

**Anions-induced two stable isostructure Cd(II) MOFs  
based on Benzotriazole with highly selective detection  
of Fe<sup>3+</sup> ion**

Juan-Juan Shao,<sup>a</sup> Jian-Ling Ni,<sup>a</sup> Abraham Mensah,<sup>a</sup> Yu Liang,<sup>a</sup> Guang –Jun Li,<sup>a</sup> Li-  
Zhuang Chen<sup>a</sup> and Fang-Ming Wang\*<sup>a</sup>

*School of Environmental and Chemical Engineering, Jiangsu University of Science  
and Technology, Zhenjiang, Jiangsu 212003, China*

**Supporting Information**

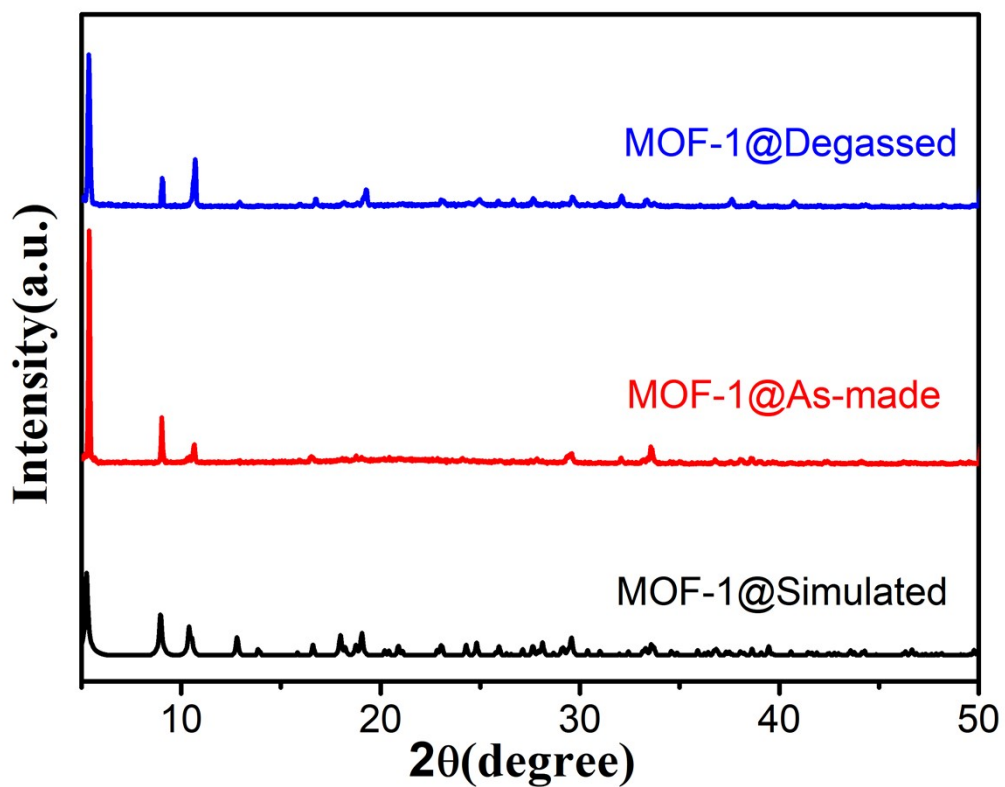


Fig.S1. PXRD patterns of LMOF-1

