Supporting Information

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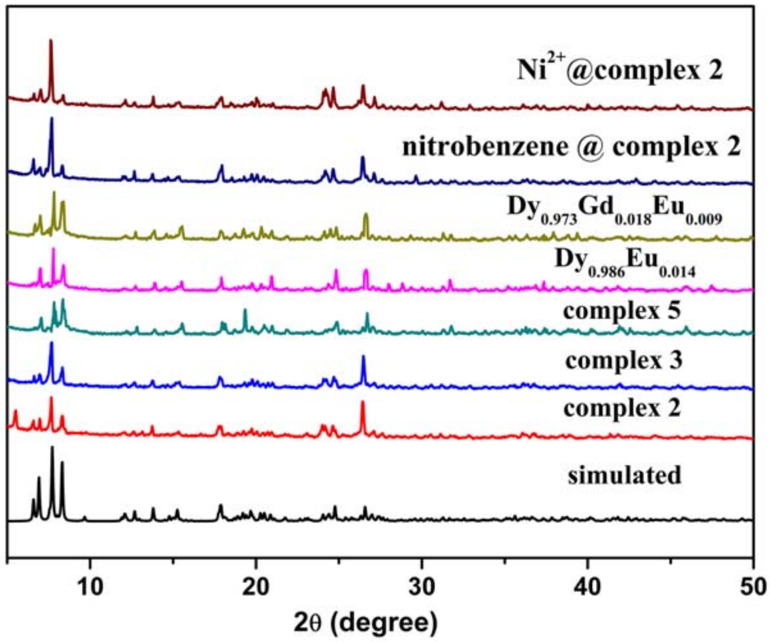

Fig. S1 The PXRD patterns for complexes **2, 3, 5**, the $Dy_{0.986}Eu_{0.014}$ and $Dy_{0.973}Gd_{0.018}Eu_{0.09}$ doped complexes, and PXRD patterns of **2** after immersing in Ni^{2+}aqueous solution and nitrobenzene.

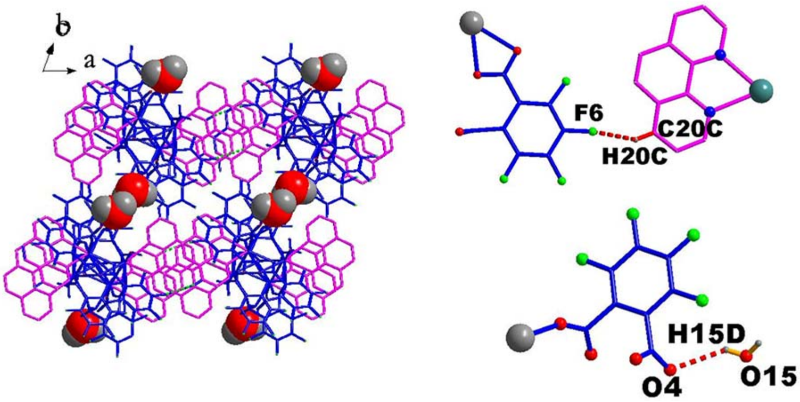

Fig.S2 3D supramolecular architecture of complex **3**
Symmetry codes: C: -1+x, y, z; D: 1-x, -y, 1-z.

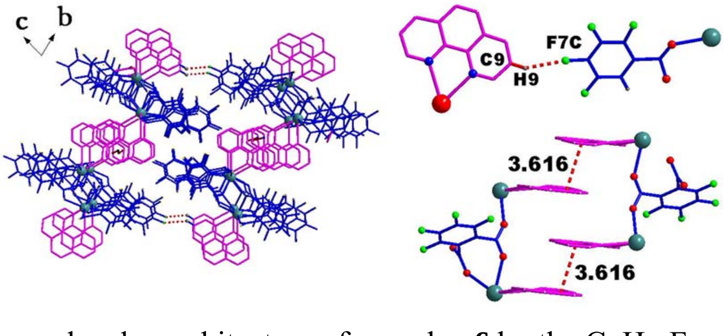

Fig. S3 3D supramolecular architecture of complex **6** by the C–H···F and π–π stacking
Symmetry codes: C: x,1+y, -1+z.

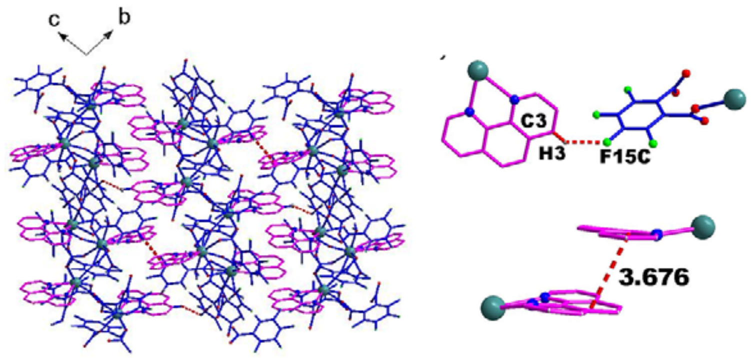

Fig. S4 3D supramolecular architecture of complex **8** by the C–H···F and π–π stacking.
Symmetry code: C: 1+x, 1+y, z.

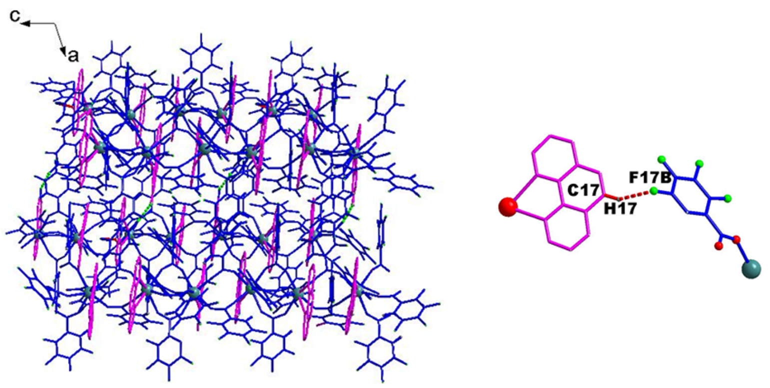

Fig. S5 3D supramolecular architecture of complex **11** by the C–H···F.
Symmetry code: B: -x, 0.5+y, 0.5-z.

