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

Supporting Information

A new strategy for achieving white-light-emission of lanthanide complexes: effective control of energy transfer from blue-emissive fluorophore to Eu(III) centres

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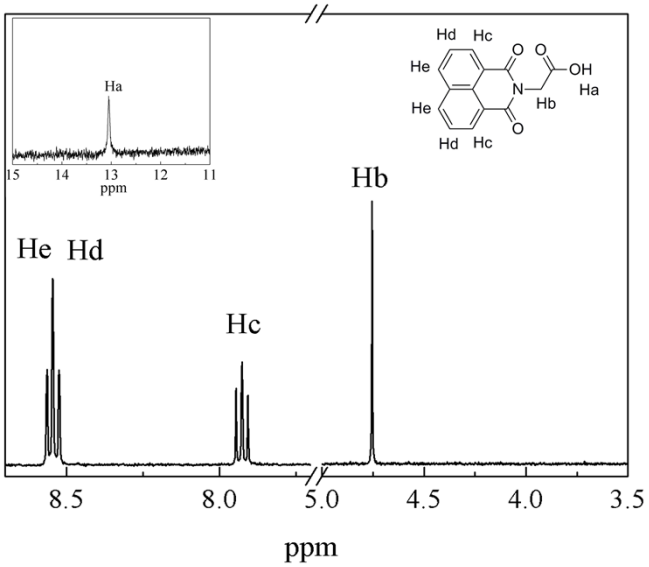

Fig. S1 400 MHz ^{1}H NMR spectrum of HL^1 in DMSO-d_6.

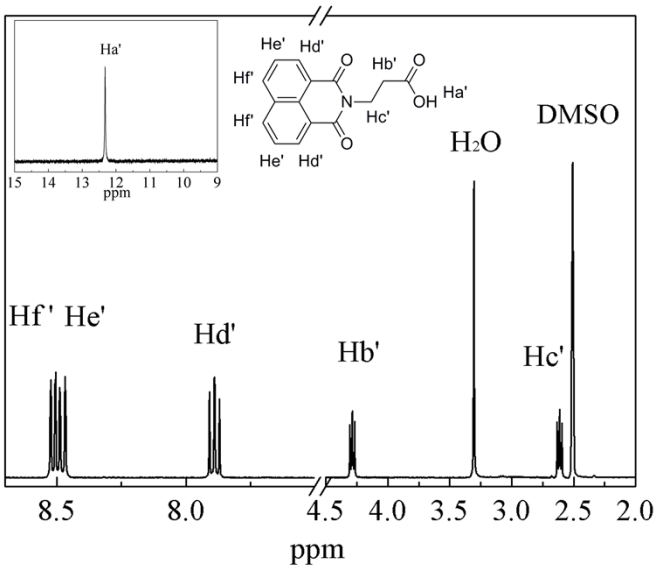

Fig. S2 400 MHz ^{1}H NMR spectrum of HL^2 in DMSO-d_6.

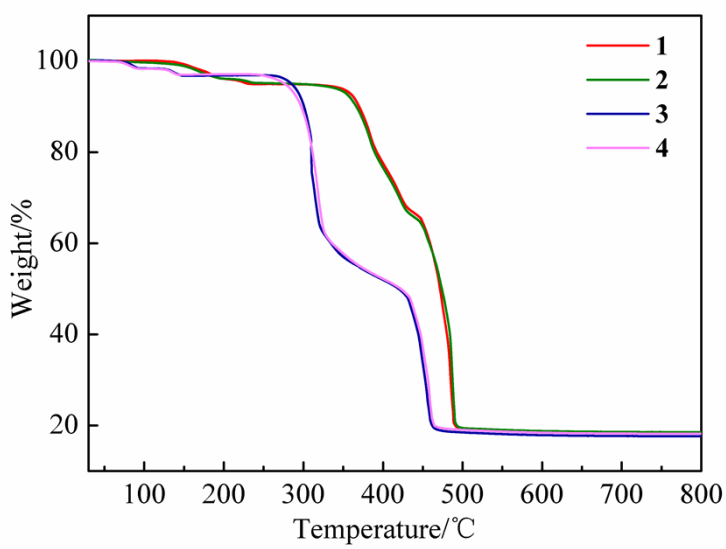

Fig. S3 Thermogravimetric curves of complexes **1**–**4**.

