Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

SUPPORTING INFORMATION

Ratiometric detection of temperature with responsive dual-emissive MOF hybrids

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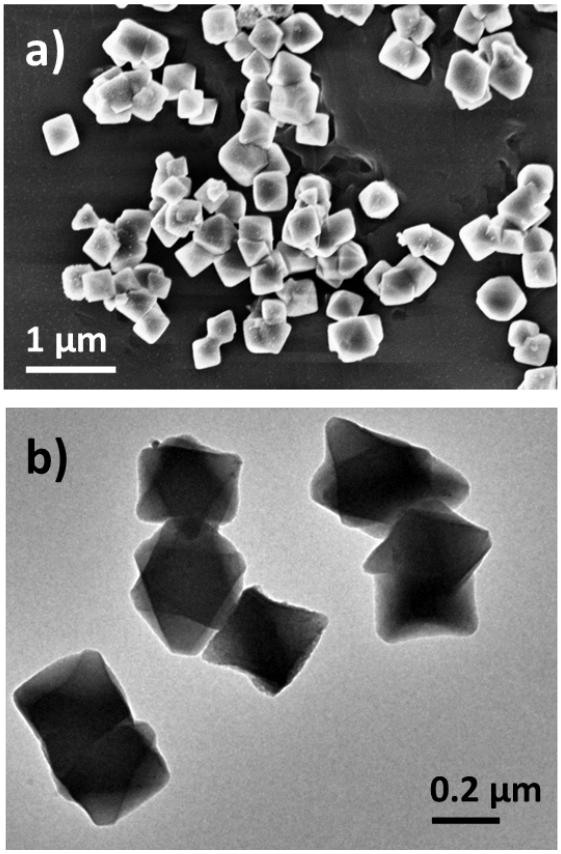

Figure S1. Typical SEM (a) and TEM (b) images of UiO-bpydc.

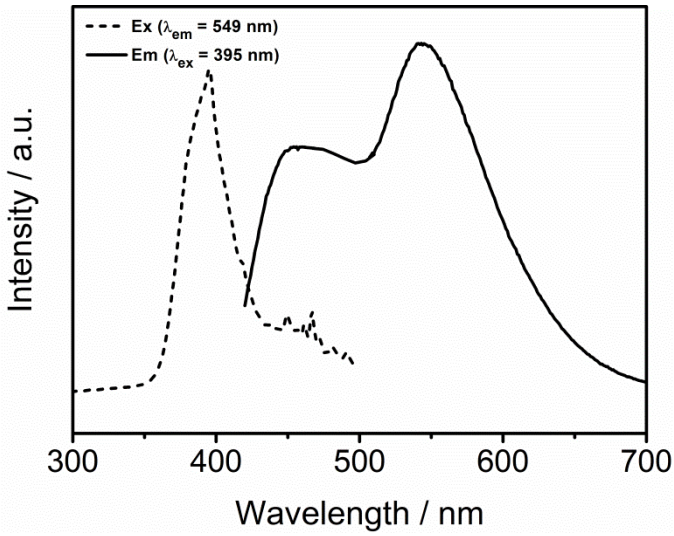

Figure S2. Excitation (dash line) and emission (solid line) spectra of H_2bpydc ligand.

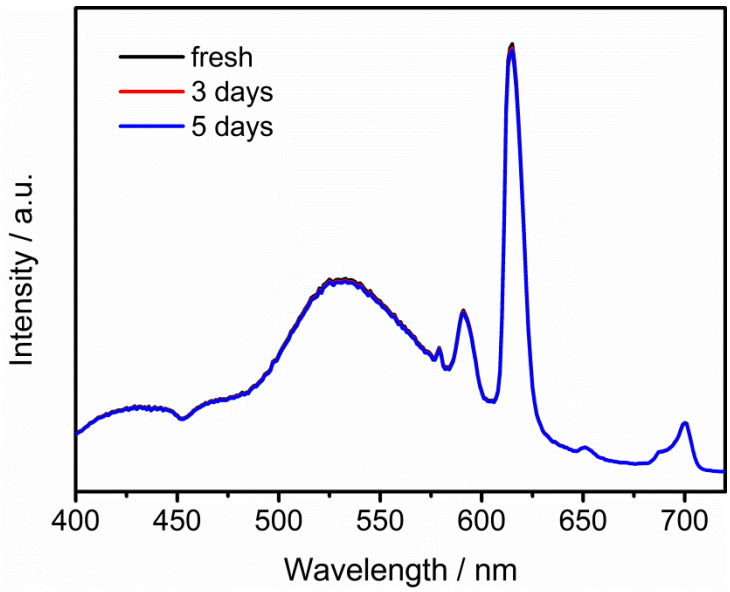

Figure S3. Day-to day fluorescence stability of Eu^{3+}@UiO-Bpydc solid in air.

