Supporting Information

Amino-decorated lanthanide (III) – organic extended frameworks for multi-color luminescence and fluorescence sensing

Ji-Na Hao, Bing Yan*

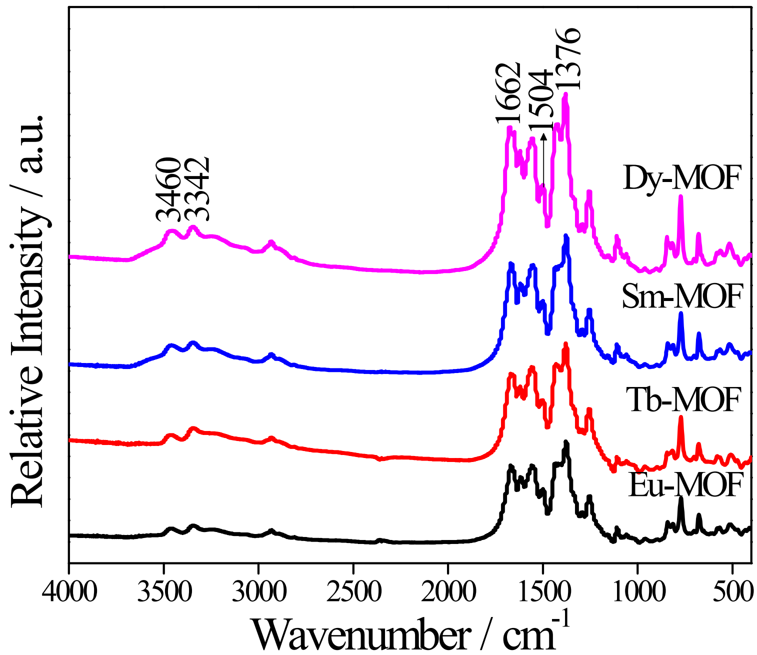


Figure S1 IR spectra of Ln-MOF.

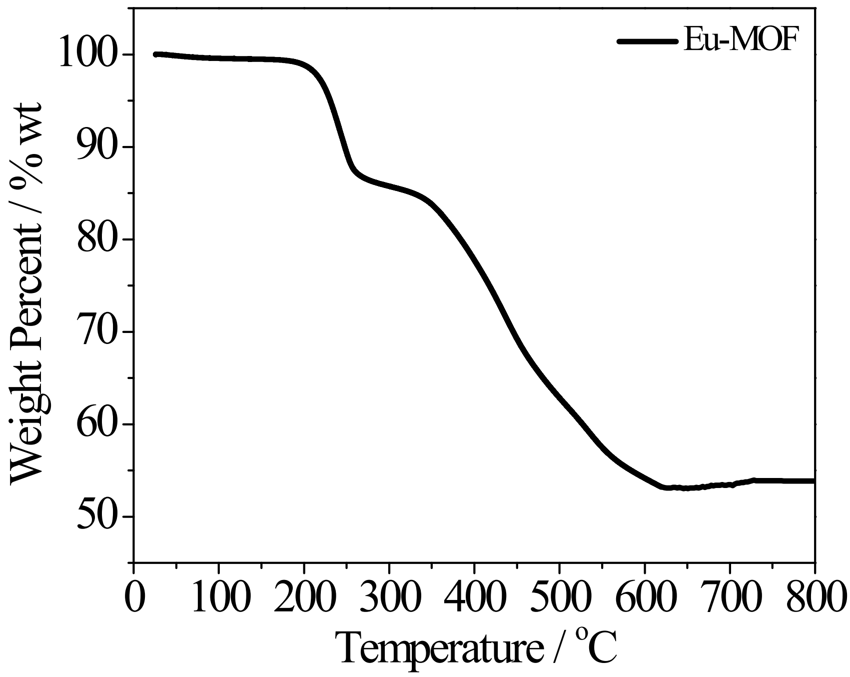


Figure S2 Thermal gravimetric analysis of Eu-MOF.

