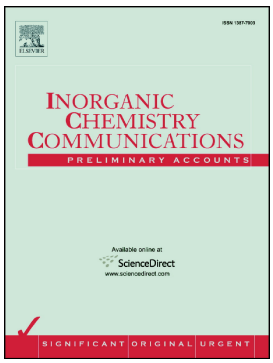

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Syntheses, structures and photoluminescence properties of two 2D Cd(II) coordination polymers based on a semirigid tridentate N-donor ligand

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Abstract

The assembly of a semirigid tridentate N-donor ligand with Cd(II) ions afforded two novel coordination polymers, $[Cd(tipa)(H_2O)_2\cdot 2NO_3\cdot 2DMF\cdot H_2O]_n$ (**1**), $[Cd_2(tipa)_2Cl_4\cdot 2DMF\cdot 6H_2O]_n$ (**2**), where tipa = tris(4-(1H-imidazol-1-yl)phenyl) amine. Structural analyses indicate that the two compounds feature 2D layered networks. A 3-connected uninodal net with point symbol of $(8^2\cdot 10)$ is constructed in compound **1** by the connection of tipa and metal ions, in which the terminally coordinated water molecules prevent further extension of the layer. Compound **2** features $[Cd_2Cl_4]$ motifs, which are bridged by tridentate tipa ligands into a 2D (3,6)-connected layer. The results show that tipa with different dihedral angles between benzene ring and terminal imidazole groups can act as versatile building blocks for the generation of various networks. Moreover, the photoluminescence properties of **1** and **2** in the solid state at room temperature have been investigated.

Keywords: Coordination polymers; Crystal structures; Photoluminescence