Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

Lanthanides post-functionalized nanocystalline metal-organic frameworks for tunable white-light emission and orthogonal multi-readout thermometry

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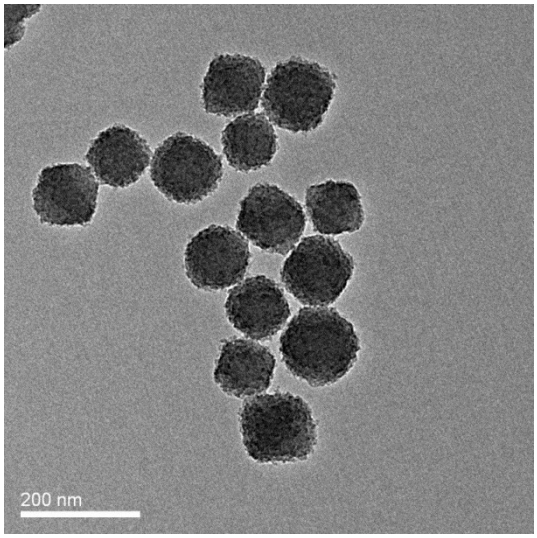

Figure S1. TEM image of Eu^{3+}@**1**.

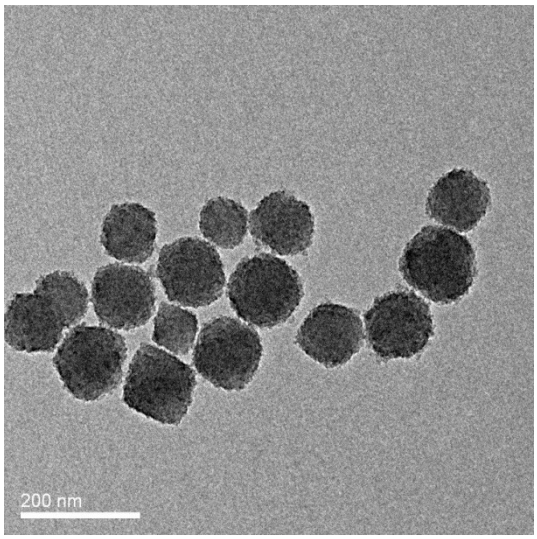

Figure S2. TEM image of Tb^{3+}@**1**.

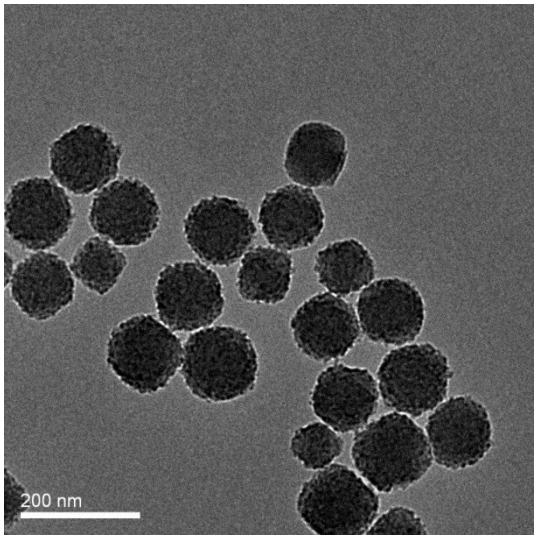

Figure S3. TEM image of Eu^{3+}/Tb^{3+}@**1**.