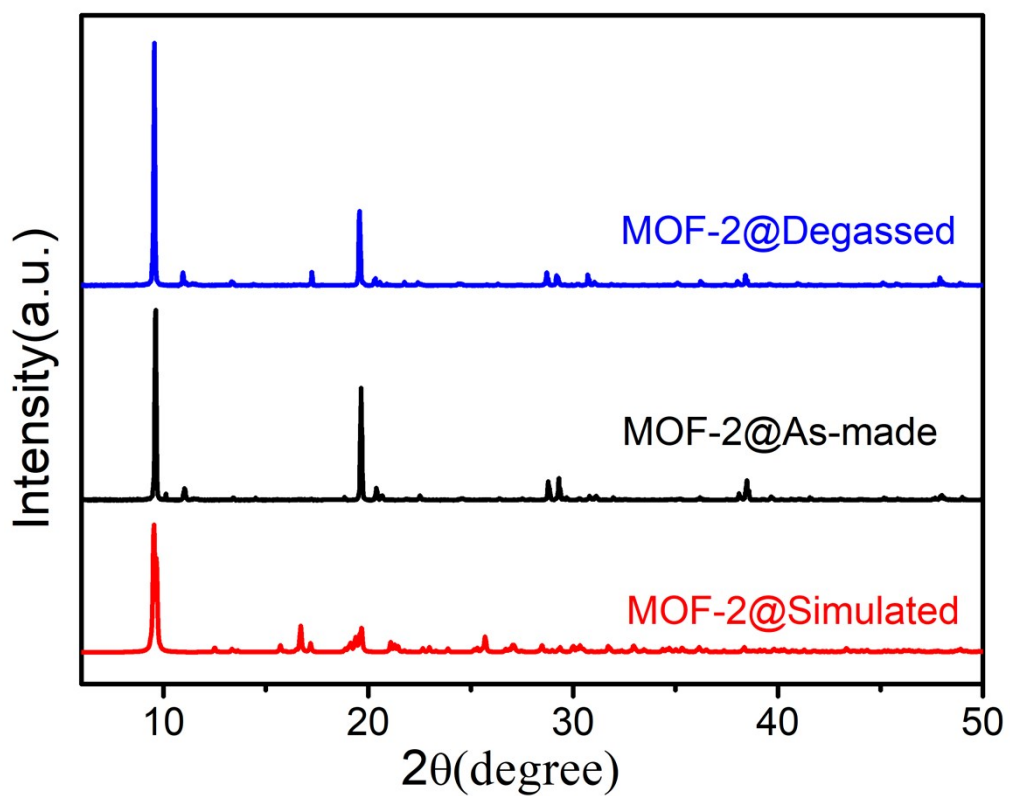


Fig.S2. PXRD patterns of LMOF-2

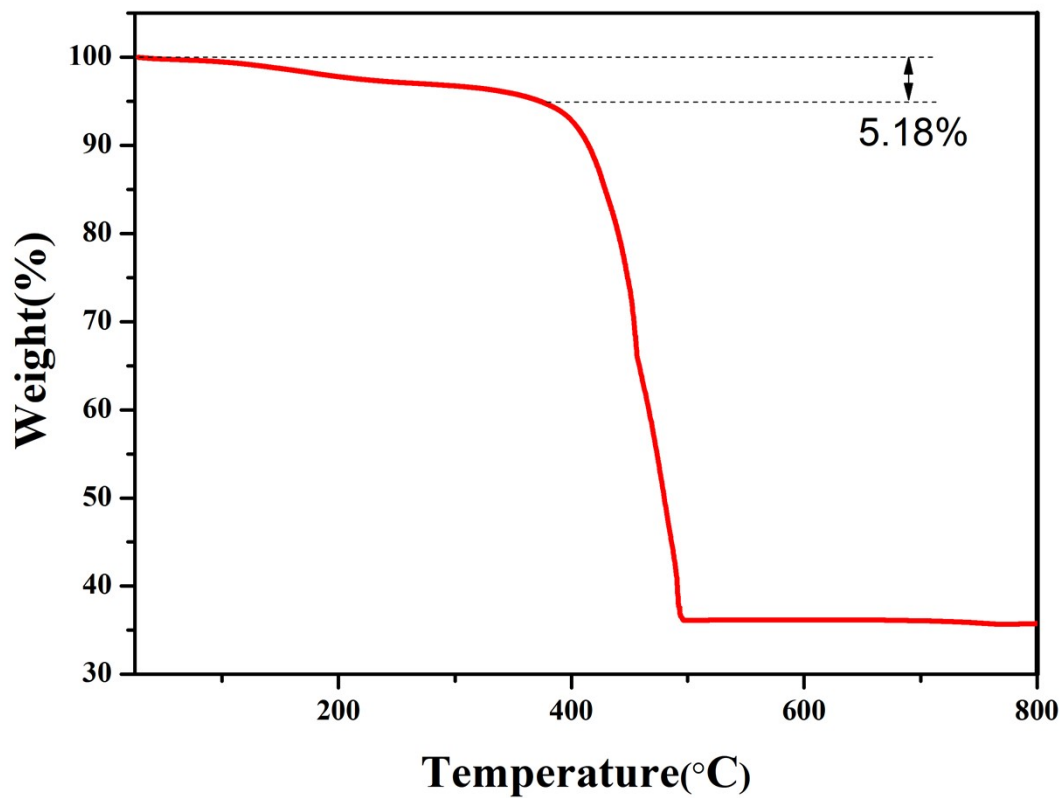


Fig.S3. TG curves of LMOF-1 (Degassed).

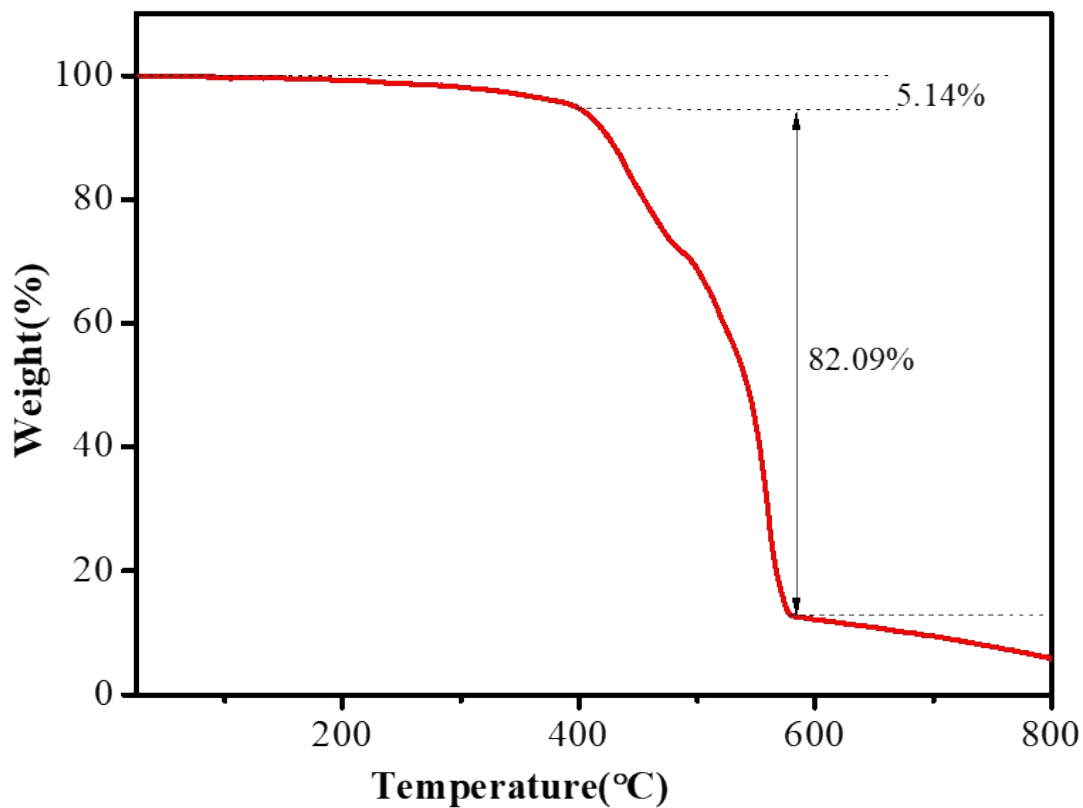
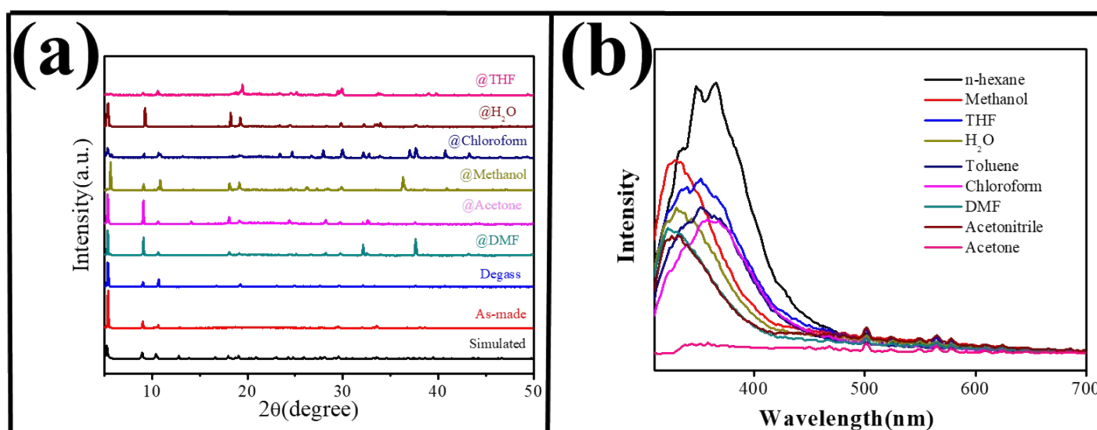
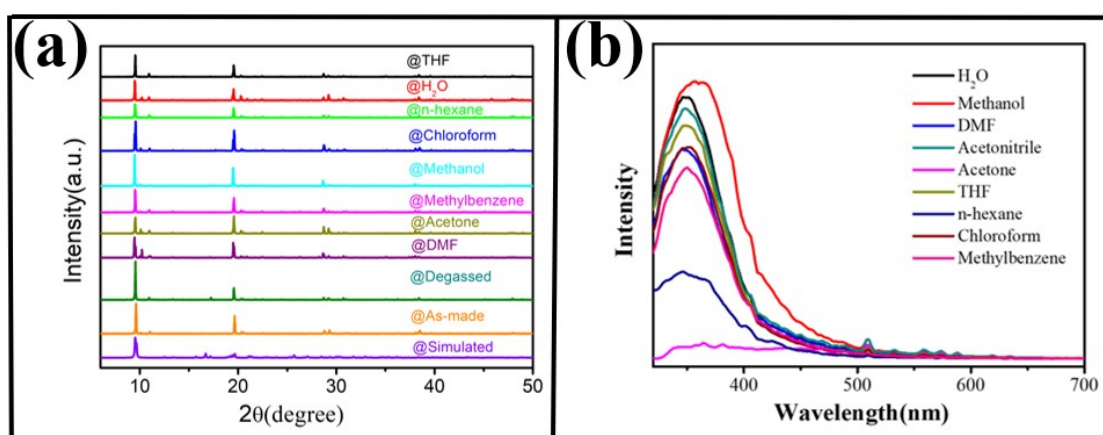