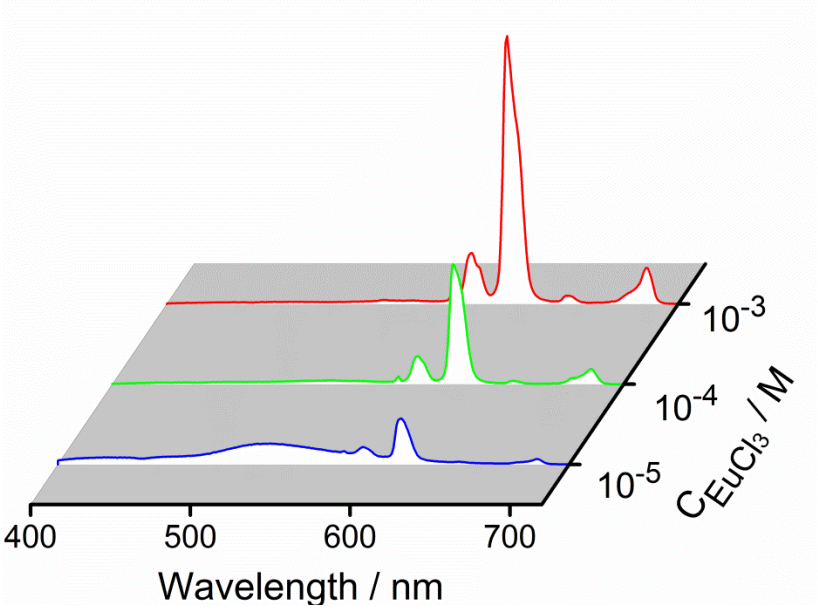

Figure S4. Emission spectra (λ_{ex} = 340 nm) of Eu^{3+}@UiO-bpydc products resulting from feeding $EuCl_3$ solution with concentrations in the range of 10^{-5}-10^{-3} mol L^{-1}.

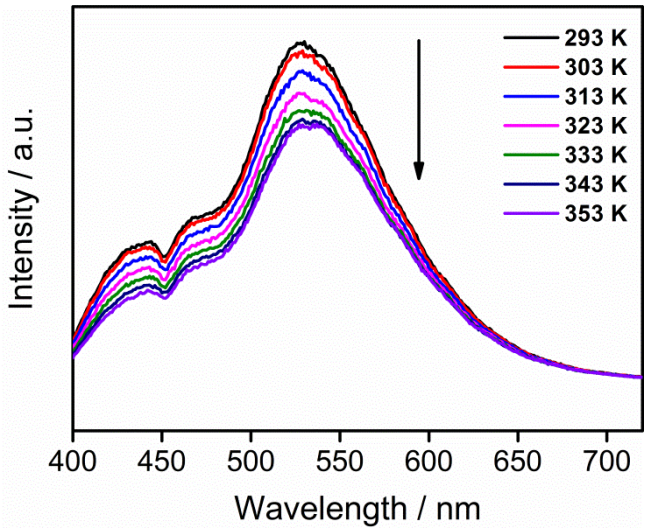

Figure S5. Temperature-dependent emission spectra ((λ_{ex} = 368 nm) of UiO-bpydc.

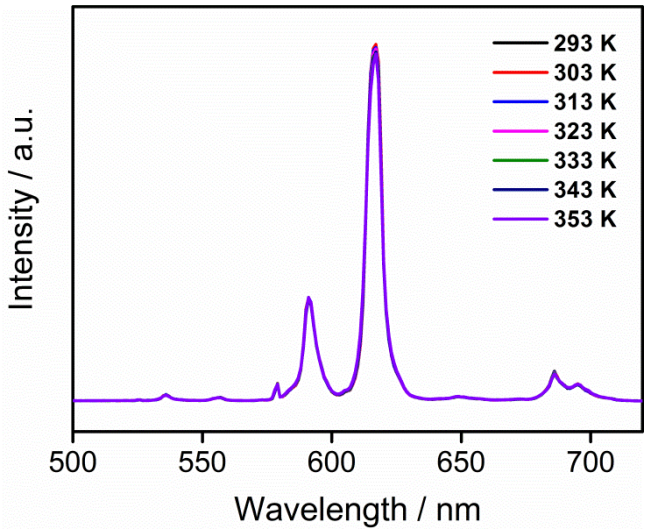

Figure S6. Temperature-dependent emission spectra ((λ_{ex} = 395 nm) of $EuCl_3$.