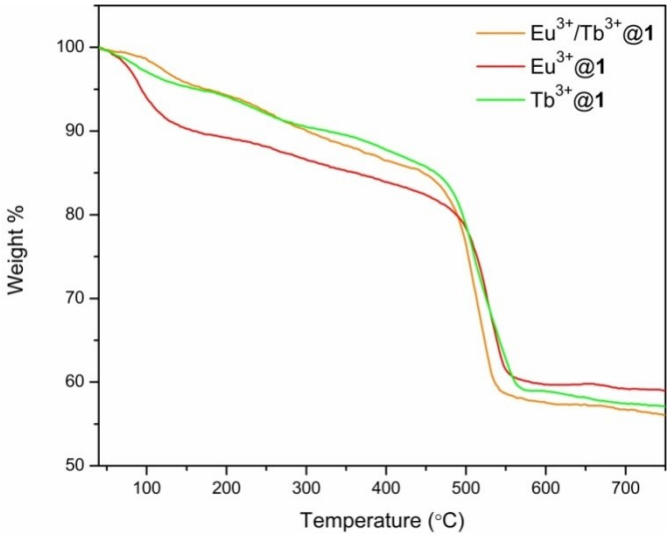

Figure S4. TGA curves of Ln^{3+}@**1** products (Ln^{3+} = Eu^{3+}, Tb^{3+}, Eu^{3+}/Tb^{3+}) in the range of 40-750 °C.

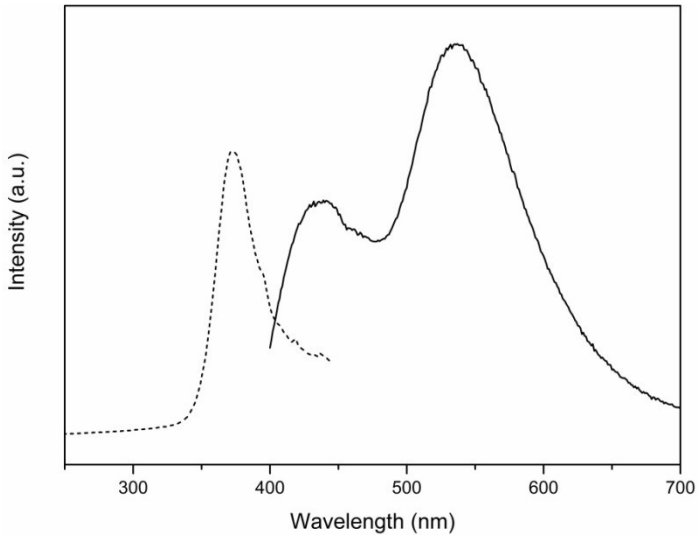

Figure S5. Excitation (dash line) and emission (solid line) spectra of MOF **1.**

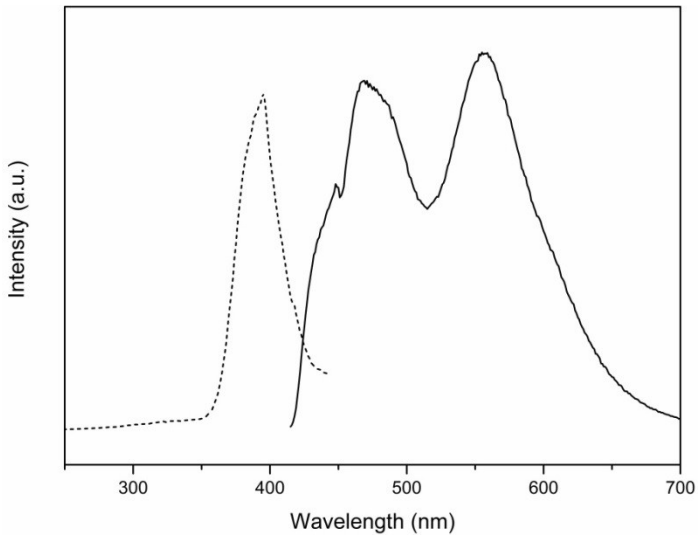

Figure S6. Excitation (dash line) and emission (solid line) spectra of the free ligand H_2bpydc.