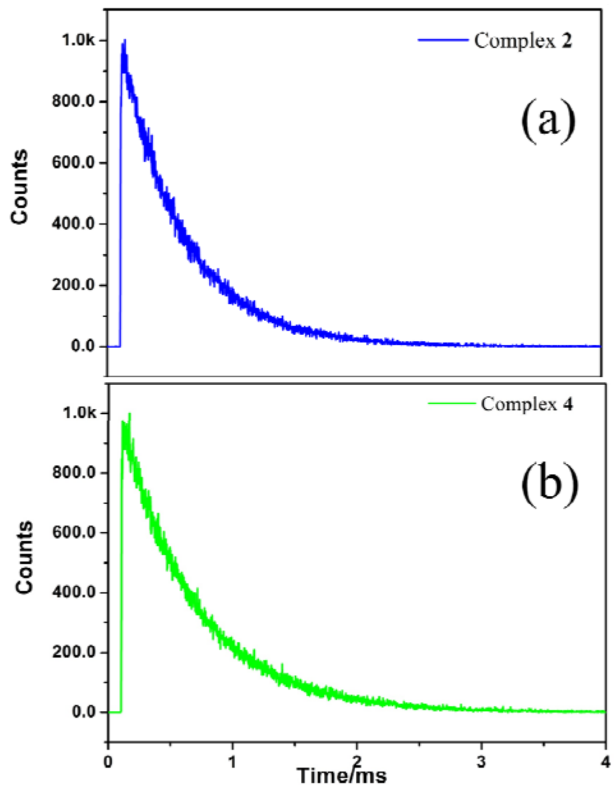

Fig. S6 Decay profile of complexes **2** (a) and **4** (b).

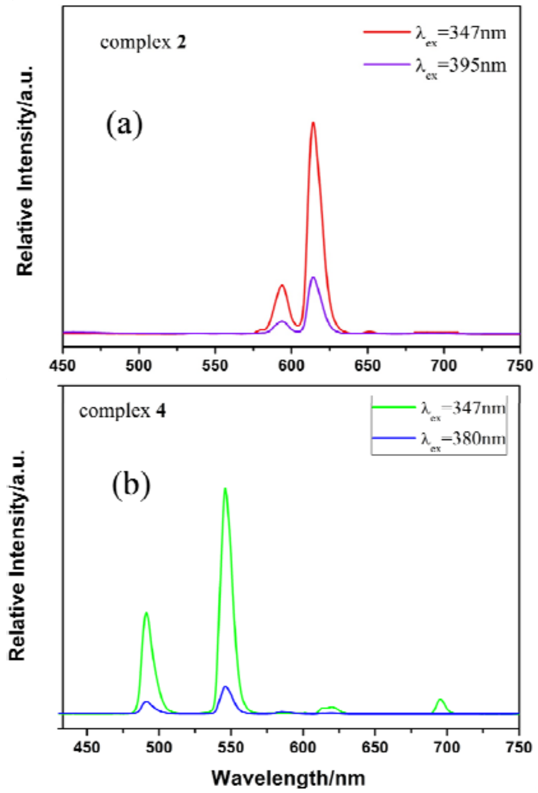

Fig. S7 Emission spectra of complexes **2** (a) and **4** (b) exciting at f–f absorption (395 nm for **2** and 380 nm for **4**).

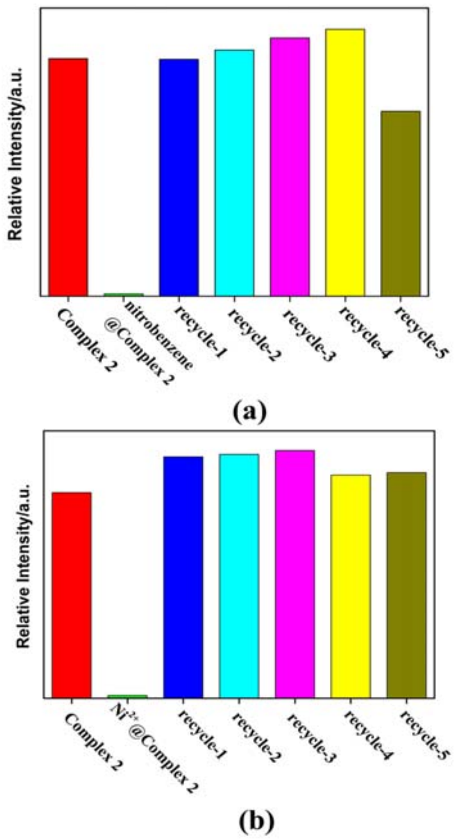

Fig. S8 The luminescence intensity ($^5D_0 \rightarrow ^7F_2$) of five recyclable experiments of sensing for nitrobenzene (a) and Ni^{2+}(b).

