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Abstract

In this work, a novel water-stable coordination polymer with $\{4^4\}$ network topology $\{[Zn(L)_2(NO_3)_2]\}_n$ (**1**) (L = 4,4'-Bis(triazol-1-ylmethyl)biphenyl) has been synthesized through the hydrothermal and sonochemical approaches. **1** has been characterized by single crystal X-ray diffraction, powder X-ray diffraction (PXRD), Fourier Transform Infrared Spectroscopy, UV-vis absorption spectrum and scanning electron microscopy (SEM). PXRD patterns of the as-synthesized samples **1** have confirmed the purity of the bulky samples. In the sonochemical preparation approaches, different ultrasound irradiation power and ultrasound time were also used in order to investigate the impact factor for morphology and size of nano-structured **1**. Photo-luminescence studies have revealed that **1** can efficiently distinguish Fe^{3+} from