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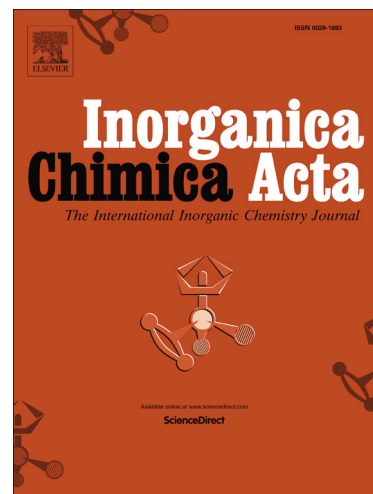
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Synthesis and characterization of an inorganic-organic hybrid copper coordination polymer based on well-defined Keggin polyanions

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A new inorganic-organic hybrid complex based on well-defined Keggin-type polyoxometalates and copper-lutidine assemblies, namely, $[\text{Cu}_3(3,5\text{-Lutidine})_6(\text{PW}_{12}\text{O}_{40})]_n$ (**1**), has been obtained under hydrothermal conditions and characterized by elemental analysis and single crystal X-ray diffraction. The X-ray diffraction analysis reveals that compound **1** is three-dimensional (3D) supramolecular structure with 'sql' topological 2D layer. The photocatalytic experiments indicate that **1** exhibit good catalytic activity for photodegradation of Rhodamine B (RhB) with UV irradiation. The thermal stabilities and fluorescent properties of this complex have also been studied.

1. Introduction

Over the last decades, design and synthesis of organic-inorganic hybrid materials based on polyoxometalates (POMs) has aroused considerable attention in the field of material science due to their potential applications and excellent properties in catalysis, magnetism, electrochemistry, biochemistry, photochemistry and material science[1-16], as well as the intriguing architectures and topologies[6-9, 17-20]. Especially, with the advent of modern high-resolution and sophisticated instrumentations, the number of POM-based functional solid materials has been expanding at an explosive rate [1, 2, 21, 22]. Recently, a remarkable branch was represented and widely spread, that is utilization of secondary building units (SBUs) for constructing hybrid materials with fascinating configurations and desired properties [23-28]. As a class of valuable inorganic building blocks, polyoxometalates (POMs) not only have structural diversity and rich coordination modes but also can bring special properties to the hybrid materials. It has been regarded as one kind of structurally outstanding SBUs in preparing hybrid materials [23-25, 29].

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