Table S1 Selected bond lengths (Å) and angles (°) for complexes **1**-**5**

	1		
Sm(1)-O(10)	2.373(2)	Sm(1)-O(3)#1	2.373(2)
Sm(1)-O(1)	2.399(2)	Sm(1)-O(12)#1	2.436(2)
Sm(1)-O(13)	2.453(2)	Sm(1)-O(11)	2.599(2)
Sm(1)-N(1)	2.614(3)	Sm(1)-N(2)	2.634(3)
Sm(1)-O(11)#1	2.714(2)	Sm(2)-O(7)#2	2.281(2)
Sm(2)-O(9)	2.320(2)	Sm(2)-O(2)	2.411(2)
Sm(2)-O(6)	2.438(2)	Sm(2)-O(14)	2.447(3)
Sm(2)-O(5)	2.495(2)	Sm(2)-N(3)	2.560(3)
Sm(2)-N(4)	2.614(3)		
O(10)-Sm(1)-O(3)#1	87.02(8)	O(10)-Sm(1)-O(1)	77.28(8)
O(3)#1-Sm(1)-O(1)	144.65(8)	O(10)-Sm(1)-O(12)#1	149.77(8)
O(3)#1-Sm(1)-O(12)#1	122.00(8)	O(1)-Sm(1)-O(12)#1	73.70(8)
O(10)-Sm(1)-O(13)	133.98(8)	O(3)#1-Sm(1)-O(13)	72.20(8)
O(1)-Sm(1)-O(13)	139.69(8)	O(12)#1-Sm(1)-O(13)	69.55(8)
O(10)-Sm(1)-O(11)	72.06(7)	O(3)#1-Sm(1)-O(11)	70.74(7)
O(1)-Sm(1)-O(11)	74.32(8)	O(12)#1-Sm(1)-O(11)	107.40(7)
O(13)-Sm(1)-O(11)	132.43(8)	O(10)-Sm(1)-N(1)	92.15(8)
O(3)#1-Sm(1)-N(1)	139.37(8)	O(1)-Sm(1)-N(1)	73.50(9)
O(12)#1-Sm(1)-N(1)	71.72(8)	O(13)-Sm(1)-N(1)	79.71(9)
O(11)-Sm(1)-N(1)	146.56(8)	O(10)-Sm(1)-N(2)	65.77(8)
O(3)#1-Sm(1)-N(2)	80.61(8)	O(1)-Sm(1)-N(2)	119.43(8)
O(12)#1-Sm(1)-N(2)	122.93(8)	O(13)-Sm(1)-N(2)	70.51(8)
O(11)-Sm(1)-N(2)	129.63(7)	N(1)-Sm(1)-N(2)	62.39(8)
O(10)-Sm(1)-O(11)#1	133.62(7)	O(3)#1-Sm(1)-O(11)#1	86.25(7)
O(1)-Sm(1)-O(11)#1	82.32(8)	O(12)#1-Sm(1)-O(11)#1	50.03(7)
O(13)-Sm(1)-O(11)#1	86.55(7)	O(11)-Sm(1)-O(11)#1	62.42(8)
N(1)-Sm(1)-O(11)#1	121.18(8)	N(2)-Sm(1)-O(11)#1	156.13(8)
O(7)#2-Sm(2)-O(9)	146.75(8)	O(7)#2-Sm(2)-O(2)	131.58(8)
O(9)-Sm(2)-O(2)	77.11(8)	O(7)#2-Sm(2)-O(6)	83.03(9)
O(9)-Sm(2)-O(6)	80.63(9)	O(2)-Sm(2)-O(6)	138.90(9)
O(7)#2-Sm(2)-O(14)	72.03(9)	O(9)-Sm(2)-O(14)	141.17(9)
O(2)-Sm(2)-O(14)	67.11(9)	O(6)-Sm(2)-O(14)	117.20(11)
O(7)#2-Sm(2)-O(5)	103.87(9)	O(9)-Sm(2)-O(5)	88.51(9)
O(2)-Sm(2)-O(5)	92.95(9)	O(6)-Sm(2)-O(5)	52.15(8)
O(14)-Sm(2)-O(5)	79.06(11)	O(7)#2-Sm(2)-N(3)	80.27(9)
O(9)-Sm(2)-N(3)	92.14(9)	O(2)-Sm(2)-N(3)	78.58(10)
O(6)-Sm(2)-N(3)	136.67(9)	O(14)-Sm(2)-N(3)	95.01(11)
O(5)-Sm(2)-N(3)	171.12(9)	O(7)#2-Sm(2)-N(4)	78.70(9)
O(9)-Sm(2)-N(4)	69.08(8)	O(2)-Sm(2)-N(4)	126.71(9)
O(6)-Sm(2)-N(4)	74.35(9)	O(14)-Sm(2)-N(4)	146.30(10)

