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Lili Liang, Hongbao Xue, Feijian Chen, Manli Zhang, Bingyuan Zhang, Zhaolin Tao



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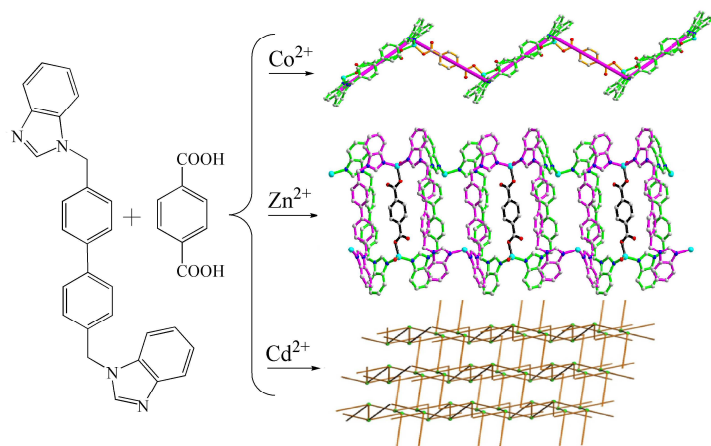
Lili Liang^{a,b}, Hongbao Xue^a, Feijian Chen^a, Manli Zhang^a, Bingyuan Zhang^a, Zhaolin Tao^{a,*}

^a*Department of Chemistry, Bengbu Medical College, Bengbu, Anhui 233030, China*

^b*State Key Laboratory of Coordination Chemistry, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, P. R. China*

Solvothermal reactions of three metal salts with a linear semi-rigid ligand 4,4'-bis(benzimidazol-1-ylmethyl)biphenyl (bbmb) and terephthalic acid (TA), lead to three metal-organic coordination polymers, namely, {[Co(bbmb)(TA)]·4H₂O} **1**, [Zn₂(bbmb)₂(TA)(NO₂)₂] **2** and [Cd(bbmb)(TA)(H₂O)] **3**. Single-crystal X-ray diffraction analyses reveal that compound **1** exhibits a zigzag-shaped 1-D chain, which extended into a three-dimensional supermolecular framework through π - π interactions, compound **2** exhibits a thick two-dimensional sheet, while compound **3** exhibits a unique 3D two-fold interpenetrated network of irl topology. Moreover, IR spectroscopy, powder X-ray diffraction, thermogravimetric analyses, and the properties of the three compounds were studied.

Graphical Abstract



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