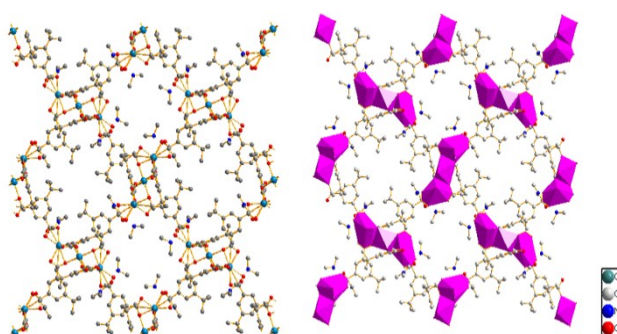


Supporting Information

Cadmium metal–organic frameworks: Ln³⁺ ions functionalized assembly, fluorescence tuning and polymer film preparation

Han Weng, Bing Yan*



Scheme S1 The coordination environment of central atom Cd and the structure of Cd-MOF

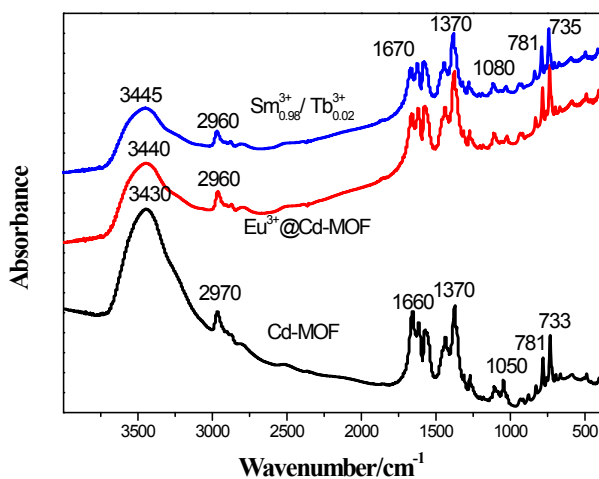


Fig. S1 FTIR spectra of as-synthesized Cd-MOF, Eu³⁺@Cd-MOF and Sm³⁺_{0.98}/Tb³⁺_{0.02}@Cd-MOF.

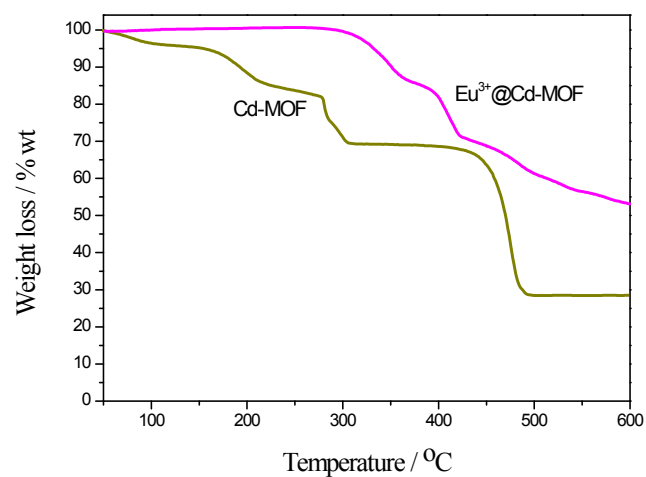


Fig. S2 Thermogravimetric analysis of Cd-MOF and Eu³⁺@Cd-MOF.

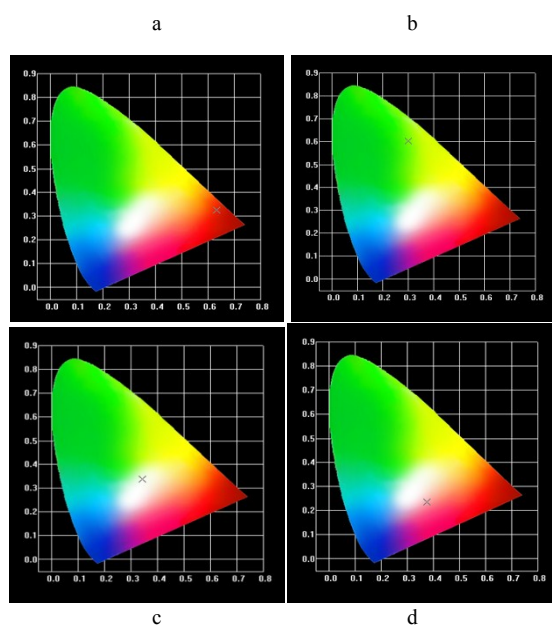


Fig. S3 CIE diagrams of Ln³⁺@Cd-MOF: (a) Ln=Eu; (b) Ln=Tb; (c) Ln=Sm; (d) Ln=Dy.