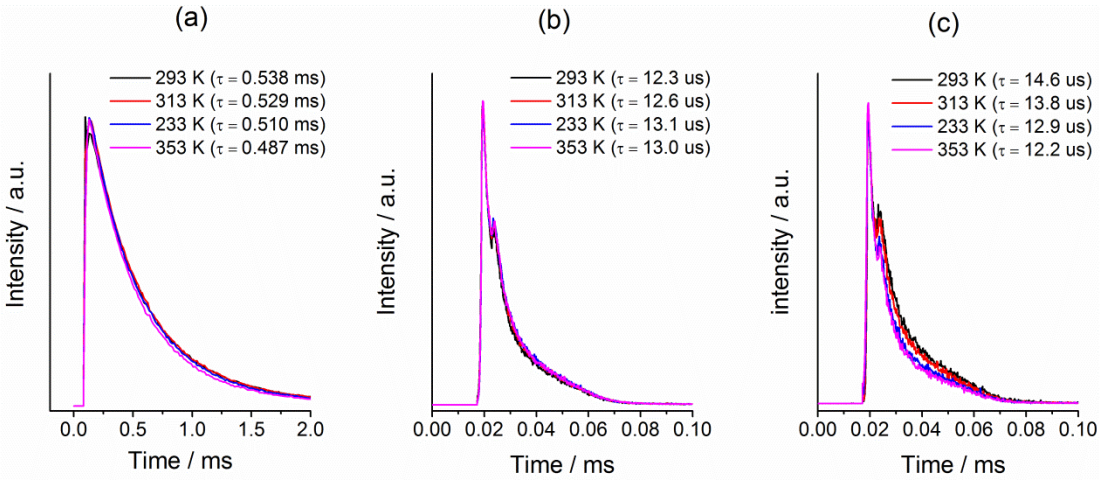

Figure S7. The luminescence decay times of Eu^{3+} (a) and bpydc emission (b) in Eu^{3+}@UiO-bpydc composite, and bpydc emission in UiO-bpydc (c).

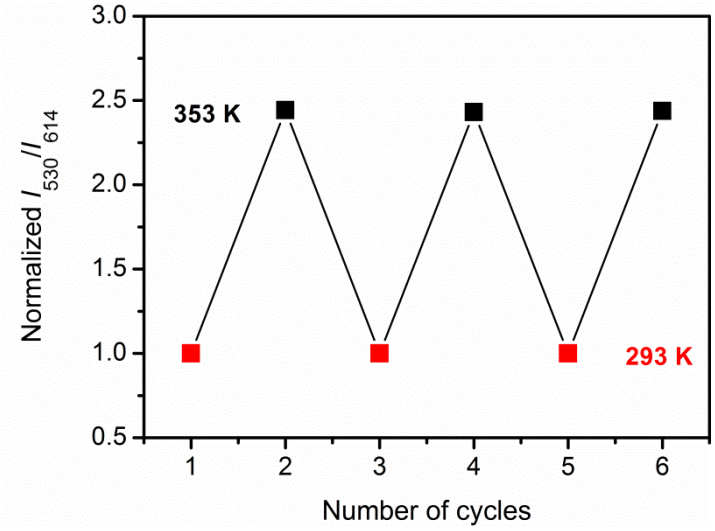

Figure S8. The reversible changes of the normalized emission intensity ratio (I_{530}/I_{614}) of Eu^{3+}@UiO-bpydc composite by the alternative thermo-cycles in the range of 293 (red squares) and 353 K (black squares).