O(5)-Sm(2)-N(4)	124.95(9)	N(3)-Sm(2)-N(4)	63.31(9)
	2		
Eu(1)-O(3)#1	2.359(3)	Eu(1)-O(10)	2.359(3)
Eu(1)-O(1)	2.387(3)	Eu(1)-O(12)#1	2.424(3)
Eu(1)-O(13)	2.444(3)	Eu(1)-N(1)	2.589(3)
Eu(1)-O(11)	2.596(3)	Eu(1)-N(2)	2.625(3)
Eu(1)-O(11)#1	2.713(3)	Eu(2)-O(7)#2	2.268(3)
Eu(2)-O(9)	2.303(3)	Eu(2)-O(2)	2.397(3)
Eu(2)-O(6)	2.424(3)	Eu(2)-O(14)	2.431(3)
Eu(2)-O(5)	2.487(3)	Eu(2)-N(3)	2.550(4)
Eu(2)-N(4)	2.606(3)		
O(3)#1-Eu(1)-O(10)	87.24(10)	O(3)#1-Eu(1)-O(1)	144.25(10)
O(10)-Eu(1)-O(1)	77.04(10)	O(3)#1-Eu(1)-O(12)#1	121.84(10)
O(10)-Eu(1)-O(12)#1	149.57(10)	O(1)-Eu(1)-O(12)#1	73.70(10)
O(3)#1-Eu(1)-O(13)	72.48(10)	O(10)-Eu(1)-O(13)	134.12(10)
O(1)-Eu(1)-O(13)	139.73(10)	O(12)#1-Eu(1)-O(13)	69.65(10)
O(3)#1-Eu(1)-N(1)	139.83(10)	O(10)-Eu(1)-N(1)	92.01(10)
O(1)-Eu(1)-N(1)	73.48(11)	O(12)#1-Eu(1)-N(1)	71.90(10)
O(13)-Eu(1)-N(1)	79.74(11)	O(3)#1-Eu(1)-O(11)	70.70(9)
O(10)-Eu(1)-O(11)	72.27(9)	O(1)-Eu(1)-O(11)	73.95(9)
O(12)#1-Eu(1)-O(11)	106.85(9)	O(13)-Eu(1)-O(11)	132.58(9)
N(1)-Eu(1)-O(11)	146.26(10)	O(3)#1-Eu(1)-N(2)	80.73(10)
O(10)-Eu(1)-N(2)	65.62(10)	O(1)-Eu(1)-N(2)	119.53(10)
O(12)#1-Eu(1)-N(2)	123.47(10)	O(13)-Eu(1)-N(2)	70.65(10)
N(1)-Eu(1)-N(2)	62.74(10)	O(11)-Eu(1)-N(2)	129.65(9)
O(3)#1-Eu(1)-O(11)#1	85.63(9)	O(10)-Eu(1)-O(11)#1	133.65(9)
O(1)-Eu(1)-O(11)#1	82.66(9)	O(12)#1-Eu(1)-O(11)#1	50.02(9)
O(13)-Eu(1)-O(11)#1	86.38(9)	N(1)-Eu(1)-O(11)#1	121.39(9)
O(11)-Eu(1)-O(11)#1	62.15(10)	N(2)-Eu(1)-O(11)#1	155.92(9)
O(7)#2-Eu(2)-O(9)	146.85(10)	O(7)#2-Eu(2)-O(2)	131.79(10)
O(9)-Eu(2)-O(2)	76.97(10)	O(7)#2-Eu(2)-O(6)	82.79(11)
O(9)-Eu(2)-O(6)	80.80(11)	O(2)-Eu(2)-O(6)	138.75(10)
O(7)#2-Eu(2)-O(14)	71.85(11)	O(9)-Eu(2)-O(14)	141.26(10)
O(2)-Eu(2)-O(14)	67.24(11)	O(6)-Eu(2)-O(14)	117.11(12)
O(7)#2-Eu(2)-O(5)	104.01(11)	O(9)-Eu(2)-O(5)	88.19(11)
O(2)-Eu(2)-O(5)	92.58(11)	O(6)-Eu(2)-O(5)	52.18(9)
O(14)-Eu(2)-O(5)	79.36(13)	O(7)#2-Eu(2)-N(3)	80.40(11)
O(9)-Eu(2)-N(3)	92.36(11)	O(2)-Eu(2)-N(3)	78.58(12)
O(6)-Eu(2)-N(3)	136.99(11)	O(14)-Eu(2)-N(3)	94.58(13)
O(5)-Eu(2)-N(3)	170.76(10)	O(7)#2-Eu(2)-N(4)	78.75(10)
O(9)-Eu(2)-N(4)	69.20(10)	O(2)-Eu(2)-N(4)	126.69(11)
O(6)-Eu(2)-N(4)	74.60(10)	O(14)-Eu(2)-N(4)	146.00(11)
O(5)-Eu(2)-N(4)	125.11(10)	N(3)-Eu(2)-N(4)	63.43(11)

