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A fluorenyl-based metal-organic framework with photocatalytic property

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Metal-organic frameworks (MOFs) have potential applications in the fields of sorption and separation, catalysis and luminescence. Here, a 3D compound $\{[Zn_2(BPF)(NH_2-BDC)_2]\}_n$ (1) was constructed with 2,7-bis(4-pyridyl)fluorene (BPF) and 2-aminoterephthalic acid (NH₂-BDC) as bridging ligand. The single crystal X-ray study showed that compound 1 displays pillar-layered structure. The solid-state emission spectra of the compound have been studied at room temperature. Compound 1 shows strong emission at 495 nm, which is stronger than that observed in the free BPF (424 nm). The enhancement of luminescence may be attributed to the chelation of ligand with metal center, which effectively increases the rigidity of the ligand and reduces the loss of energy by radiation decay. The band gap (2.75 eV) was measured by a solid state visible light diffuse reflection measurement method at room temperature. We select methylene blue (MB) as a model of dye contaminant to evaluate the photocatalytic effectiveness. Approximately 50% of MB was degraded in four hours under neon light at 500 W.

Biography

Rong-Xin Yuan has completed his PhD in 2002 at Nanjing University. From 2002 to 2004, he worked at University of Bielefeld and University of Nottingham as a Postdoctoral fellow. Now, he is the Director of Jiangsu Provincial Key Laboratory of Advanced Functional Materials. He has published more than 50 papers in reputed journals and has been serving as an Editorial Board Member of the *Journal of Soochow University* (Natural Science Edition).

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