

Poster Presentation

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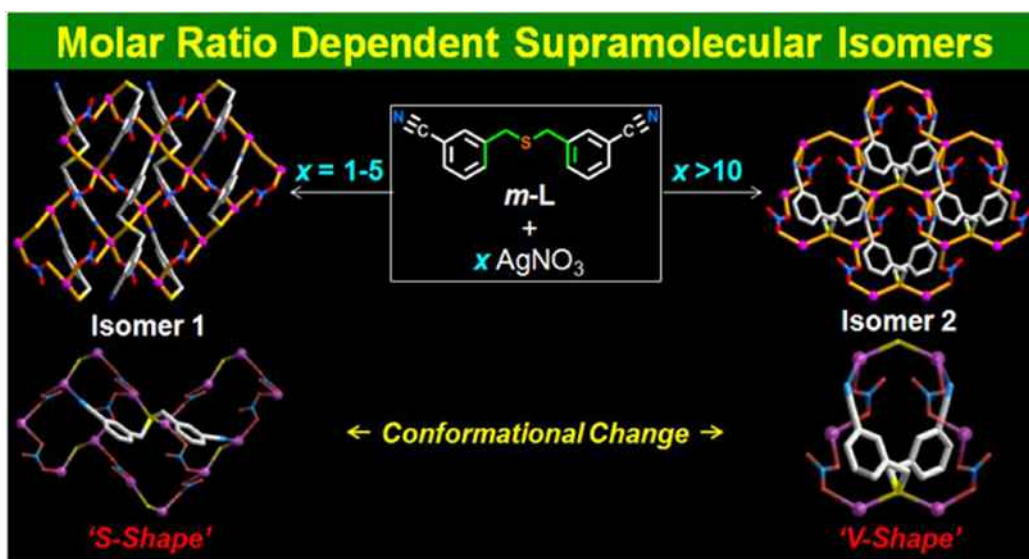
Mole-Ratio-Dependent Supramolecular Isomerism in Ag(I) Coordination Networks

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Three regioisomers (*o*-L, *m*-L, and *p*-L) of bis(cyanobenzyl)sulfide were employed to examine the effect of ligand isomers on the networking assembly. In the reaction of *m*-L with silver(I) nitrate, supramolecular isomers **1** and **2** of stoichiometry $[\text{Ag}_2(\textit{m}\text{-L})(\text{NO}_3)_2]_n$, each comprising a 2D polymeric network were obtained on varying the mole-ratio of the reactant (see the below scheme). Notably, the overall structural motifs of **1** and **2** are mainly due to the conformational differences of the tridentate *m*-L: 'S-shaped' in isomer **1** and 'V-shaped' in isomer **2**. Under identical reaction conditions, the ligand isomers *o*-L and *p*-L yield a loop-chain type 1D coordination polymer $[\text{Ag}(\textit{o}\text{-L})\text{NO}_3]_n$ (**3**) and a multichannel 3D framework structure $[\text{Ag}_2(\textit{p}\text{-L})(\text{NO}_3)_2]_n$ (**4**), respectively. The formation of these products shows no mole-ratio dependency.¹ Among the ligand isomer, *p*-L showed the anion-dependent complexes **5** - **7** with different topologies in the reactions of silver(I) salts ($X = \text{ClO}_4^-$, PF_6^- , or CF_3CO_2^-). AgClO_4 afforded a double-stranded 1D polymer of type $[\text{Ag}(\textit{p}\text{-L})(\text{ClO}_4)]_n$ (**5**). Meanwhile, treatment of AgPF_6 and AgCF_3CO_2 afforded a 2-fold interpenetrated 3D coordination polymer $\{[\text{Ag}_3(\textit{p}\text{L})_4](\text{PF}_6)_3 \cdot 4\text{CH}_2\text{Cl}_2\}_n$ (**6**) and a multichannel 3D network $[\text{Ag}_2(\textit{p}\text{L})(\text{CF}_3\text{CO}_3)_2]_n$ (**7**), respectively.

[1] E. Lee, J.-Y. Kim, S. S. Lee, et al., Chem. Eur. J. 2013, 19, 13638-13645



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