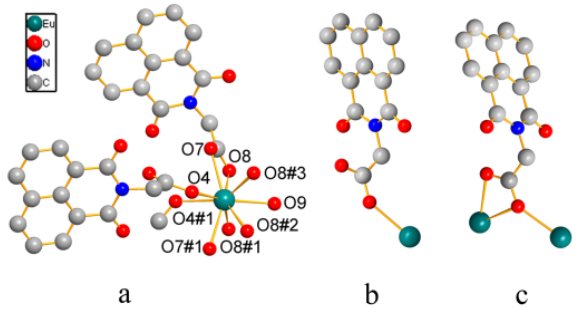

Fig. S4 (a) The coordination environment of the Eu(III) ion in **1**. (b) The μ_2-η^1 coordination mode. (c) The μ_2-η^1-η^2 coordination mode (Symmetry codes: #1: −x, y, 1.5 −y; #2: −x, −y, 1 −y; #3: x, −y, 0.5 +y).

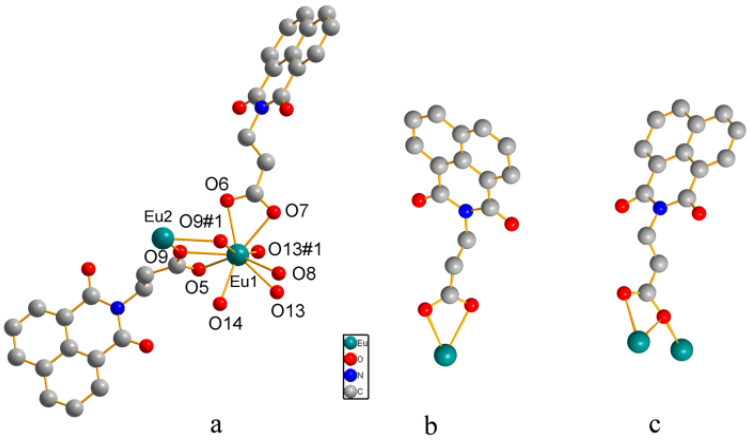

Fig. S5 (a) The coordination environment of the Eu(III) ion in **3**. (b) The μ_2-η^1-η^1coordination fashion. (c) The μ_2-η^1-η^2 coordination fashion.

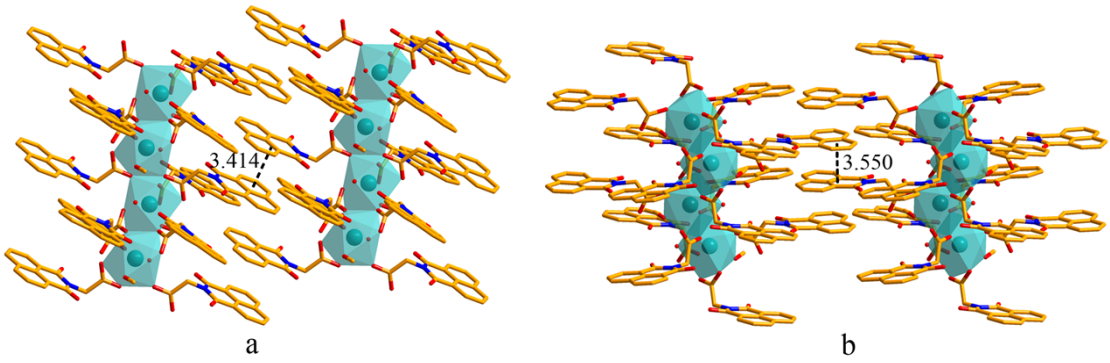

Fig. S6 The π–π stacking interactions in **1:** (a) along the [1 1 0] direction; (b) along the [0 1 0] direction**.**