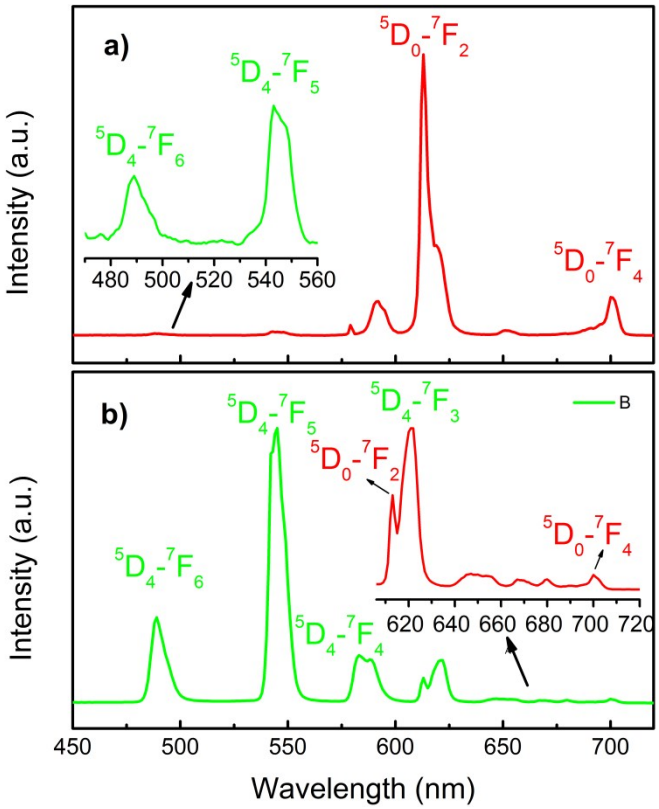

Figure S7. The emission spectra (λ_{ex} = 338 nm) of Eu^{3+}/Tb^{3+}@**1** resulted from different feed ratios of Eu^{3+} and Tb^{3+}: a) 0.01:0.99; b) 0.001:0.999. The inset in a) is the emission spectrum of a) with in the wavelength in the range of 470-560 nm, while the inset in b) is the emission spectrum of b) with wavelength in the range of 607-720 nm.

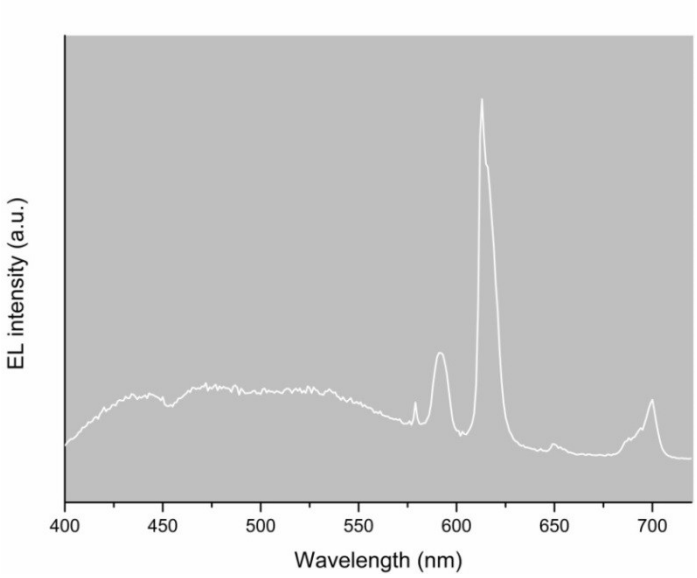

Figure S8. Electroluminescent (EL) spectra of the as-fabricated white LED under drive current of 150 mA.

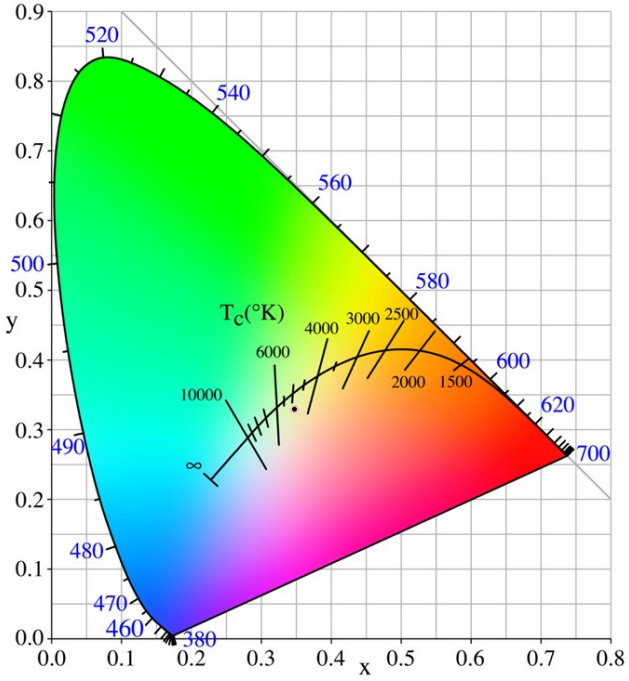

Figure S9. The chromaticity coordinates of the as-fabricated white LED with correlated color temperatures (CCTs) of 4914 K under a drive current of 150 mA in CIE chromaticity diagram.

