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Zinc(II) and cadmium(II) complexes of long flexible bis(imidazole) and phenylenediacetate ligands, synthesis, structure, and luminescent property

Mei-Li Zhang, Yan-Jin Zheng, Zhen-Zhen Ma, Yi-Xia Ren, Jia Cao, Zhi-Xiang Wang, Ji-Jiang Wang

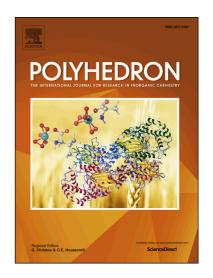
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ACCEPTED MANUSCRIPT

Zinc(II) cadmium(II) complexes and long flexible of

ligands, and phenylenediacetate bis(imidazole) synthesis,

structure, and luminescent property

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**Abstract.** Four new Zn(II) and Cd(II) coordination complexes,  $[Zn(p-pda)(m-bib)] \cdot H_2O$  (1),

 $[Zn(m-pda)(o-bib)] \cdot H_2O$  (2), [Cd(o-pda)(o-bib)] (3),  $[Cd(m-pda)(o-bib)] \cdot H_2O$  (4),  $(H_2pda = a) \cdot H_2O$ 

phenylenediacetic acid, bib = 1,4-bis(imidazol-1-ylmethyl)benzene), have been synthesized, and

structurally characterized by elemental analysis, IR spectroscopy, single-crystal X-ray

crystallography. Complex 1 exhibits a 3D porous network based on 2D loop-containing layer.

Complex 2-4 possesses a 3D network extended by 2D net. Differently, in complex 3, the 2D

network stack in an ABAB mode, while equivalent wave-like 2D networks mutually interpenetrated

with each other to generate a 2D→3D entangled system in 2 and 4. Furthermore, the relationship

between molecular conformation, packing modes and fluorescence properties have also been

investigated.

Keywords: Cordination complexes; Porous network; Fluorescence properties

1. Introduction

Benefiting from their intrinsic tunability and modularity, coordination polymers, which are

composed of metal ions and bridging organic ligands, have been recognized as an excellent

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