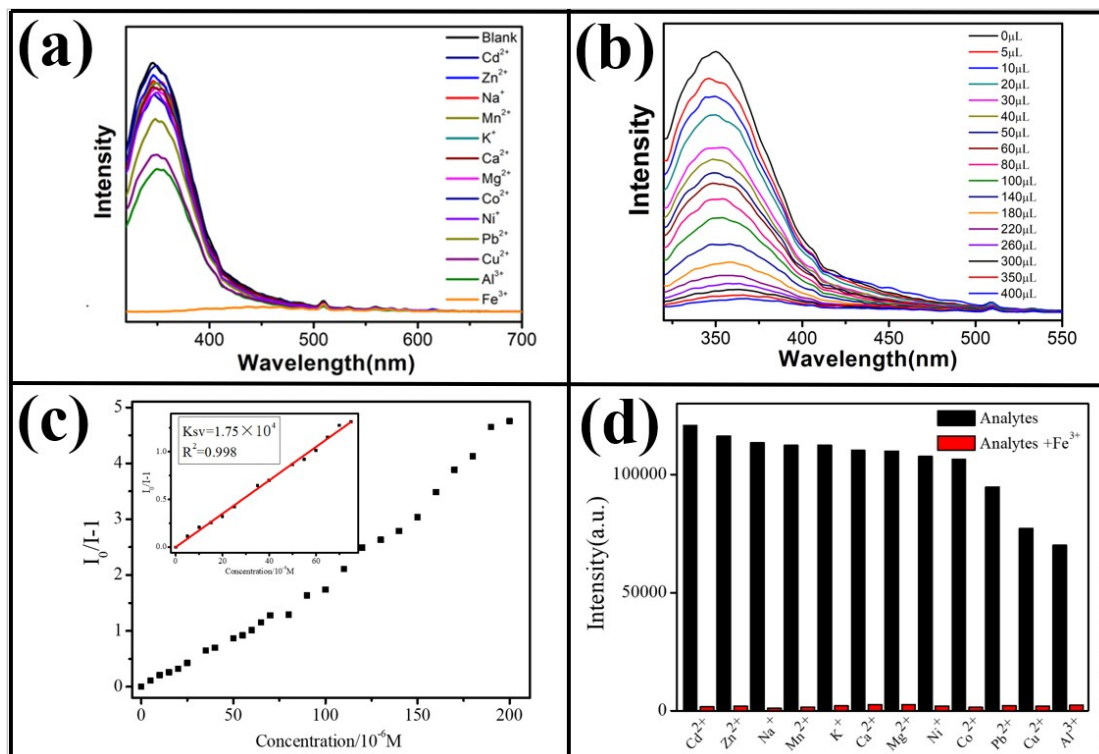
Fig.S4. TG curves of LMOF-2 (Degassed).



