Electronic Supplementary Information

Microwave-assisted ionothermal synthesis of a water-stable Eu-coordination polymer: Ba^{2+} ion detector and fluorescence thermometer

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Table S1 Hydrogen bonds for [HMIm]Eu(DHBDC)$_2$ **(1)**.

D-H···A	d(D-H) (Å)	d(H···A) (Å)	d(D···A) (Å)	<(DHA) (º)
O(5)-H(5A)···O(1)	0.82	1.86	2.569(15)	144.3
O(6)-H(6A)···O(4)	0.82	1.96	2.623(14)	137.6
O(5B)-H(5B)···O(1)	0.82	1.85	2.56(2)	144.7
O(6B)-H(6B)···O(4)	0.82	1.87	2.579(15)	144.1
O(12A)-H(12B)···O(10)	0.82	1.89	2.586(8)	142.6
O(12B)-H(12C)···O(11)	0.82	1.84	2.553(8)	144.4
O(9)-H(9A)···O(3)#1	0.82	1.70	2.514(5)	172.2

Symmetry transformations used to generate equivalent atoms: #1 *x*-1/2, *y*-1/2, -*z*+1/2.

Table S2 Hydrogen bonds for Ba(DHBDC) **(2)**.

D-H···A	d(D-H) (Å)	d(H···A) (Å)	d(D···A) (Å)	<(DHA) (º)
O(5)-H(5)···O(2)#10	0.818(10)	2.37(3)	2.769(3)	111(3)
O(5)-H(5)···O(4)	0.818(10)	1.816(19)	2.559(3)	150(3)
O(6)-H(6)···O(2)	0.817(10)	2.05(2)	2.756(3)	145(3)
O(6)-H(6)···O(4)#11	0.817(10)	2.21(3)	2.687(3)	117(3)
C(3)-H(3A)···O(3)#1	0.95	2.39	3.247(4)	149.3
C(6)-H(6A)···O(1)#9	0.95	2.31	3.242(4)	166.5
O(5)-H(5)···O(2)#10	0.818(10)	2.37(3)	2.769(3)	111(3)
O(5)-H(5)···O(4)	0.818(10)	1.816(19)	2.559(3)	150(3)
O(6)-H(6)···O(2)	0.817(10)	2.05(2)	2.756(3)	145(3)
O(6)-H(6)···O(4)#11	0.817(10)	2.21(3)	2.687(3)	117(3)
C(3)-H(3A)···O(3)#1	0.95	2.39	3.247(4)	149.3
C(6)-H(6A)···O(1)#9	0.95	2.31	3.242(4)	166.5
O(5)-H(5)···O(2)#10	0.818(10)	2.37(3)	2.769(3)	111(3)
O(5)-H(5)···O(4)	0.818(10)	1.816(19)	2.559(3)	150(3)
O(6)-H(6)···O(2)	0.817(10)	2.05(2)	2.756(3)	145(3)
O(6)-H(6)···O(4)#11	0.817(10)	2.21(3)	2.687(3)	117(3)
C(3)-H(3A)···O(3)#1	0.95	2.39	3.247(4)	149.3
C(6)-H(6A)···O(1)#9	0.95	2.31	3.242(4)	166.5

Symmetry transformations used to generate equivalent atoms:

#1 *x*, *y*-1, *z*; #2 -*x*+1, -*y*+1, -*z*; #3 *x*-1, *y*, *z*; #4 -*x*, -*y*+1, -*z*+1; #5 -*x*+1, -*y*, -*z*;

#6 -*x*, -*y*, -*z*+1; #7 -*x*, -*y*, -*z*; #8 *x*+1, *y*, *z*; #9 *x*, *y*+1, *z*; #10 *x*-1, *y*, *z*+1; #11 *x*+1, *y*, *z*-1.

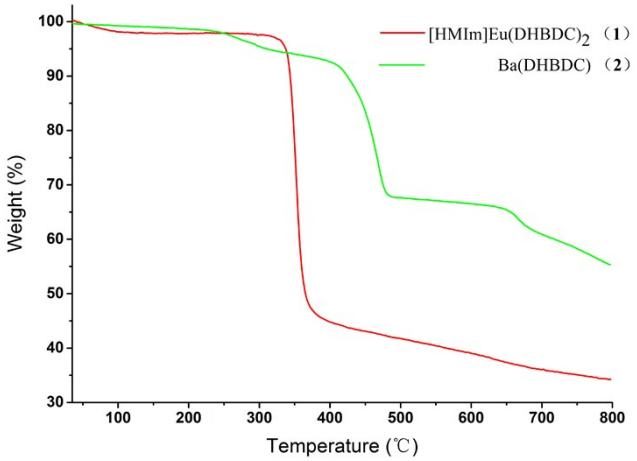

Fig. S1 TGA curves of compounds **1** and **2**.