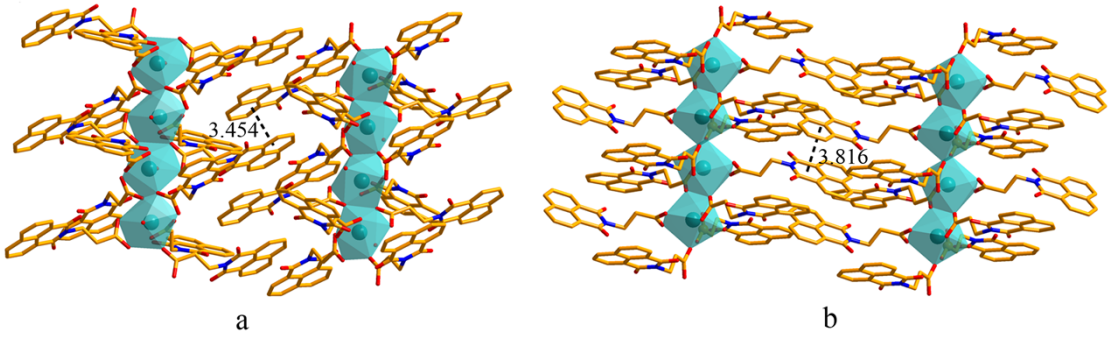

Fig. S7 The π–π stacking interactions in **3:** (a) along the [0 1 1] direction; (b) along the [0 1 0] direction.

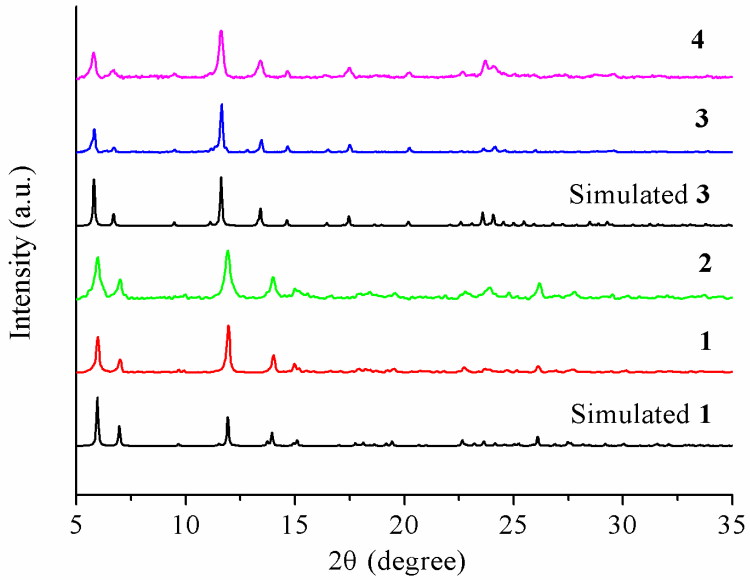

Fig. S8 Power XRD patterns of the complxes **1**–**4**.

Table S1 Crystal data and structure refinement information for complex **1** and **3**

Complexes	Complex 1	Complex 3
Formula	C_{43} H_{30} Eu N_3 O_{14}	C_{45} H_{34} Eu N_3 O_{14}
Formula weight	964.66	992.71
Shape	Rod-like	Rod-like
Color	white	white
Crystal system	Monoclinic	Monoclinic
Space group	*C2/c*	$P2_1/c$
a(Å)	26.117(5)	8.0747(2)
b(Å)	18.276(4)	18.6500(7)
c(Å)	7.8689(16)	26.4469(10)
α(°)	90	90
β(°)	103.67(3)	94.391(3)
γ(°)	90	90
V(Å^3)	3649.5(13)	3971.0(2)
Z	4	4
ρ(g cm^{-3})	1.756	1.660
μ(mm^{-1})	1.800	1.657
F(0 0 0)	1936	2000
θ range (°)	3.16-27.46	2.91-28.73
Reflections collected	6142	17552
Unique reflections	3533	8952
R_{int}	0.0252	0.0477
R_1, wR_2 (I > 2σ(I)) (final)	0.0347, 0.0704	0.0925,0.2521
R_1, wR_2 (all data)	0.0457, 0.0760	0.1274,0.2979
Goodness-of-fit (GOF) on F^2	1.078	1.094