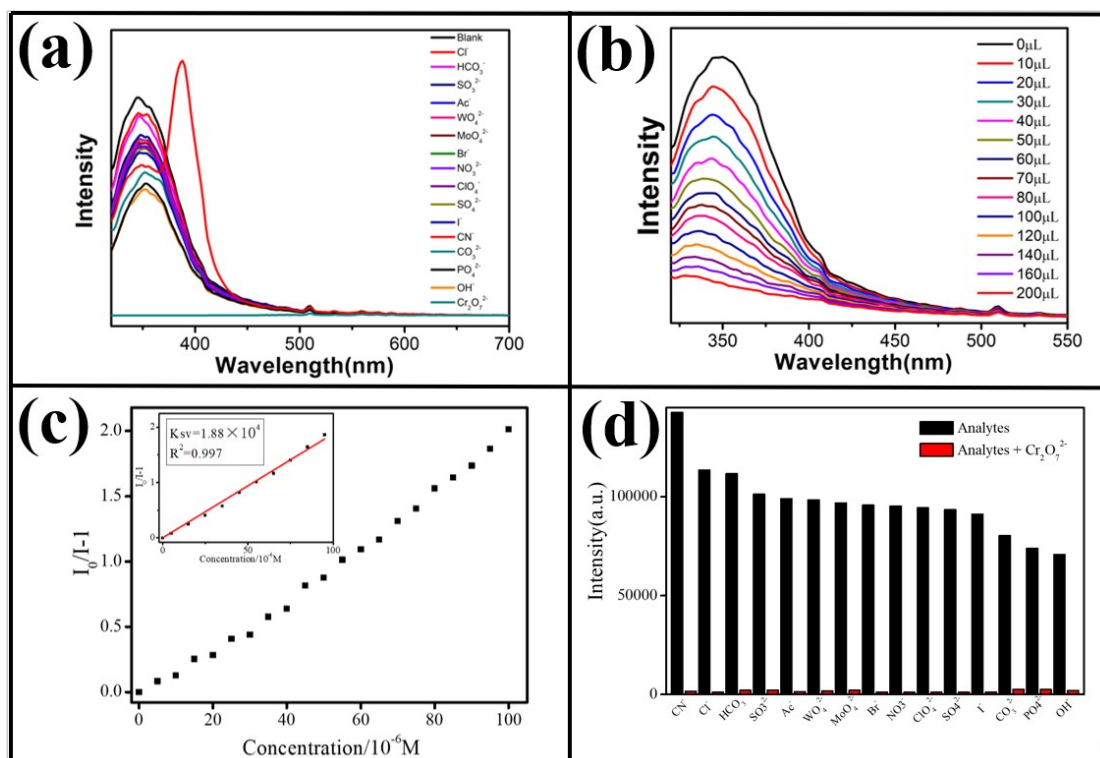
**Fig.S5.** (a)The PXRD of **LMOF-1** soaked in the different solvents. (b) The fluorescence spectra of **LMOF-1** soaked in the different solvents.