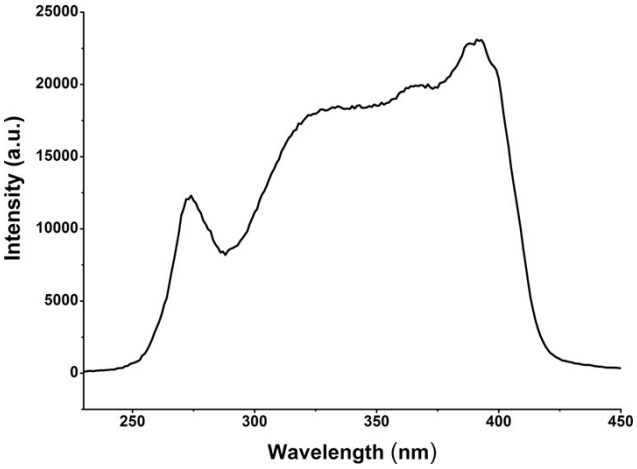

Fig. S2 Solid state excitation spectrum of **Eu-CP** (**1**) (λ_{em} = 615 nm).

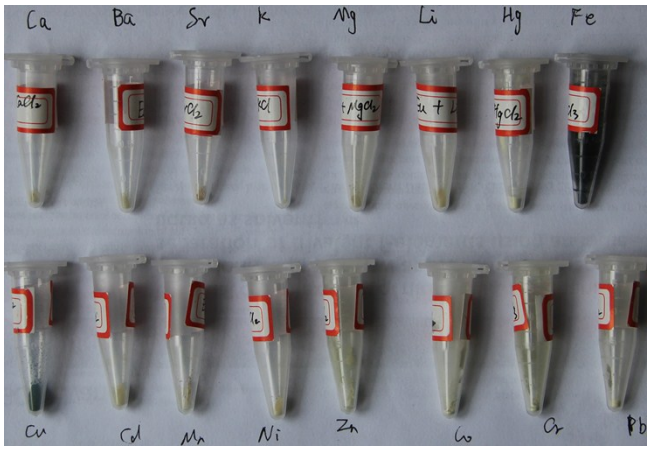

Fig. S3 Photos of $\mathbf{M^{n+}}$**@Eu-CP** samples after immersing in metal ion solutions.

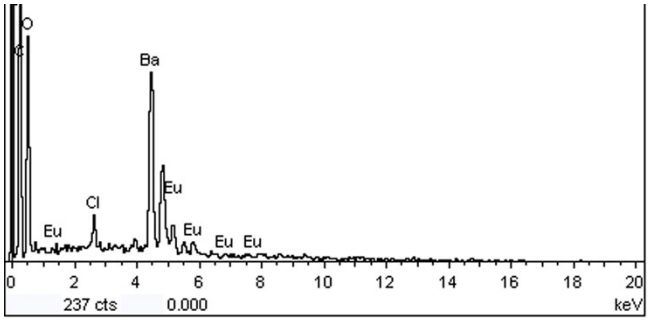

Fig. S4 The EDS spectrum of solid state sample of **Ba^{2+}@Eu-CP** prepared from 0.01 mol/L Ba^{2+} aqueous solution.

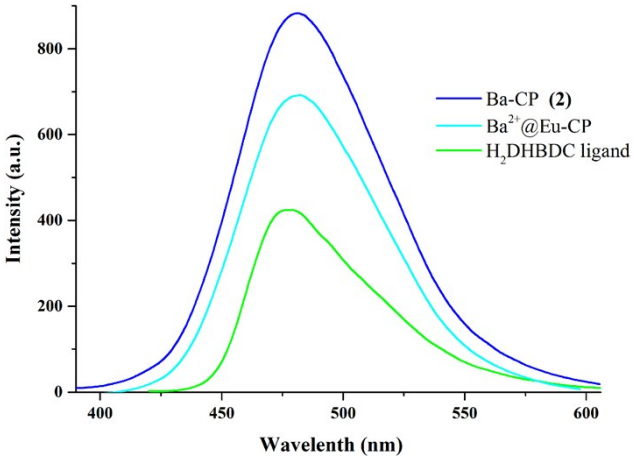

Fig. S5 Solid state fluorescent emission spectra of Ba-CP (**2**), **Ba^{2+}@Eu-CP** (from 0.10 mol/L Ba^{2+} solution) and H_2DHBDC ligand (λ_{ex} = 365 nm) at room temperature.