		3	
Gd(1)-O(10)	2.3540(19)	Gd(1)-O(3)#1	2.3545(19)
Gd(1)-O(1)	2.381(2)	Gd(1)-O(12)#1	2.416(2)
Gd(1)-O(13)	2.427(2)	Gd(1)-O(11)	2.580(2)
Gd(1)-N(1)	2.584(2)	Gd(1)-N(2)	2.616(2)
Gd(1)-O(11)#1	2.730(2)	Gd(2)-O(7)#2	2.2642(19)
Gd(2)-O(9)	2.298(2)	Gd(2)-O(2)	2.389(2)
Gd(2)-O(6)	2.418(2)	Gd(2)-O(14)	2.420(2)
Gd(2)-O(5)	2.480(2)	Gd(2)-N(3)	2.532(2)
Gd(2)-N(4)	2.583(2)		
O(10)-Gd(1)-O(3)#1	87.50(7)	O(10)-Gd(1)-O(1)	76.87(7)
O(3)#1-Gd(1)-O(1)	144.14(7)	O(10)-Gd(1)-O(12)#1	149.41(7)
O(3)#1-Gd(1)-O(12)#1	121.61(7)	O(1)-Gd(1)-O(12)#1	73.64(8)
O(10)-Gd(1)-O(13)	134.43(7)	O(3)#1-Gd(1)-O(13)	72.56(7)
O(1)-Gd(1)-O(13)	139.63(7)	O(12)#1-Gd(1)-O(13)	69.63(8)
O(10)-Gd(1)-O(11)	72.39(6)	O(3)#1-Gd(1)-O(11)	70.73(6)
O(1)-Gd(1)-O(11)	73.80(7)	O(12)#1-Gd(1)-O(11)	106.39(7)
O(13)-Gd(1)-O(11)	132.53(7)	O(10)-Gd(1)-N(1)	92.06(7)
O(3)#1-Gd(1)-N(1)	140.08(7)	O(1)-Gd(1)-N(1)	73.44(8)
O(12)#1-Gd(1)-N(1)	71.98(7)	O(13)-Gd(1)-N(1)	79.74(8)
O(11)-Gd(1)-N(1)	146.16(7)	O(10)-Gd(1)-N(2)	65.84(7)
O(3)#1-Gd(1)-N(2)	80.67(7)	O(1)-Gd(1)-N(2)	119.82(8)
O(12)#1-Gd(1)-N(2)	123.75(7)	O(13)-Gd(1)-N(2)	70.64(7)
O(11)-Gd(1)-N(2)	129.80(6)	N(1)-Gd(1)-N(2)	63.08(7)
O(10)-Gd(1)-O(11)#1	133.58(6)	O(3)#1-Gd(1)-O(11)#1	85.08(6)
O(1)-Gd(1)-O(11)#1	82.97(7)	O(12)#1-Gd(1)-O(11)#1	50.02(6)
O(13)-Gd(1)-O(11)#1	86.08(7)	O(11)-Gd(1)-O(11)#1	61.91(7)
N(1)-Gd(1)-O(11)#1	121.53(7)	N(2)-Gd(1)-O(11)#1	155.45(6)
O(7)#2-Gd(2)-O(9)	146.83(7)	O(7)#2-Gd(2)-O(2)	131.86(8)
O(9)-Gd(2)-O(2)	76.91(7)	O(7)#2-Gd(2)-O(6)	82.32(8)
O(9)-Gd(2)-O(6)	81.47(8)	O(2)-Gd(2)-O(6)	138.86(8)
O(7)#2-Gd(2)-O(14)	72.09(8)	O(9)-Gd(2)-O(14)	141.03(8)
O(2)-Gd(2)-O(14)	67.01(8)	O(6)-Gd(2)-O(14)	116.68(10)
O(7)#2-Gd(2)-O(5)	104.39(9)	O(9)-Gd(2)-O(5)	88.23(9)
O(2)-Gd(2)-O(5)	91.80(8)	O(6)-Gd(2)-O(5)	52.67(7)
O(14)-Gd(2)-O(5)	78.97(10)	O(7)#2-Gd(2)-N(3)	80.47(8)
O(9)-Gd(2)-N(3)	92.38(8)	O(2)-Gd(2)-N(3)	78.43(8)
O(6)-Gd(2)-N(3)	137.48(8)	O(14)-Gd(2)-N(3)	94.30(10)
O(5)-Gd(2)-N(3)	169.79(8)	O(7)#2-Gd(2)-N(4)	78.68(8)
O(9)-Gd(2)-N(4)	69.18(7)	O(2)-Gd(2)-N(4)	127.09(8)
O(6)-Gd(2)-N(4)	74.50(8)	O(14)-Gd(2)-N(4)	146.31(9)
O(5)-Gd(2)-N(4)	125.29(8)	N(3)-Gd(2)-N(4)	64.15(8)
		4	

Tb(1)-O(3)#1	2.332(7)	Tb(1)-O(10)	2.340(6)
Tb(1)-O(1)	2.372(6)	Tb(1)-O(12)#1	2.388(6)
Tb(1)-O(13)	2.406(7)	Tb(1)-O(11)	2.570(7)
Tb(1)-N(1)	2.570(8)	Tb(1)-N(2)	2.592(7)
Tb(1)-O(11)#1	2.803(7)	Tb(2)-O(7)#2	2.243(7)
Tb(2)-O(9)	2.300(6)	Tb(2)-O(6)	2.394(6)
Tb(2)-O(2)	2.402(6)	Tb(2)-O(14)	2.410(7)
Tb(2)-O(5)	2.453(7)	Tb(2)-N(3)	2.513(8)
Tb(2)-N(4)	2.590(7)		
O(3)#1-Tb(1)-O(10)	87.3(2)	O(3)#1-Tb(1)-O(1)	143.7(2)
O(10)-Tb(1)-O(1)	77.1(2)	O(3)#1-Tb(1)-O(12)#1	120.4(2)
O(10)-Tb(1)-O(12)#1	150.2(2)	O(1)-Tb(1)-O(12)#1	73.8(2)
O(3)#1-Tb(1)-O(13)	73.2(2)	O(10)-Tb(1)-O(13)	134.6(2)
O(1)-Tb(1)-O(13)	139.3(2)	O(12)#1-Tb(1)-O(13)	69.7(2)
O(3)#1-Tb(1)-O(11)	70.8(2)	O(10)-Tb(1)-O(11)	72.7(2)
O(1)-Tb(1)-O(11)	73.3(2)	O(12)#1-Tb(1)-O(11)	104.2(2)
O(13)-Tb(1)-O(11)	132.8(2)	O(3)#1-Tb(1)-N(1)	140.6(2)
O(10)-Tb(1)-N(1)	93.2(2)	O(1)-Tb(1)-N(1)	73.6(2)
O(12)#1-Tb(1)-N(1)	72.8(2)	O(13)-Tb(1)-N(1)	79.0(2)
O(11)-Tb(1)-N(1)	146.2(2)	O(3)#1-Tb(1)-N(2)	81.0(2)
O(10)-Tb(1)-N(2)	65.7(2)	O(1)-Tb(1)-N(2)	119.9(3)
O(12)#1-Tb(1)-N(2)	125.3(2)	O(13)-Tb(1)-N(2)	70.8(2)
O(11)-Tb(1)-N(2)	130.4(2)	N(1)-Tb(1)-N(2)	63.7(2)
O(3)#1-Tb(1)-O(11)#1	83.4(2)	O(10)-Tb(1)-O(11)#1	134.1(2)
O(1)-Tb(1)-O(11)#1	84.6(2)	O(12)#1-Tb(1)-O(11)#1	48.9(2)
O(13)-Tb(1)-O(11)#1	84.8(2)	O(11)-Tb(1)-O(11)#1	61.8(2)
N(1)#2-Tb(1)-O(11)#1	121.5(2)	N(2)-Tb(1)-O(11)#1	153.9(2)
O(7)#2-Tb(2)-O(9)	147.0(2)	O(7)#2-Tb(2)-O(6)	82.5(3)
O(9)-Tb(2)-O(6)	82.1(2)	O(7)#2-Tb(2)-O(2)	132.3(2)
O(9)-Tb(2)-O(2)	76.2(2)	O(6)-Tb(2)-O(2)	138.0(2)
O(7)#2-Tb(2)-O(14)	71.3(3)	O(9)-Tb(2)-O(14)	141.6(2)
O(6)-Tb(2)-O(14)	116.6(3)	O(2)-Tb(2)-O(14)	67.7(2)
O(7)#2-Tb(2)-O(5)	104.4(3)	O(9)-Tb(2)-O(5)	88.9(3)
O(6)-Tb(2)-O(5)	52.9(2)	O(2)-Tb(2)-O(5)	90.8(2)
O(14)-Tb(2)-O(5)	79.1(3)	O(7)#2-Tb(2)-N(3)	81.1(3)
O(9)-Tb(2)-N(3)	91.4(3)	O(6)-Tb(2)-N(3)	138.3(2)
O(2)-Tb(2)-N(3)	78.3(3)	O(14)-Tb(2)-N(3)	93.8(3)
O(5)-Tb(2)-N(3)	168.7(2)	O(7)#2-Tb(2)-N(4)	77.7(2)
O(9)-Tb(2)-(N4)	70.2(2)	O(6)-Tb(2)-N(4)	75.1(2)
O(2)-Tb(2)-N(4)	127.7(2)	O(14)-Tb(2)-N(4)	144.4(3)
O(5)-Tb(2)-N(4)	126.4(2)	N(3)-Tb(2)-N(4)	64.0(2)
		5	
Dy(1)-O(10)	2.326(2)	Dy(1)-O(3)#2	2.334(2)