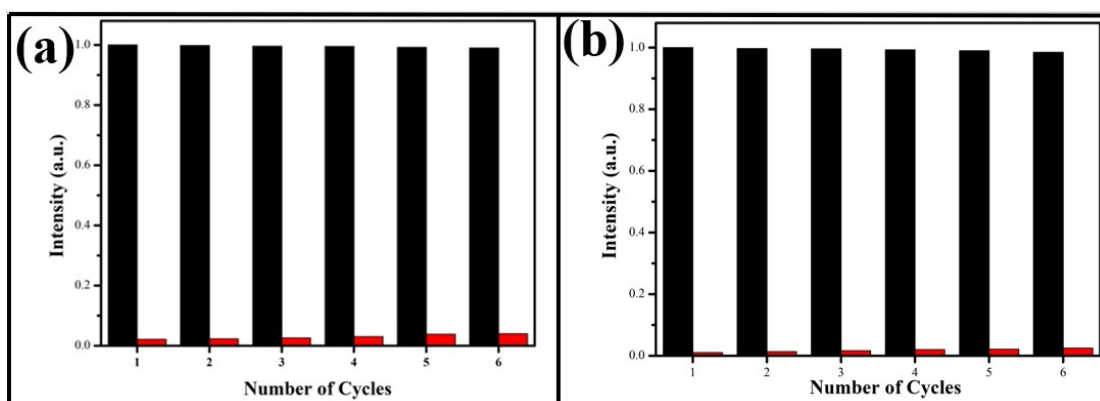
**Fig.S6.** (a)The PXRD of **LMOF-2** soaked in the different solvents. (b) The fluorescence spectra of **LMOF-2** soaked in the different solvents.



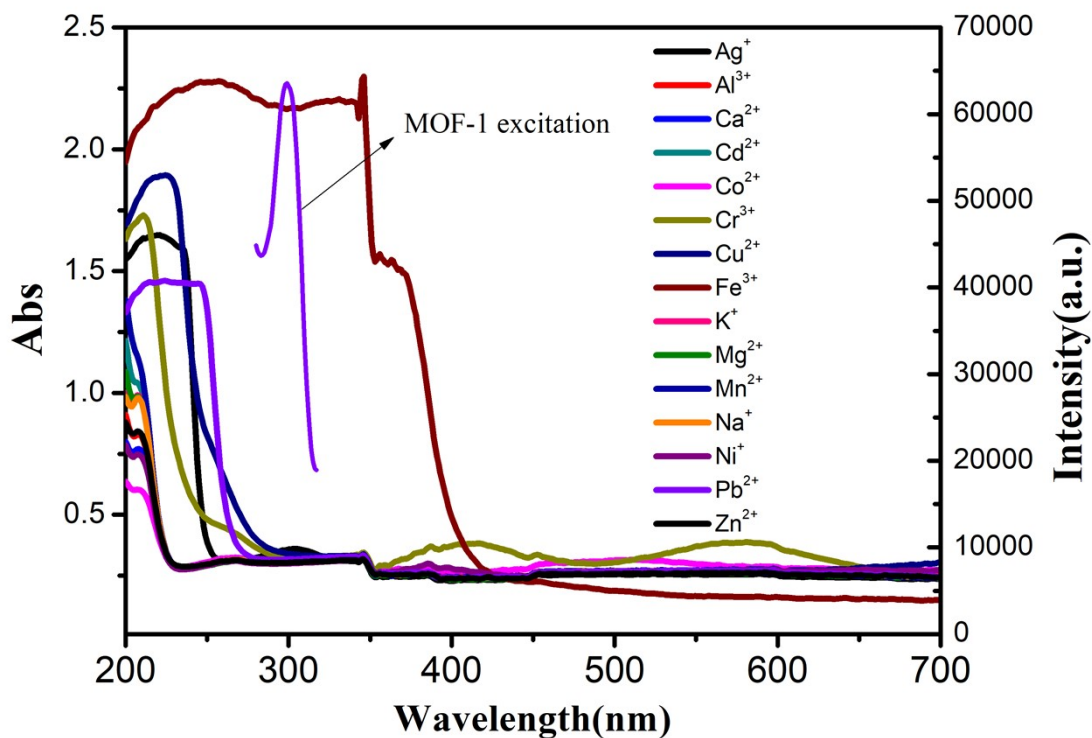
**Fig.S7.** (a) The luminescence spectra of **LMOF-2** suspension upon adding different metal cation ions. (b) The fluorescence intensity trend chart of **LMOF-2** after adding Fe<sup>3+</sup> solution. (c) The SV curves of **LMOF-2** after adding Fe<sup>3+</sup> solution. (d) Anti-interference experiment of selective recognition of Fe<sup>3+</sup>.



