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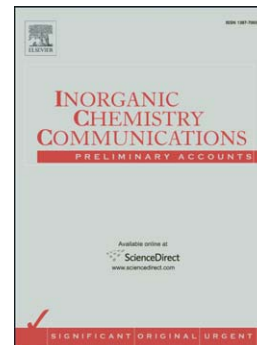
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A luminescent europium metal-organic framework probe for selective sensing of pollutant small organic molecules in high sensitivity

Rong-Fang Li Tian Zhang Xin-Fang Liu Xun Feng*

College of Chemistry and Chemical Engineering and Henan Key Laboratory of Function Oriented Porous Materials, Luoyang Normal University, Luoyang 471934, China

ABSTRACT A luminescent europium metal-organic framework $[\text{Eu}(\text{Hbptc})(\text{H}_2\text{O})_3]_n$ (**1**) has been successfully prepared by the facile hydrothermal reaction of $\text{Eu}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$ and the π -conjugated ligand H_4bptc (H_4bptc = biphenyl-2,3,3',5'-tetracarboxylic acid). Single crystal structure analysis reveals that **1** exhibits a 2D layered structure. The luminescence studies revealed that this material can be selectively and sensitively quenched or enhanced by some small organic molecule solvents, showing potential as fluorescence probe.

Keywords: Metal-organic framework, Luminescence, Selective sensing, Small organic molecule

Some organic small molecular compounds such as benzene series, dichloromethane, N, N-dimethylformamide and acetonitrile have become serious pollution sources of groundwater, soils, and other security applications due to their explosivity or high toxicity [1-3]. Hence, the convenient and high-efficiency detective technologies based on these organic small molecules have received much attention from chemists. Some traditional detective methods bearing high selectivity such as electron capture detection, surface-enhanced Raman spectroscopy, cyclic voltammetry, and gas chromatography [4-6] are usually expensive, inconvenient for manipulation. Therefore, new technologies need to be developed so that detection may be completed cheaply and rapidly. Lanthanide ions have abundant and characteristic luminescence properties due to their

* Corresponding authors, E-mail addresses: fengx@lynu.edu.cn;

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