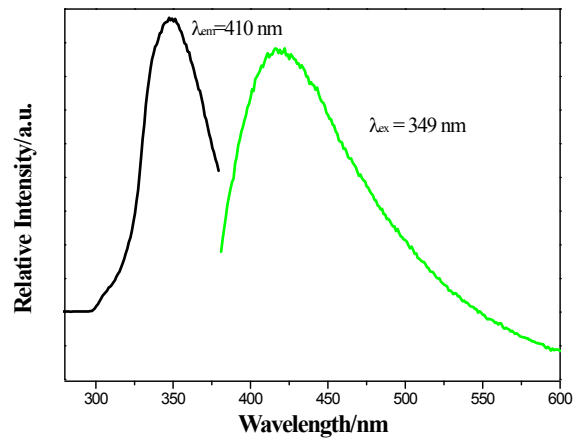


Fig. S4 Excitation and emission spectra of pure ligand 5-tbip.

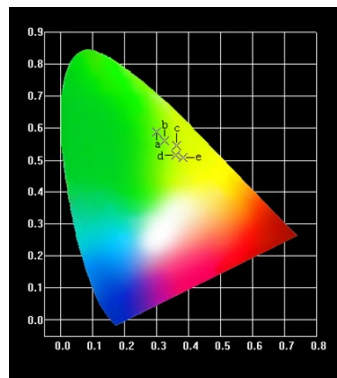


Fig. S5 CIE diagram of Eu^{3+} and Tb^{3+} co-activated MOF with a series of ratio: (a) $\text{Eu}^{3+}:\text{Tb}^{3+}=1:9$; (b) $\text{Eu}^{3+}:\text{Tb}^{3+}=2:8$; (c) $\text{Eu}^{3+}:\text{Tb}^{3+}=3:7$; (d) $\text{Eu}^{3+}:\text{Tb}^{3+}=4:5$; (e) $\text{Eu}^{3+}:\text{Tb}^{3+}=5:5$.