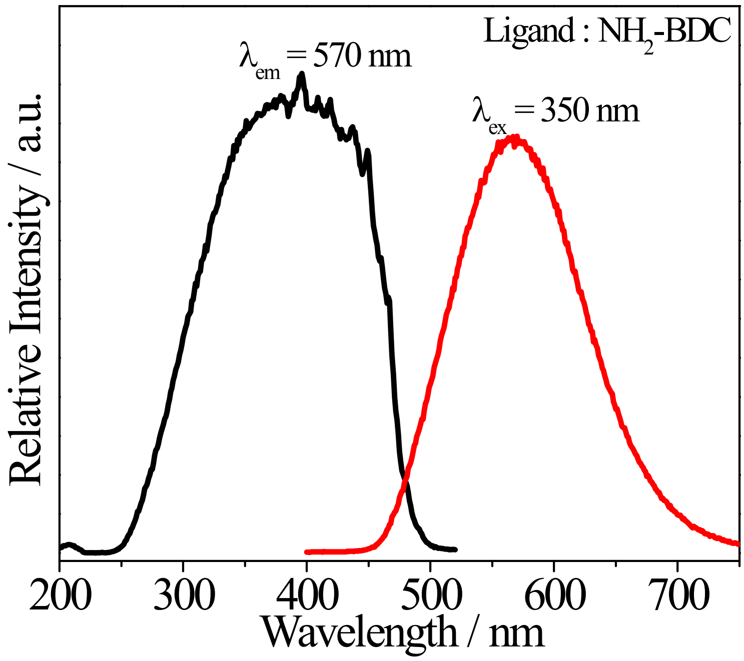


Figure S3 Excitation and emission spectra of pure ligand NH_2-BDC

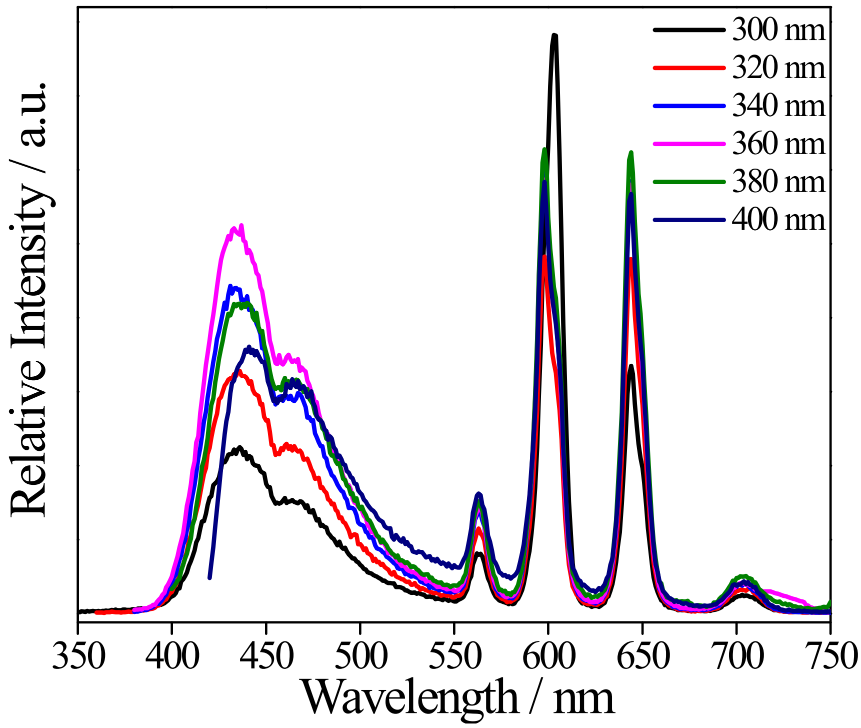
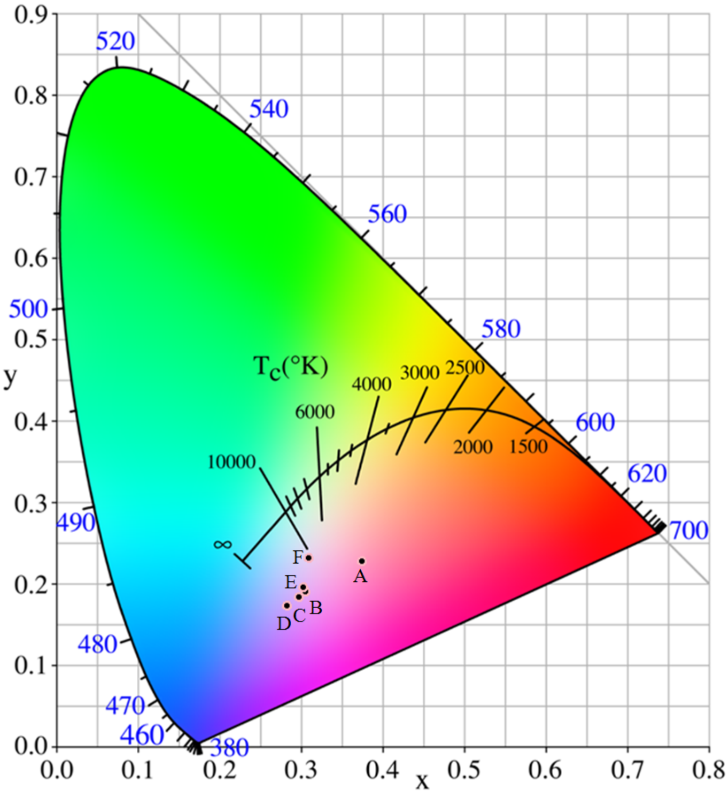