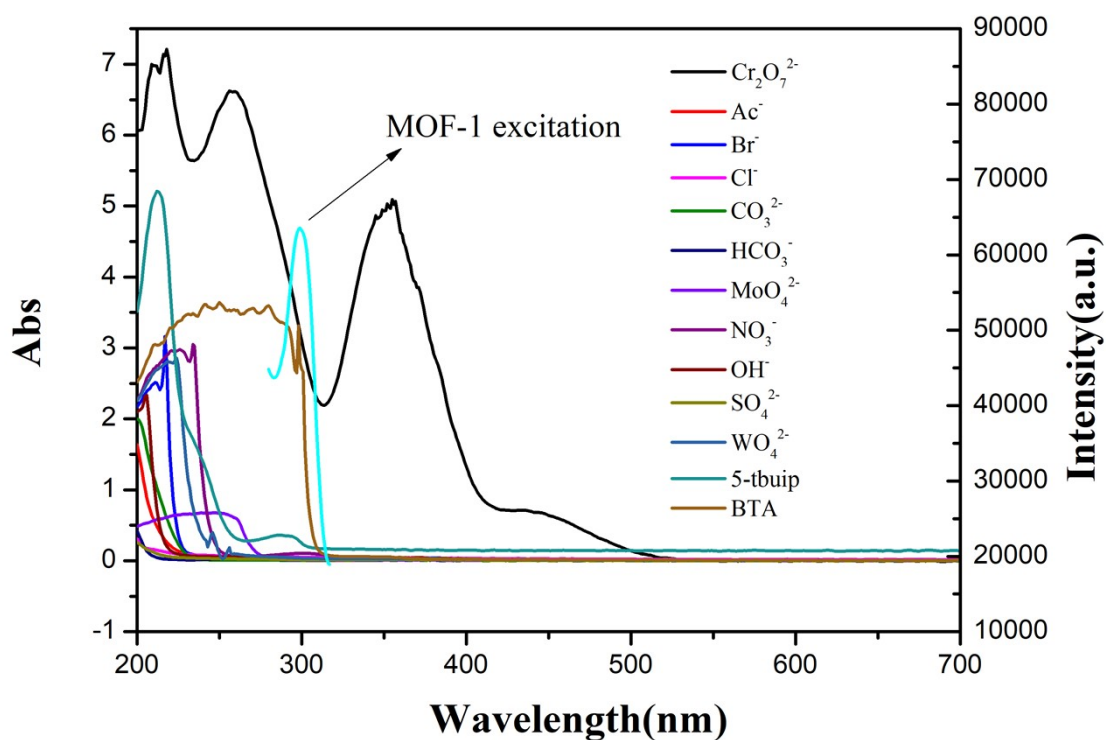
**Fig.S8.** (a) The luminescence spectra of **LMOF-2** suspension upon adding different anion. (b) The fluorescence intensity trend chart of **LMOF-2** after adding  $\text{Cr}_2\text{O}_7^{2-}$  solution. (c) The SV curves of **LMOF-2** after adding  $\text{Cr}_2\text{O}_7^{2-}$  solution. (d) Anti-interference experiment of selective recognition of  $\text{Cr}_2\text{O}_7^{2-}$ .