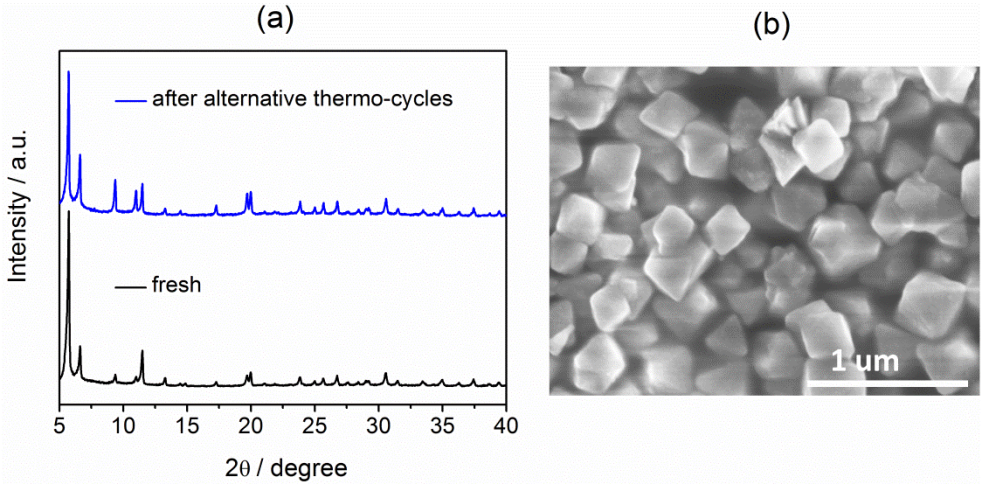

Figure S9. a) The PXRD patterns of fresh Eu^{3+}@UiO-bpydc composites. The black and blue line represents the fresh one and that after alternative thermos-cycles (293-353 K), respectively. b) The typical SEM image of Eu^{3+}@UiO-bpydc after alternative thermos-cycles (293-353 K).

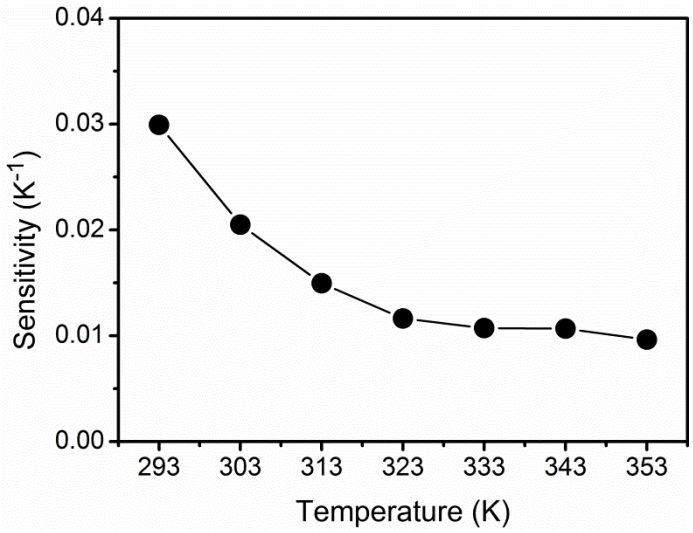

Figure S10. The thermometric sensitivity of Eu^{3+}@UiO-bpydc as a function of temperature.

Table S1 Comparison of sensitivity of other reported MOF ratiometric thermometers with ours. Materials, the temperature ranges of operation (△T), maximum relative sensitivity values (S_m).

Materials [a]	△T (K)	S_m (% K^{-1})
$Eu_{0.0069}Tb_{0.9931}$DMBDC [1]	50-200	1.15
$Tb_{0.9}Eu_{0.1}$PIA [2]	100-300	3.27
$Tb_{0.957}Eu_{0.043}$cpda [3]	40-300	16
$Tb_{0.99}Eu_{0.01}(BDC)_{1.5}(H_2O)_2$ [4]	290-320	0.31
$Eu_{0.005}/Tb_{0.995}$@In(OH)(bpydc) [5]	283-333	2.81
$[Eu_{0.7}Tb_{0.3}(cam)(Himdc)_2(H_2O)_2]_3$ [6]	100-450	0.11
$Tb_{0.98}Eu_{0.02}(BDC)_{0.5}(DSTP)]_2H_2O$[7]	77-225	2.75
ZJU-88⊃perylene[8]	293-353	1.28
$(Tb_{0.914}Eu_{0.086})_2(PDA)_3(H_2)]\cdot 2H_2O$[9]	10-325	5.96
Eu^{3+}@UiO-bpydc	293-353	2.99

[a] Corresponding references.

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