Figure S4 The emission spectra of Sm-MOF monitored at different excitation wavelength. With excitation wavelength varying from 300 to 400 nm, the relative emission intensity of the ligand and Sm-luminescence is different, thus leading to the different values of CIE(x,y).



Figrue S5 Emission spectra of Sm-MOF plotted on a CIE diagram with excitation wavelengths varying from 300 (A) to 400 nm (B ~ F, step size 20 nm) showing tunable chromaticity of visual emission image.

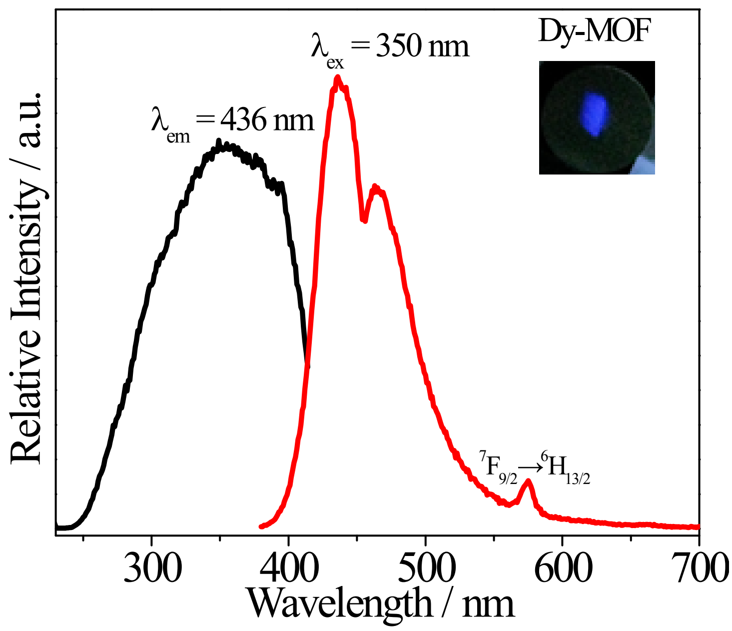


Figure S6 Excitation and emission spectra of Dy-MOF, and its blue luminescence color with the UV excitation using a Xe lamp as the excitation source.

Table S1 The luminescence data of Ln-MOF

materials	λ_{ex} /λ_{em} (nm)	τ (μs)	η (%)	CIE(x,y)
Eu-MOF	333/614	717	3.8	(0.64, 0.3382)
Tb-MOF	380/545	20	1.0	(0.316, 0.5007)
Sm-MOF	300/644	14	0.6	(0.3748, 0.2285)
Dy-MOF	350/575	13	0.8	(0.1607, 0.1133)

τ, lifetime; η, the emission quantum efficiency.

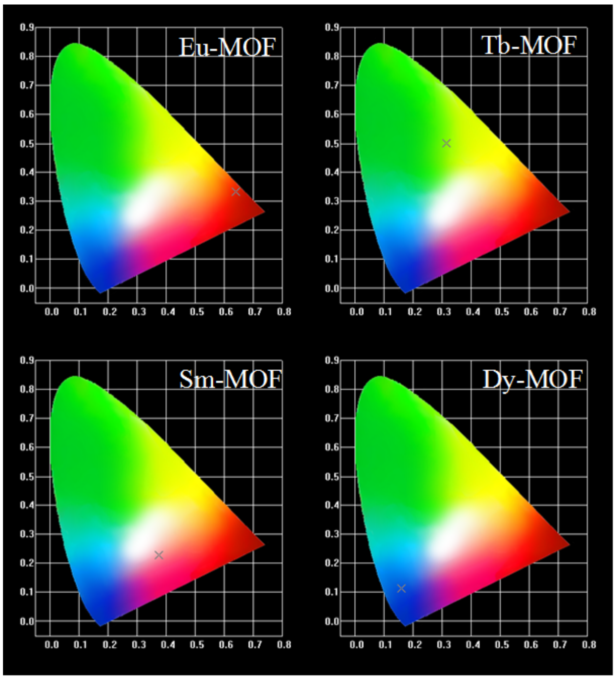


Figure S7 CIE chromaticity diagram of Ln-MOF. The values of CIE(x, y) were listed at **Table S1.**