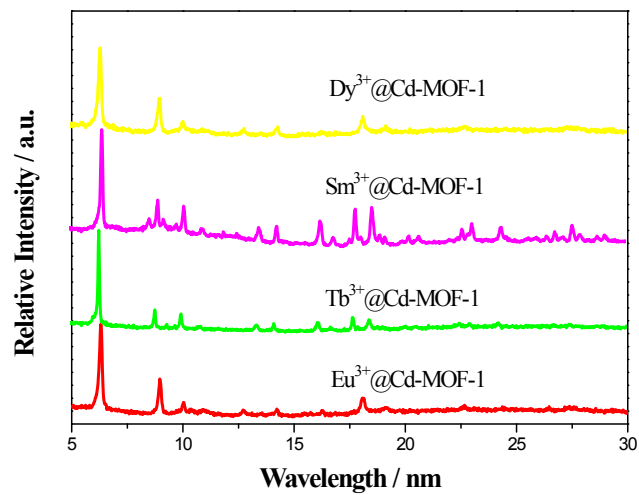
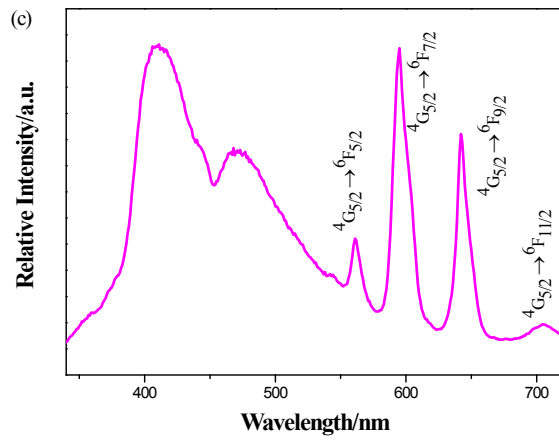
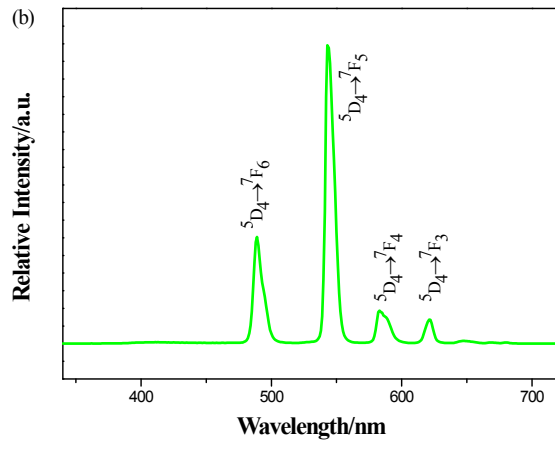
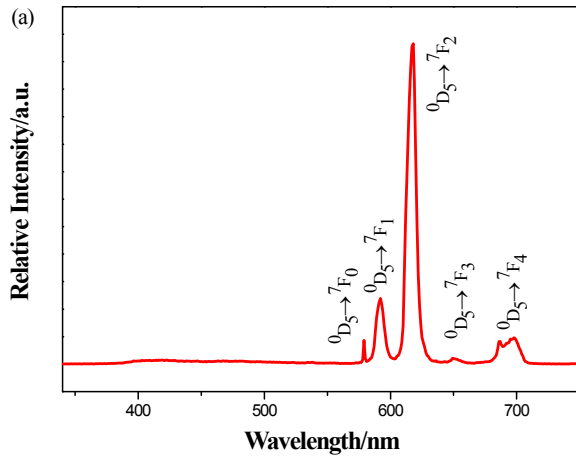


Fig. S6 PXRD patterns of $\text{Ln}^{3+}@\text{Cd-MOF-2}$ ($\text{Ln} = \text{Eu}, \text{Tb}, \text{Sm}, \text{Dy}$).



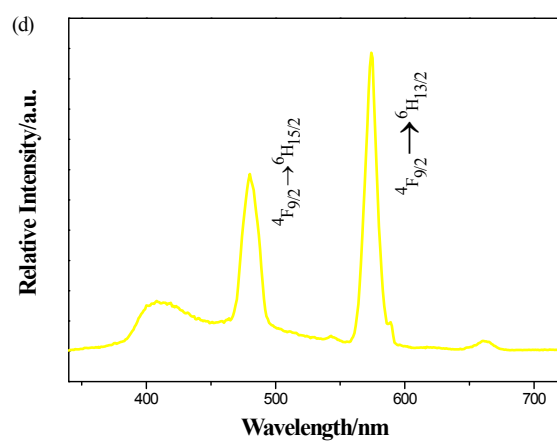
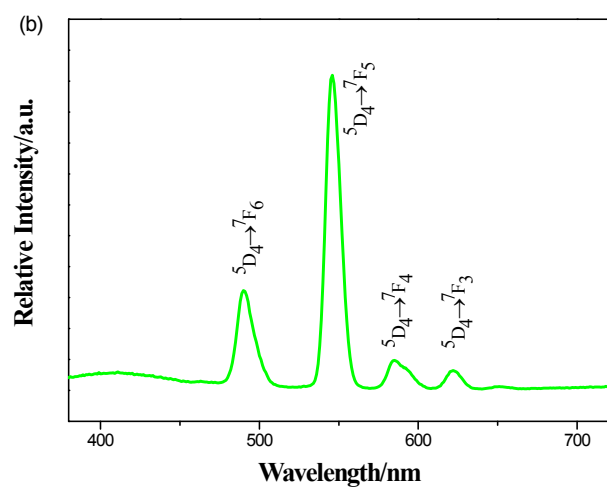
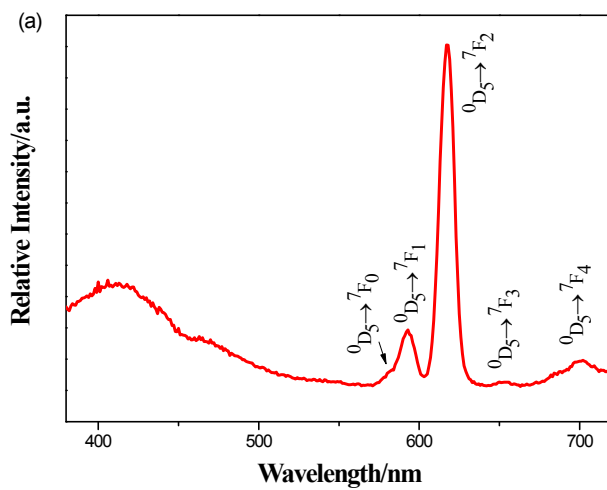


