

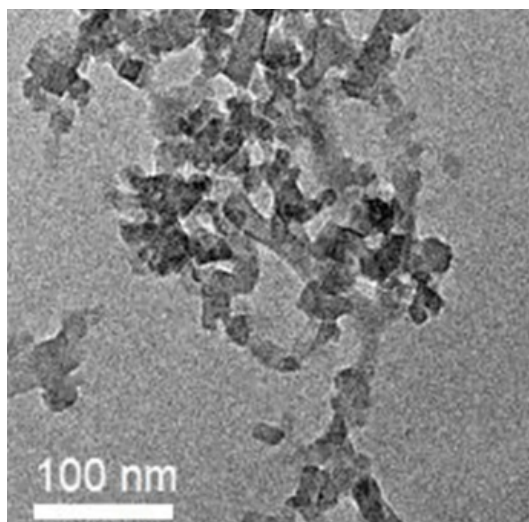
## Supporting information

### **Eu<sup>3+</sup> post-functionalized nanosized metal-organic framework for cation exchange-based Fe<sup>3+</sup>-sensing in aqueous environment**

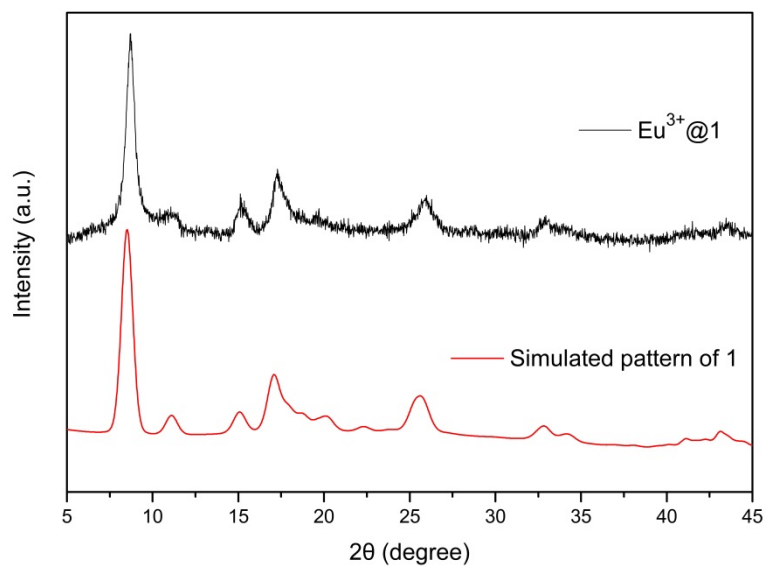
You Zhou<sup>a</sup>, Hao-Hong Chen<sup>b</sup>, Bing Yan<sup>\*,a</sup>

<sup>a</sup> Department of Chemistry, Tongji University, Siping Road 1239, Shanghai 200092,  
China

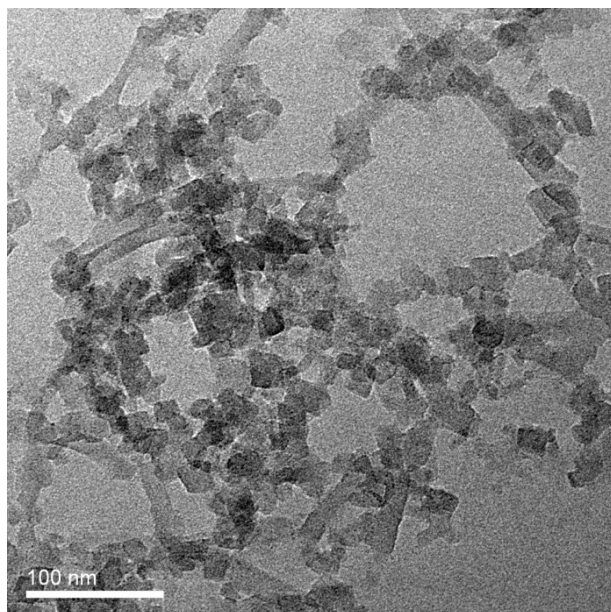
<sup>b</sup> Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai  
200050, China



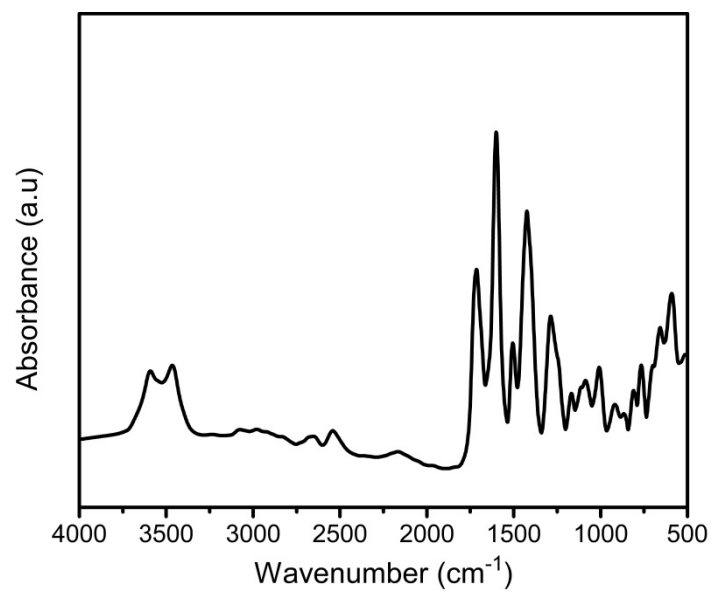
**Figure S1.** TEM image of nanocrystals of **1**



