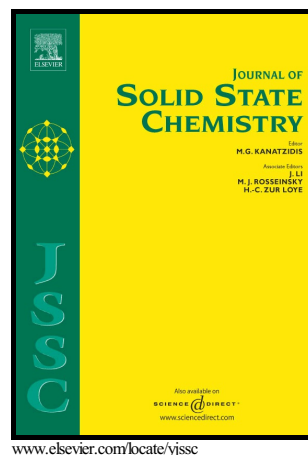


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Construction, Structural Diversity and Properties of Five Coordination Polymers Based on 5-Nitroisophthalate and Bis(imidazole) Linkers

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Abstract

Five coordination polymers, namely, $[\text{Cd}(\mu_3\text{-5-nip})(\mu\text{-obix})]_n$ (**1**), $[\text{Co}(\mu_3\text{-5-nip})(\mu\text{-obix})]_n$ (**2**), $[\text{Zn}(\mu\text{-5-nip})(\mu\text{-obix})]_n$ (**3** and **4**) and $[\text{Cd}(\mu\text{-5-nip})(\mu\text{-bisobix})]_n$ (**5**) (5-nip: 5-nitroisophthalate, obix: 1,2-bis(imidazol-1-ylmethyl)benzene, bisobix: 1,2-bis(2-isopropylimidazol-1-ylmethyl)benzene) were hydrothermally synthesized and characterized by IR spectroscopy, elemental analysis, single crystal and powder X-ray diffraction and thermal analysis (TG/DTA). X-ray results showed that the complexes displayed structural diversity depending on metal ions and conformations of bis(imidazole) linkers. Complexes **1** and **2** were 1D structures and obix ligand displayed *cis*-conformation. Complexes **3** and **4** exhibited 2D and 3D structures with same components depending on obix conformation. In complex **5**, 3D+3D→3D interpenetrated structure was obtained with dia topology when bisobix having sterically hindered groups on imidazole rings was used. Moreover, thermal, photoluminescence and optical properties of the complexes were also investigated.

Graphical Abstract

Five coordination polymers were systematically synthesized with 5-nipH₂ and bis(imidazole) linkers under hydrothermal conditions and characterized by various techniques. X-ray results showed that the complexes displayed structural diversity depending on metal ions and conformations of bis(imidazole) linkers. Complexes **1** and **2** were 1D structures and obix

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