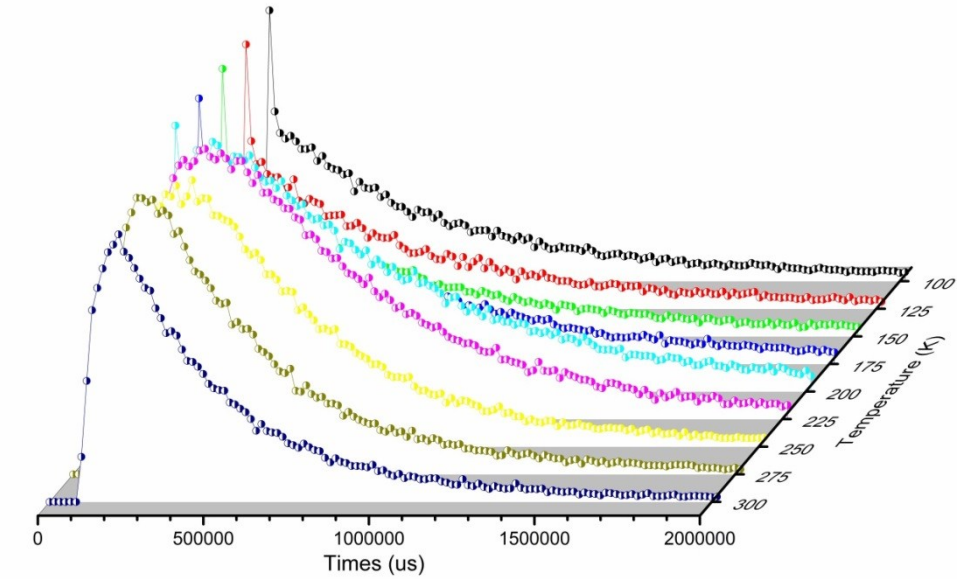

Figure S10. Temperature-dependent $^5D_0$ decay curves of Eu^{3+}/Tb^{3+}@**1**.

Table S1. The loading level of Ln^{3+}cationsof Ln^{3+}@1 (Ln^{3+} = Eu^{3+}, Tb^{3+}, Eu^{3+}/Tb^{3+}) determined by ICPMS.

Ln^{3+}/Zr^{4+} (Atomic%)	Eu^{3+}@**1**	Tb^{3+}@**1**	Eu^{3+}/Tb^{3+}@**1**
Ln^{3+} = Eu^{3+}	19.3	—	0.13
Ln^{3+} = Tb^{3+}	—	25.1	21.8

Table S2. Temperature-dependent luminescent Lifetimes (τ)of Ln^{3+}@1 (Ln^{3+} = Eu^{3+}, Tb^{3+}, Eu^{3+}/Tb^{3+}).

T (K)	τ (ms)			
	Eu^{3+}@**1**[a]	Tb^{3+}@**1**[b]	Eu^{3+}/Tb^{3+}@**1**(^5D_o)[c]	Eu^{3+}/Tb^{3+}@**1**($^5D_4$)[d]
100	0.292	0.730	0.666	0.720
125	0.294	0.721	0.652	0.715
150	0.290	0.688	0.670	0.685
175	0.287	0.640	0.690	0.629
200	0.282	0.574	0.701	0.528
225	0.275	0.464	0.633	0.380
250	0.269	0.282	0.537	0.226
275	0.264	0.183	0.491	0.121
300	0.258	0.117	0.471	0.061

[a,c] For the $^5D_o \rightarrow {}^7F_2$ transition of Eu^{3+}, λ_{ex} = 340 nm, λ_{em} = 616 nm. [b,d] The transition $^5D_4 \rightarrow {}^7F_5$ of Tb^{3+}, λ_{ex} = 340 nm, λ_{em} = 544 nm.