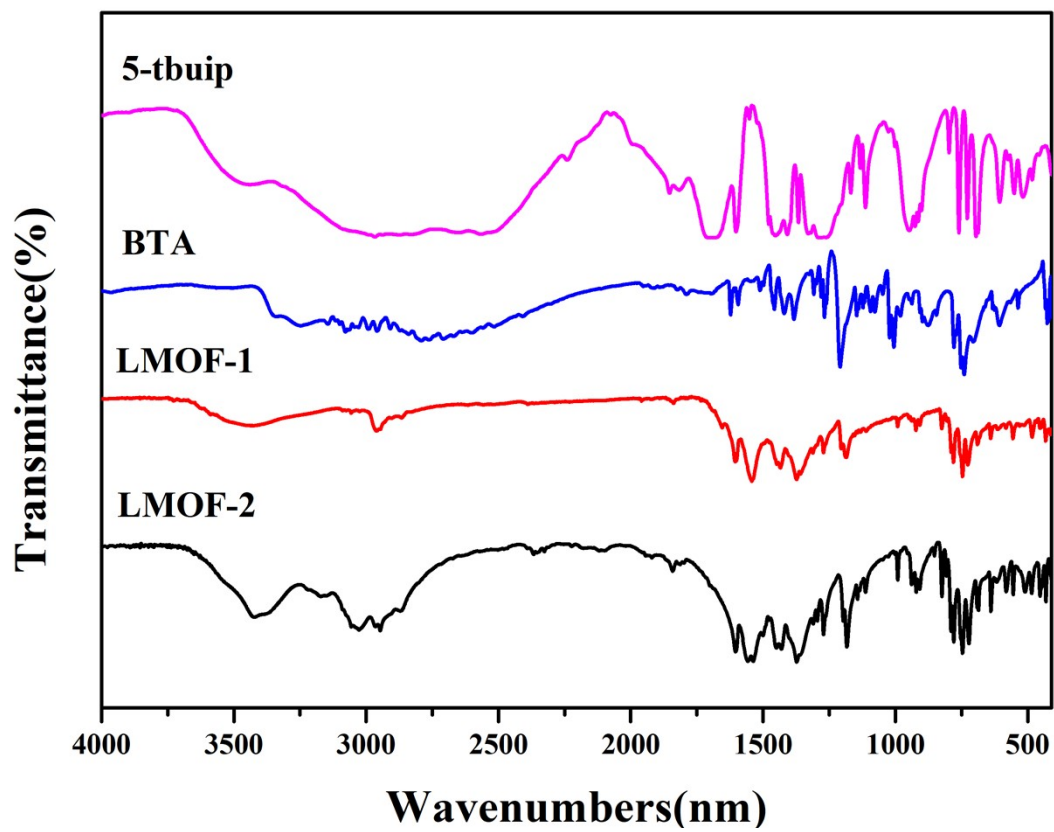
**Fig.S9.**(a) Reproducibility of the detection effect of **LMOF-2** dispersed in water in the presence of 400μL  $\text{Fe}^{3+}$ ;(b) Reproducibility of the detection effect of **LMOF-2** dispersed in water in the presence of 200μL  $\text{Cr}_2\text{O}_7^{2-}$ .(The black histogram represents the initial luminescence intensity, and the red histogram represents the intensity after adding 400 μL  $\text{Fe}^{3+}$ , and 200 μL  $\text{Cr}_2\text{O}_7^{2-}$  aqueous solution, respectively).



**Fig.S10.** The UV Vis spectra of different metal and organic ligands in aqueous solution and excitation spectra of **LMOF-1**



**Fig.S11.** The UV Vis spectra of different anions and organic ligands in aqueous solution and excitation spectra of **LMOF-1**



**Fig.S12.** The IR spectra of LMOF-1,LMOF-2 and ligands