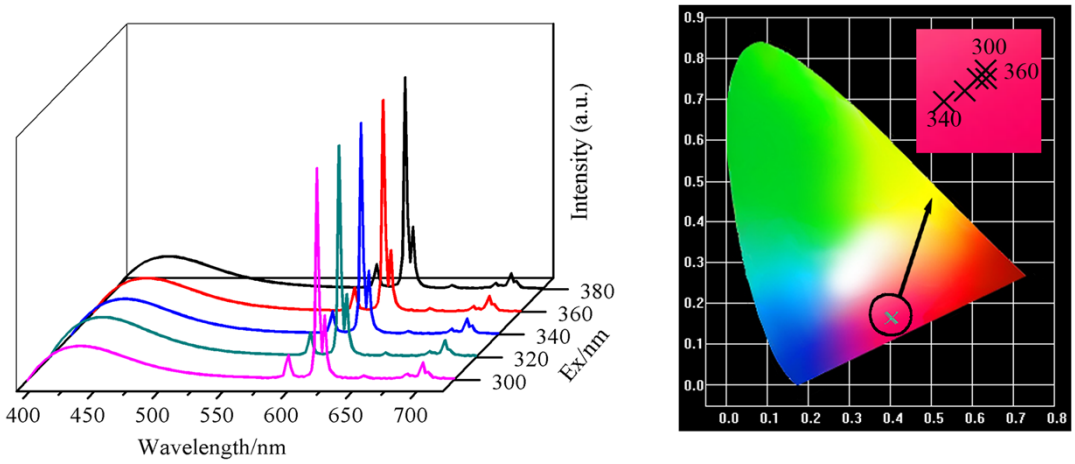

Fig. S9 Emission spectra and CIE coordinates of **1** at different excitation wavelengths.

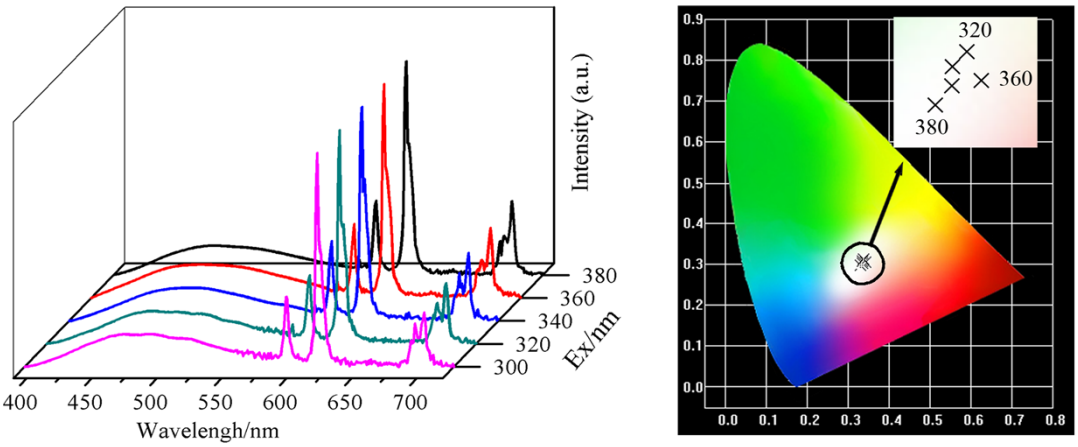

Fig. S10 Emission spectra and CIE coordinates of **3** at different excitation wavelengths.

Table S2 The CIE coordinate of **1** and **3** at excitation wavelengths 300–380 nm

Excitation wavelength (nm)	CIE coordinate (x, y)	
	1	**3**
300	0.404，0.165	0.335，0.302
320	0.402，0.163	0.338，0.312
340	0.400，0.162	0.335，0.308
360	0.403，0.164	0.343，0.304
380	0.404，0.164	0.331，0.293

