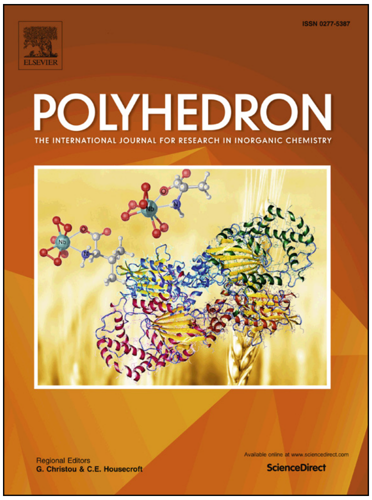

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Three Isostructural Azo-functionalized 3D Cd(II)-Coordination Polymers for Solvent Dependent Photoluminescence Study

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Abstract: Constructions of coordination polymers by applying mixed ligand approach have taken a huge attention to researcher which can be structurally designed by choosing particular components according to the desired applications. An unexploited azo functionalized N,N' spacer, **L** = [3,3'-azobis(pyridine)], and three different dicarboxylate co-linkers such as 1,4-naphthalene dicarboxylic acid (NDC), 2-amino terephthalic acid (2-ATA), and 2-nitro terephthalic acid (2-NTA), give rise to three isostructural coordination polymers (CPs) with Cd(II) metal ions with molecular formula of $\{[Cd(NDC)(L)]\cdot xS\}_n$, (**CP-1**), $\{[Cd(2\text{-}ATA)(L)]\cdot xS\}_n$ (**CP-2**) and $\{[Cd(2\text{-}NTA)(L)]\cdot xS\}_n$ (**CP-3**) (S = Guest molecules) respectively. All the CPs are constructed via room temperature slow evaporation process and characterized by single crystal X-ray analysis, TGA, FT-IR, PXRD and elemental analysis. The topological analysis reveals that all the CPs feature a 6c-uninodal rare '***rob***' topology with the point symbol $\{4^8.6^6.8\}$ and possess a dense 3D structure having predefined functionalities on framework backbones. The solvent dependent photoluminescence property has been investigated for all the CPs showing their emissive nature at 379 nm, 419 nm, and 415 nm while excited at 275 nm, 270 nm and 310 nm respectively. The measurements indicates that all the CPs show the quenching in emission spectra for the solvents nitromethane and nitrobenzene.