

## Supplementary Material

## A Novel Interpenetrating Metal-organic Framework: Synthesis, Structure and Luminescence Detection of Nitrobenzene

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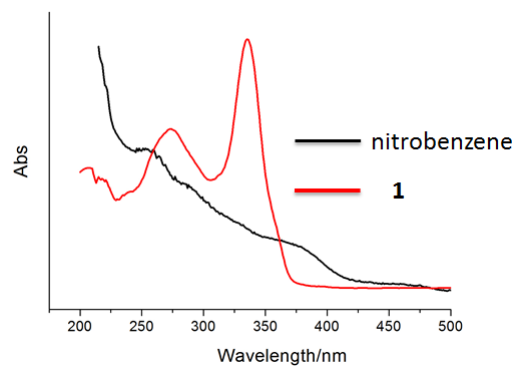
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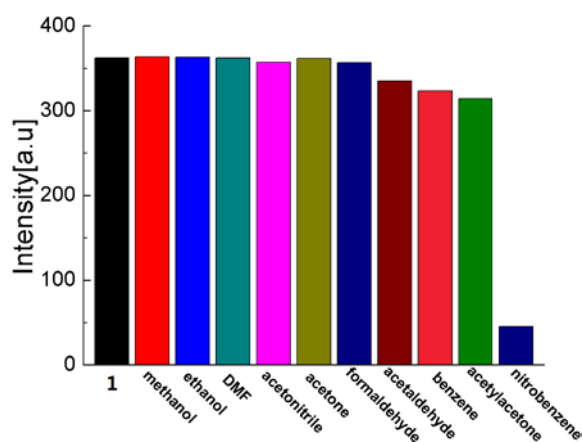
**Table S1.** Selected bond lengths(Å) and angles (°) for compound **1**

Tb1-O1	2.315(5)	O9-Tb1-O6 <sup>4</sup>	143.90(17)
Tb1-O3 <sup>3</sup>	2.493(5)	O9-Tb1-O11	77.09(17)
Tb1-O4 <sup>3</sup>	2.451(4)	O1-Tb1-C19	162.70(18)
Tb1-O5 <sup>4</sup>	2.461(5)	O1-Tb1-O3 <sup>3</sup>	123.97(15)
Tb1-O6 <sup>4</sup>	2.496(5)	O1-Tb1-O8	152.78(18)
Tb1-O8	2.739(5)	O1-Tb1-O7	144.94(19)
Tb1-O9	2.349(5)	O1-Tb1-C13 <sup>4</sup>	87.9(2)
Tb1-O11	2.415(4)	O1-Tb1-O5 <sup>4</sup>	93.15(18)
Zn1-N1	2.167(5)	N4 <sup>2</sup> -Zn1-N3 <sup>2</sup>	76.1(2)
Zn1-N2	2.122(5)	N1-Zn1-N3 <sup>2</sup>	97.7(2)
Zn1-N4 <sup>2</sup>	2.126(5)	O13-Zn1-N3 <sup>2</sup>	166.36(19)
Zn1-N3 <sup>2</sup>	2.182(6)	O12-Zn1-N3 <sup>2</sup>	93.1(2)
Zn1-O13	2.105(5)	N2-Zn1-N1	76.2(2)
Zn1-O12	2.132(4)	N2-Zn1-O12	92.8(2)

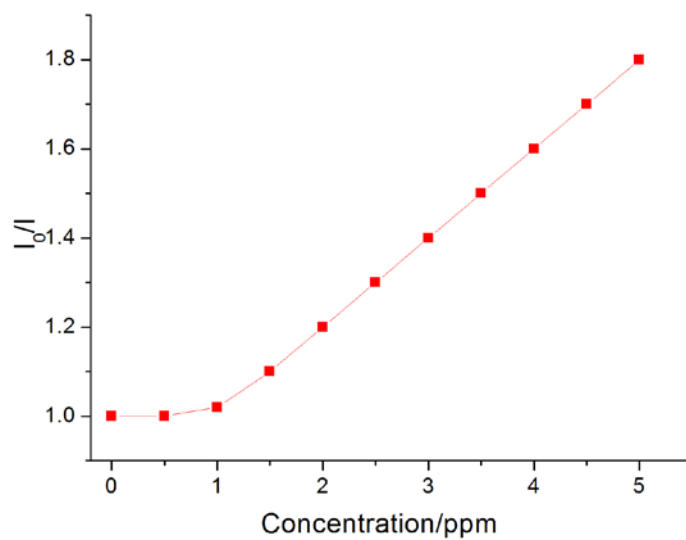
<sup>1</sup>+X,-1+Y,+Z; <sup>2</sup>1/2+X,3/2-Y,1/2+Z; <sup>3</sup>+X,1+Y,+Z; <sup>4</sup>+X,2-Y,1/2+Z; <sup>5</sup>+X,2-Y,-1/2+Z; <sup>6</sup>-1/2+X,3/2-Y,-1/2+Z



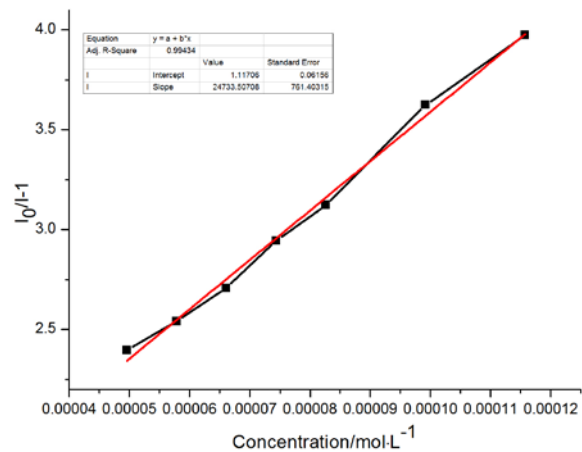
**Fig. S1** The UV spectra of the aqueous suspension of **1** and nitrobenzene.



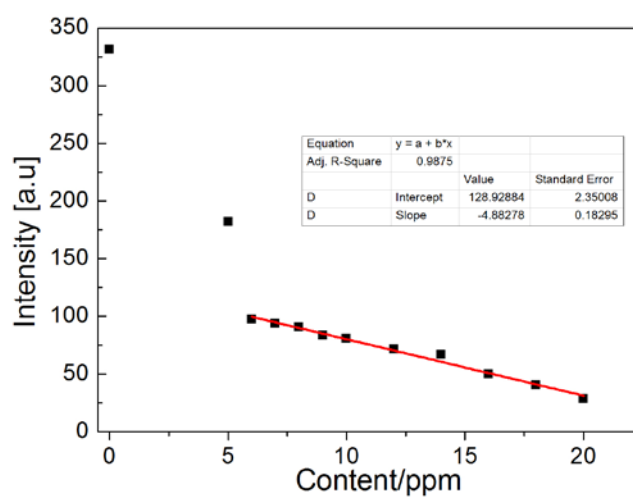
**Fig. S2** The  $^5D_4 \rightarrow ^7F_5$  transition intensities of **1** after addition of 20 ppm organic solvents (monitored at 546 nm).



**Fig. S3** Luminescence quenching vs concentration of nitrobenzene plot (based on  $^5D_4 \rightarrow ^7F_6$  emission at 546 nm) indicating the detection limit (where  $I_0$  and  $I$  are the luminescence intensities before and after the addition of nitrobenzene).



**Fig. S4** Plot of  $I_0/I-1$  of the compound **1** (at 546 nm) vs concentration of nitrobenzene in low concentration.



**Fig. S5** The plots of intensity vs different contents of nitrobenzene at 546 nm.