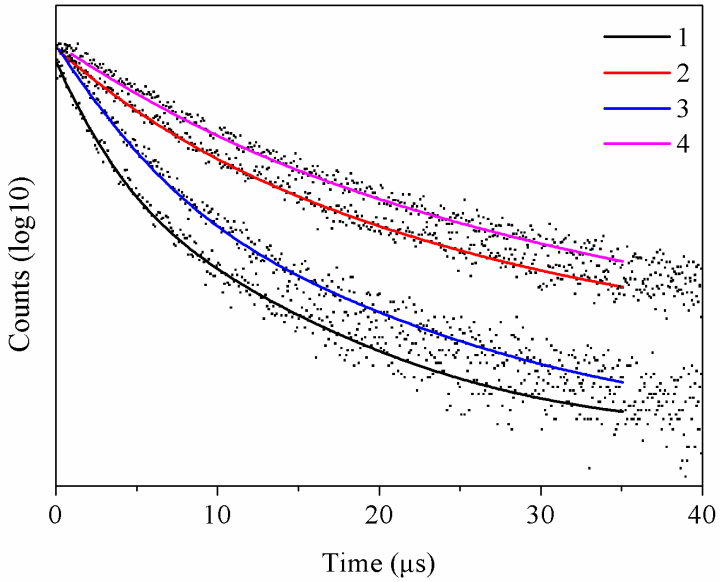

Fig. S11 Luminescence decay curves of the ligands in **1**, **2**, **3** and **4** monitored at 460 nm.

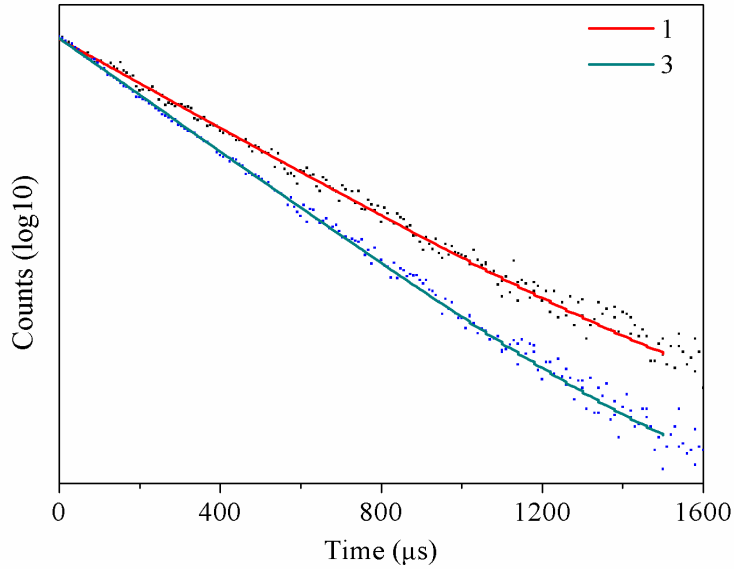

Fig. S12 Luminescence decay curves of the Eu(III) ions in **1** and **3** monitored at 614 nm.

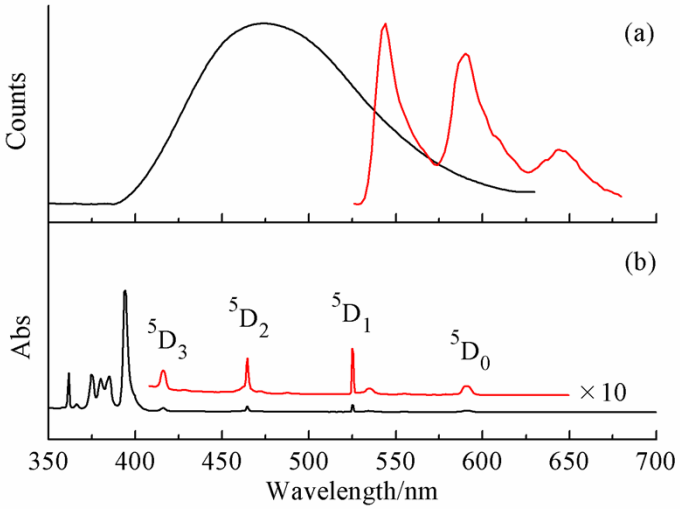

Fig. S13 (a) Emission spectrum of **2** at room temperature in the solid state (black line) and phosphorescence spectrum of HL^1 recorded at 77 K (red line). (b) UV/vis absorption spectrum of $EuCl_3$ in water.