Dy(1)-O(12)#2	2.344(3)	Dy(1)-O(1)	2.367(3)
Dy(1)-O(13)	2.408(2)	Dy(1)-O(11)	2.478(3)
Dy(1)-N(1)	2.541(3)	Dy(1)-N(2)	2.568(3)
Dy(2)-O(7)#1	2.240(2)	Dy(2)-O(9)	2.268(2)
Dy(2)-O(2)	2.365(2)	Dy(2)-O(6)	2.382(2)
Dy(2)-O(14)	2.391(3)	Dy(2)-O(5)	2.468(2)
Dy(2)-N(3)	2.500(3)	Dy(2)-N(4)	2.565(3)
O(3)#1-Dy(1)-O(10)	87.81(8)	O(10)-Dy(1)-O(12)#2	150.37(9)
O(3)#2-Dy(1)-O(12)#2	117.51(9)	O(10)-Dy(1)-O(1)	76.98(9)
O(3)#2-Dy(1)-O(1)	144.14(8)	O(12)#2-Dy(1)-O(1)	73.43(10)
O(10)-Dy(1)-O(13)	135.78(8)	O(3)#2-Dy(1)-O(13)	72.51(8)
O(12)#2-Dy(1)-O(13)	70.67(10)	O(1)-Dy(1)-O(13)	138.98(8)
O(10)-Dy(1)-O(11)	72.82(8)	O(3)#2-Dy(1)-O(11)	71.24(8)
O(12)#2-Dy(1)-O(11)	99.68(10)	O(1)-Dy(1)-O(11)	73.27(9)
O(13)-Dy(1)-O(11)	131.75(9)	O(10)-Dy(1)-N(1)	95.12(8)
O(3)#2-Dy(1)-N(1)	141.10(9)	O(12)#2-Dy(1)-N(1)	75.13(9)
O(1)-Dy(1)-N(1)	73.37(9)	O(13)-Dy(1)-N(1)	78.80(9)
O(11)-Dy(1)-N(1)	146.30(9)	O(10)-Dy(1)-N(2)	66.39(8)
O(3)#2-Dy(1)-N(2)	82.08(8)	O(12)#2-Dy(1)-N(2)	128.60(10)
O(1)-Dy(1)-N(2)	119.25(9)	O(13)-Dy(1)-N(2)	71.82(8)
O(11)-Dy(1)-N(2)	131.61(8)	N(1)-Dy(1)-N(2)	64.10(9)
O(7)#1-Dy(2)-O(9)	146.41(8)	O(7)#1-Dy(2)-O(2)	131.83(9)
O(9)-Dy(2)-O(2)	77.00(8)	O(7)#1-Dy(2)-O(6)	82.00(9)
O(9)-Dy(2)-O(6)	83.37(9)	O(2)-Dy(2)-O(6)	137.94(9)
O(7)#1-Dy(2)-O(14)	71.78(9)	O(9)-Dy(2)-O(14)	141.61(9)
O(2)-Dy(2)-O(14)	66.71(9)	O(6)-Dy(2)-O(14)	115.50(12)
O(7)#1-Dy(2)-O(5)	105.92(10)	O(9)-Dy(2)-O(5)	88.61(10)
O(2)-Dy(2)-O(5)	89.54(8)	O(6)-Dy(2)-O(5)	52.81(8)
O(14)-Dy(2)-O(5)	79.29(12)	O(7)#1-Dy(2)-N(3)	81.08(9)
O(9)-Dy(2)-N(3)	90.53(9)	O(2)-Dy(2)-N(3)	78.68(9)
O(6)-Dy(2)-N(3)	138.84(8)	O(14)-Dy(2)-N(3)	94.15(12)
O(5)-Dy(2)-N(3)	168.07(8)	O(7)#1-Dy(2)-N(4)	78.07(9)
O(9)-Dy(2)-N(4)	68.99(8)	O(2)-Dy(2)-N(4)	128.68(9)
O(6)-Dy(2)-N(4)	75.11(9)	O(14)-Dy(2)-N(4)	145.67(10)
O(5)-Dy(2)-N(4)	125.59(9)	N(3)-Dy(2)-N(4)	64.80(9)

Symmetry transformations used to generate equivalent atoms: For **1**: #1: -x+1, -y, -z+1; #2: -x+1, -y+1, -z. For **2**: #1: -x, -y+1, -z+1; #2: -x, -y+2, -z. For **3**: #1: -x+1, -y, -z+2; #2 -x+1, -y+1, -z+1. For **4**: #1: -x+1, -y, -z+1; #2: -x+1, -y+1, -z. For **5**: #1:-x, -y+1, -z; #2:-x, -y, -z.

