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Research paper

Construction of New 1D and 2D Coordination Polymers Generated from Rigid N,N'-bis(4-pyridylmethylene)-1,5-naphthalenediamine Ligand: Syntheses, Crystal Structures and Luminescence Properties

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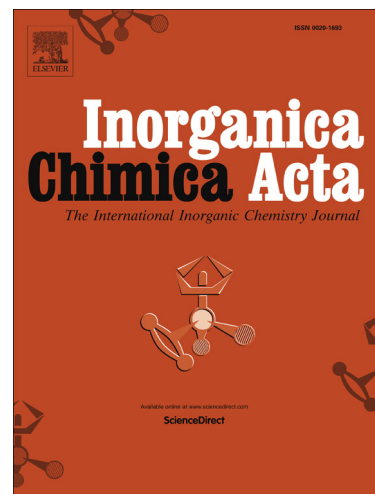
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Construction of New 1D and 2D Coordination Polymers Generated from Rigid N,N'-bis(4-pyridylmethylene)-1,5-naphthalenediamine Ligand : Syntheses, Crystal Structures and Luminescence Properties

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Abstract

Treatment of N,N'-bis(4-pyridylmethylene)-1,5-naphthalenediamine (L) with Pb(OAc)₂/KBr, Cu(acac)₂, and Cu(OAc)₂ afforded three new coordination polymers [Pb(μ-L)(μ-Br)₂]_n (**1**), [Cu(μ-L)(acac)₂]_n (**2**), and [Cu₂(μ-L)(μ-OAc)₄]_n (**3**). These coordination polymers have been structurally characterized by single crystal X-ray diffraction. Compound **1** has a 2D sheet structure in which the lead(II) centers are bridged by both L and bromide ligands. Compound **2** adopts a 1D neutral coordination chain and consists of bis(2,4-pentanedionato) copper(II) units connected by rigid bridging L ligands. The structure of compound **3** also adopts a 1D neutral coordination chain in which two copper centers are connected through four acetate groups to form a Cu(OAc)₄Cu paddle-wheel-type cage between two bridging L ligands. The FT-IR spectra, thermal behavior and photoluminescence properties of these coordination polymers have also been investigated.

Keywords: Coordination polymer, Dipyriddy ligand, Single crystal X-ray diffraction, Thermal behavior, Photoluminescence property

1. Introduction

The rational design and construction of novel coordination polymers have attracted great academic and commercial interest in the field of supramolecular chemistry and crystal

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