3CF_3)\}_n$ (**1**), $\{[Ag(\mu\text{-bdb})_{1.5}](SO_3CF_3)\}_n$ (**2**) and $\{[Ag(\mu\text{-bpb})_2](NO_3)\}_n$ (**3**), with flexible 1,4-bis[(pyrazolyl)methyl]benzene (bpmb), 1,4-bis[(3,5-dimethylpyrazolyl)methyl]benzene (bdb), and 1,4-bis(pyrazolyl)butane (bpb) have been prepared at room temperature by the solvent layering method. The three compounds were characterized by FT-IR spectroscopy, PXRD, elemental analyses and single-crystal X-ray diffraction. Compound **1** is a highly undulated polymeric 1D chain in which the silver ions adopt a linear geometry, coordinating two bpmb linkers. Compounds **2** and **3** are both 2D coordination polymers with their silver atoms being three and four coordinated, and resulting in $\mathbf{6^3}$**-hcb** and $\mathbf{4^4}$**-sql** underlying net topologies, respectively. The flexible bispyrazolyl ligands display various conformations in the solid state, causing the formation of different Ag...Ag separations in the polymeric structures.

Keywords: Silver(I), coordination polymer, flexible ligand, pyrazolyl ligand.