Fig. S7 Emission spectra of $\text{Ln}^{3+}@\text{Cd-MOF-2}$ when excited at 293 nm. (a) Ln = Eu; (b) Ln = Tb; (c) Ln = Sm; (d) Ln=Dy.



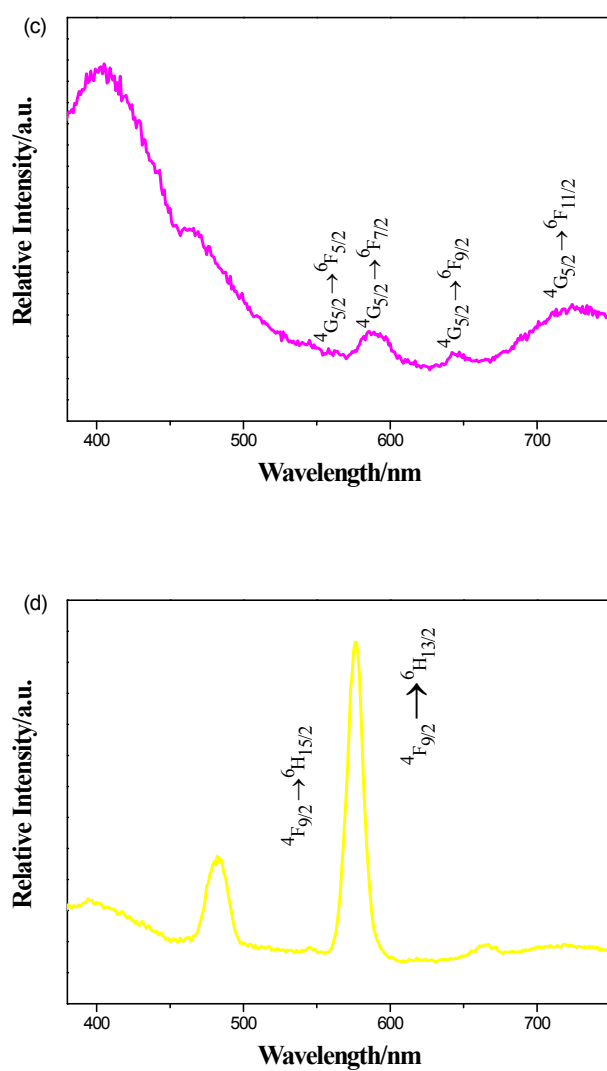


Fig. S8 Emission spectra of Ln³⁺@Cd-MOF-2 polymer film when excited at 293 nm. (a) Ln = Eu; (b) Ln = Tb; (c) Ln = Sm; (d) Ln=Dy.

Table S1 The detailed ICP-OES studies of Ln³⁺@Cd-MOF and Ln³⁺@Cd-MOF-2

Samples	Cd ²⁺ (mg / L)	Ln ³⁺ (mg / L)	atomic ratio of Cd ²⁺ :Ln ³⁺
Eu ³⁺ @Cd-MOF	253.652	7.458	1 : 0.029
Tb ³⁺ @Cd-MOF	214.375	7.197	1 : 0.034
Sm ³⁺ @Cd-MOF	220.854	6.257	1 : 0.028
Dy ³⁺ @Cd-MOF	287.472	7.240	1 : 0.025
Eu ³⁺ @Cd-MOF-2	276.430	5.878	1 : 0.021
Tb ³⁺ @Cd-MOF-2	201.641	4.920	1 : 0.024
Sm ³⁺ @Cd-MOF-2	187.785	3.674	1 : 0.020
Dy ³⁺ @Cd-MOF-2	260.542	4.751	1 : 0.018