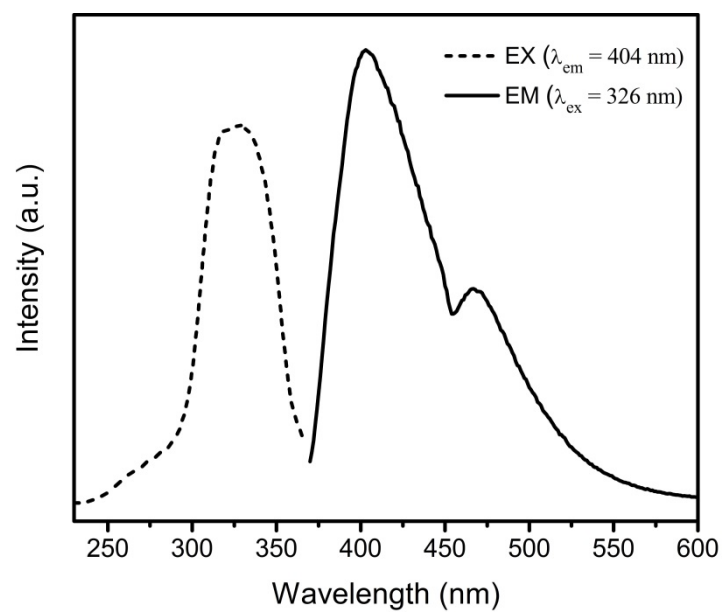
**Figure S2.** PXRD pattern of Eu<sup>3+</sup>@1 nanocrystals.



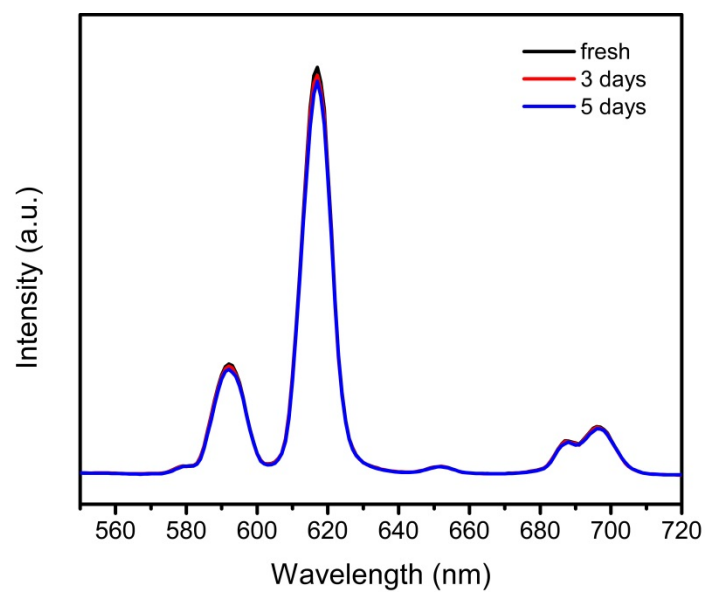
**Figure S3.** TEM image of  $\text{Eu}^{3+}@1$  nanocrystals.



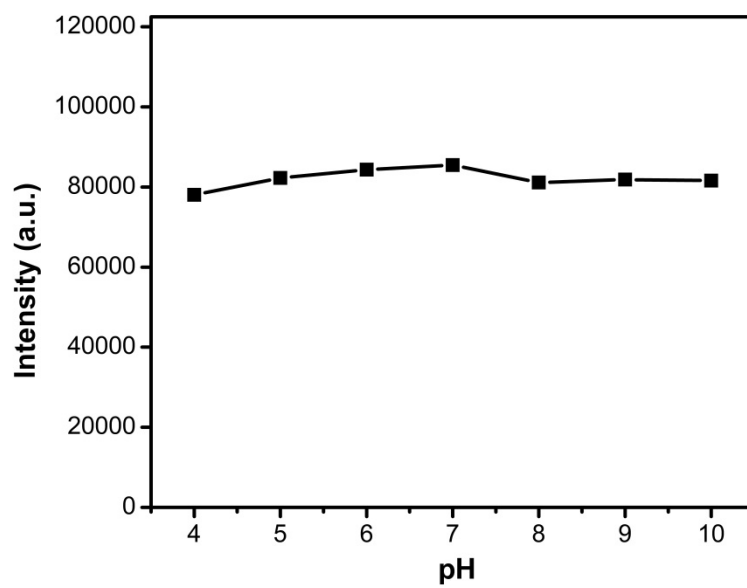
**Figure S4.** FTIR spectra of nanocrystals of Eu<sup>3+</sup>@1.