Table S2 Selected bond lengths (Å) and angles (°) for complexes **6-9**

		6	
La(1)-O(5)	2.390(3)	La(1)-O(3)#1	2.518(9)
La(1)-O(7)	2.524(9)	La(1)-O(4)#2	2.553(9)
La(1)-O(2)#1	2.564(9)	La(1)-O(1)	2.664(8)
La(1)-N(1)	2.681(10)	La(1)-N(2)	2.713(10)
La(1)-O(2)	2.705(9)		
O(5)-La(1)-O(3)#1	87.4(8)	O(5)-La(1)-O(7)	75.5(8)
O(3)#1-La(1)-O(7)	135.1(3)	O(5)-La(1)-O(4)#2	85.6(8)
O(3)#1-La(1)-O(4)#2	145.6(3)	O(7)-La(1)-O(4)#2	75.0(3)
O(5)-La(1)-O(2)#1	72.0(8)	O(3)#1-La(1)-O(2)#1	70.5(3)
O(7)-La(1)-O(2)#1	64.7(3)	O(4)#2-La(1)-O(2)#1	137.4(3)
O(5)-La(1)-O(1)	142.9(8)	O(3)#1-La(1)-O(1)	128.7(3)
O(7)-La(1)-O(1)	72.1(3)	O(4)#2-La(1)-O(1)	69.2(3)
O(2)#1-La(1)-O(1)	108.6(3)	O(5)-La(1)-N(1)	84.1(8)
O(3)#1-La(1)-N(1)	74.4(3)	O(7)-La(1)-N(1)	141.7(3)
O(4)#2-La(1)-N(1)	71.4(3)	O(2)#1-La(1)-N(1)	137.9(3)
O(1)-La(1)-N(1)	111.2(3)	O(5)-La(1)-O(2)	132.9(3)
O(3)#1-La(1)-O(2)	95.5(3)	O(7)-La(1)-O(2)	69.6(3)
O(4)#2-La(1)-O(2)	113.7(3)	O(2)#1-La(1)-O(2)	65.0(3)
O(1)-La(1)-O(2)	47.5(3)	N(1)-La(1)-O(2)	141.9(3)
O(5)-La(1)-N(2)	143.5(8)	O(3)#1-La(1)-N(2)	73.2(3)
O(7)-La(1)-N(2)	139.3(3)	O(4)#2-La(1)-N(2)	93.3(3)
O(2)#1-La(1)-N(2)	126.1(3)	O(1)-La(1)-N(2)	67.3(3)
N(1)-La(1)-N(2)	61.3(3)	N(2)-La(1)-O(2)	80.6(3)
		7	
Dy(1)-O(13)	2.297(3)	Dy(1)-O(1)	2.313(3)
Dy(1)-O(12)	2.322(3)	Dy(1)-O(17)	2.415(3)
Dy(1)-O(19)	2.419(3)	Dy(1)-O(18)	2.431(3)
Dy(1)-N(6)	2.515(4)	Dy(1)-N(5)	2.517(4)
Dy(2)-O(16)#2	2.323(3)	Dy(2)-O(4)	2.352(3)
Dy(2)-O(2)	2.369(3)	Dy(2)-O(20)	2.371(3)
Dy(2)-O(21)	2.420(3)	Dy(2)-O(10)	2.424(3)
Dy(2)-N(3)	2.548(4)	Dy(2)-N(4)	2.559(4)
Dy(2)-O(9)	2.779(3)	Dy(3)-O(5)	2.266(3)
Dy(3)-O(3)	2.322(3)	Dy(3)-O(7)#1	2.338(3)
Dy(3)-O(11)	2.367(3)	Dy(3)-O(9)	2.379(3)
Dy(3)-O(8)	2.402(3)	Dy(3)-N(1)	2.563(3)
Dy(3)-N(2)	2.567(4)		
O(13)-Dy(1)-O(1)	143.65(11)	O(13)-Dy(1)-O(12)	140.35(11)
O(1)-Dy(1)-O(12)	76.00(11)	O(13)-Dy(1)-O(17)	76.82(12)