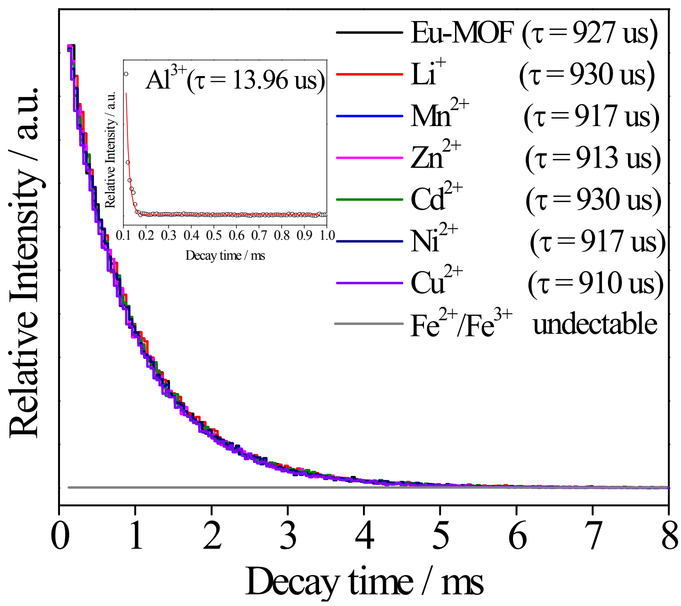
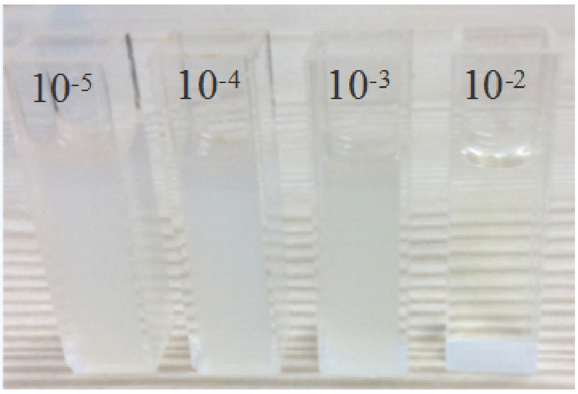
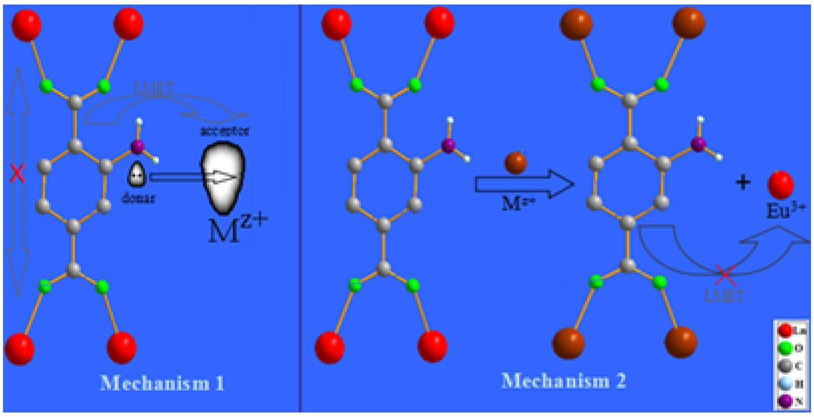


Figure S8 Response of lifetime of Eu-MOF towards DMF solution of various metal cations, the inset shows the lifetime of Eu-MOF in the presence of Al^{3+}.



Figrue S9 The pictures of Eu-MOF in DMF in the presence of different concentrations of Al^{3+}.With the Al^{3+} concentrations increasing, the solutions changed from turbid to clear solution.



Scheme S1 Schematic illustration of the luminescence quenching mechanism of Eu-MOF by metal ions (Mechanism 1 for M^{z+} = Li^{+}, Mn^{2+}, Zn^{2+}, Cd^{2+}, Ni^{2+} and Cu^{2+} ions; Mechanism 2 for Al^{3+} and Fe^{2+}/Fe^{3+}).