**Figure S5.** The excitation and emission spectra of compound **1**.

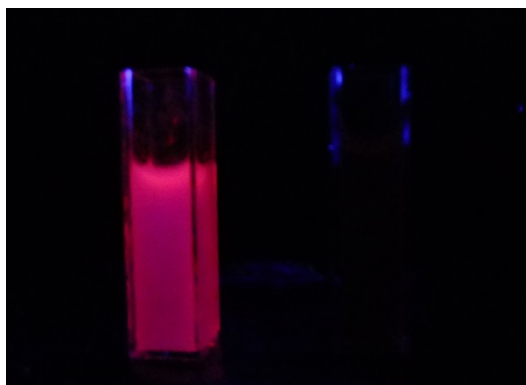


**Figure S6.** Day-to day fluorescence stability of Eu<sup>3+</sup>@1 in aqueous solution.

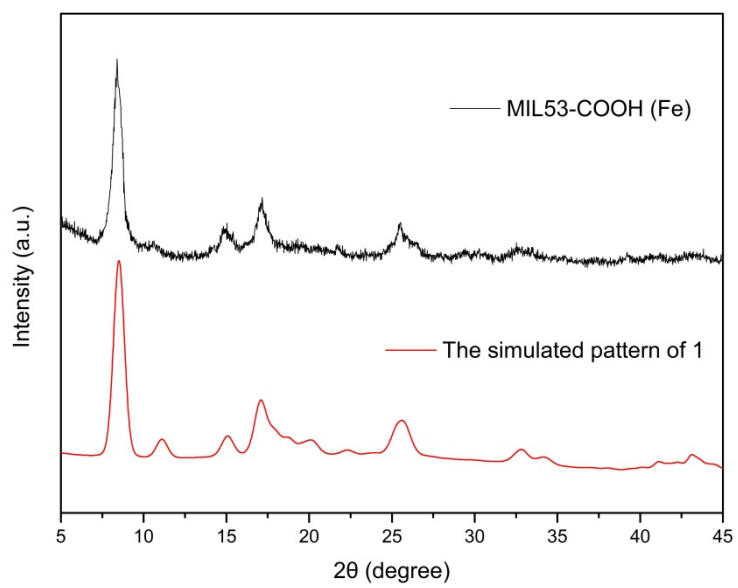


**Figure S7.** Effect of pH (aqueous solution) on the fluorescence intensity of  $\text{Eu}^{3+}@1$ .

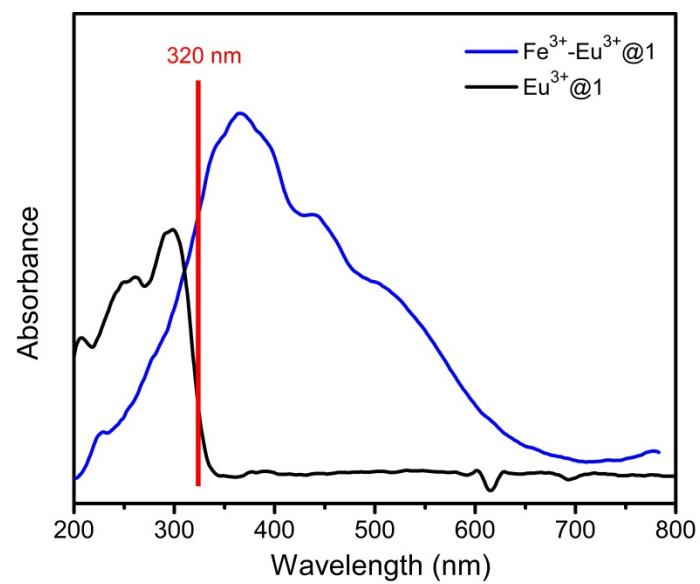




**Figure S8.** Photographs of aqueous solutions of Eu<sup>3+</sup>@1 in the presence and absence of Fe<sup>3+</sup> (0.4 g L<sup>-1</sup>).



**Figure S9.** PXRD pattern of MIL-53-COOH (Fe).



**Figure S10.** The DR UV-vis spectra of  $\text{Eu}^{3+}@1$  and  $\text{Fe}^{3+}\text{-Eu}^{3+}@1$ .

**Table R1.** Lattice parameter of MIL-53-COOH (Al)

Sample	Space group	$a/\text{\AA}$	$b/\text{\AA}$	$c/\text{\AA}$	$\beta/^\circ$
MIL-53-COOH (Al)	imma	6.5469	15.965	13.517	90