O(1)-Dy(1)-O(17)	123.40(12)	O(12)-Dy(1)-O(17)	76.90(11)
O(13)-Dy(1)-O(19)	74.66(11)	O(1)-Dy(1)-O(19)	69.51(11)
O(12)-Dy(1)-O(19)	144.23(11)	O(17)-Dy(1)-O(19)	130.73(12)
O(13)-Dy(1)-O(18)	80.31(12)	O(1)-Dy(1)-O(18)	88.87(11)
O(12)-Dy(1)-O(18)	106.70(12)	O(17)-Dy(1)-O(18)	53.79(12)
O(19)-Dy(1)-O(18)	82.23(12)	O(13)-Dy(1)-N(6)	72.80(12)
O(1)-Dy(1)-N(6)	135.22(12)	O(12)-Dy(1)-N(6)	74.04(11)
O(17)-Dy(1)-N(6)	80.64(12)	O(19)-Dy(1)-N(6)	126.15(12)
O(18)-Dy(1)-N(6)	131.37(12)	O(13)-Dy(1)-N(5)	99.28(13)
O(1)-Dy(1)-N(5)	80.45(12)	O(12)-Dy(1)-N(5)	85.66(12)
O(17)-Dy(1)-N(5)	144.57(12)	O(19)-Dy(1)-N(5)	79.69(12)
O(18)-Dy(1)-N(5)	161.32(12)	N(6)-Dy(1)-N(5)	64.88(12)
O(16)#2-Dy(2)-O(4)	76.36(10)	O(16)#2-Dy(2)-O(2)	75.39(11)
O(4)-Dy(2)-O(2)	75.27(10)	O(16)#2-Dy(2)-O(20)	134.14(11)
O(4)-Dy(2)-O(20)	77.03(11)	O(2)-Dy(2)-O(20)	131.26(11)
O(16)#2-Dy(2)-O(21)	75.37(10)	O(4)-Dy(2)-O(21)	144.15(10)
O(2)-Dy(2)-O(21)	76.62(10)	O(20)-Dy(2)-O(21)	138.81(11)
O(16)#2-Dy(2)-O(10)	141.21(11)	O(4)-Dy(2)-O(10)	120.89(10)
O(2)-Dy(2)-O(10)	76.46(10)	O(20)-Dy(2)-O(10)	84.65(11)
O(21)-Dy(2)-O(10)	72.54(10)	O(16)#2-Dy(2)-N(3)	68.87(12)
O(4)-Dy(2)-N(3)	85.05(13)	O(2)-Dy(2)-N(3)	142.36(12)
O(20)-Dy(2)-N(3)	72.22(12)	O(21)-Dy(2)-N(3)	104.61(13)
O(10)-Dy(2)-N(3)	140.60(12)	O(16)#2-Dy(2)-N(4)	110.41(13)
O(4)-Dy(2)-N(4)	142.01(13)	O(2)-Dy(2)-N(4)	142.58(13)
O(20)-Dy(2)-N(4)	72.23(12)	O(21)-Dy(2)-N(4)	69.81(12)
N(3)-Dy(2)-N(4)	64.80(16)	O(10)-Dy(2)-N(4)	78.10(13)
O(16)#2-Dy(2)-O(9)	134.83(10)	O(4)-Dy(2)-O(9)	71.80(9)
O(2)-Dy(2)- O(9)	66.17(9)	O(20)-Dy(2)-O(9)	67.43(9)
O(21)-Dy(2)-O(9)	115.58(10)	O(10)-Dy(2)-O(9)	49.36(9)
N(3)-Dy(2)-O(9)	136.85(12)	N(4)-Dy(2)-O(9)	114.46(12)
O(5)-Dy(3)-O(7)#1	88.20(11)	O(3)-Dy(3)-O(7)#1	149.72(10)
O(5)-Dy(3)-O(11)	141.81(11)	O(3)-Dy(3)-O(11)	79.43(11)
O(7)#1-Dy(3)-O(11)	110.49(10)	O(5)-Dy(3)-O(9)	146.23(11)
O(3)-Dy(3)-O(9)	79.60(10)	O(7)#1-Dy(3)-O(9)	76.87(10)
O(11)-Dy(3)-O(9)	71.90(10)	O(5)-Dy(3)-O(8)	73.92(10)
O(3)-Dy(3)-O(8)	78.87(10)	O(7)#1-Dy(3)-O(8)	76.27(10)
O(11)-Dy(3)-O(8)	141.52(10)	O(9)-Dy(3)-O(8)	73.18(10)
O(5)-Dy(3)-N(1)	71.17(11)	O(3)-Dy(3)-N(1)	75.71(10)
O(7)#1-Dy(3)-N(1)	134.30(11)	O(11)-Dy(3)-N(1)	72.13(11)
O(9)-Dy(3)-N(1)	139.31(11)	O(8)-Dy(3)-N(1)	131.15(11)
O(5)-Dy(3)-N(2)	84.05(11)	O(3)-Dy(3)-N(2)	135.57(11)
O(7)#1-Dy(3)-N(2)	73.55(10)	O(11)-Dy(3)-N(2)	70.78(11)
O(9)-Dy(3)-N(2)	119.16(10)	O(8)-Dy(3)-N(2)	142.93(10)
N(1)-Dy(3)-N(2)	64.32(11)	O(5)-Dy(3)-O(3)	101.31(11)

		8	
Tb(1)-O(13)	2.305(3)	Tb(1)-O(1)	2.325(3)
Tb(1)-O(12)	2.329(3)	Tb(1)-O(19)	2.415(3)
Tb(1)-O(17)	2.430(3)	Tb(1)-O(18)	2.434(3)
Tb(1)-N(6)	2.512(3)	Tb(1)-N(5)	2.528(3)
Tb(2)-O(16)#1	2.331(2)	Tb(2)-O(3)	2.366(3)
Tb(2)-O(2)	2.376(2)	Tb(2)-O(20)	2.384(3)
Tb(2)-O(21)	2.423(3)	Tb(2)-O(10)	2.440(3)
Tb(2)-N(3)	2.546(3)	Tb(2)-N(4)	2.569(3)
Tb(2)-O(9)	2.716(3)	Tb(3)-O(5)	2.276(3)
Tb(3)-O(4)	2.332(2)	Tb(3)-O(7)#2	2.349(2)
Tb(3)-O(11)	2.368(3)	Tb(3)-O(9)	2.398(3)
Tb(3)-O(8)	2.407(3)	Tb(3)-N(2)	2.565(3)
Tb(3)-N(1)	2.573(3)		
O(13)-Tb(1)-O(1)	144.33(9)	O(13)-Tb(1)-O(12)	138.88(9)
O(1)-Tb(1)-O(12)	76.79(9)	O(13)-Tb(1)-O(19)	75.41(9)
O(1)-Tb(1)-O(19)	69.56(9)	O(12)-Tb(1)-O(19)	144.80(9)
O(13)-Tb(1)-O(17)	75.56(9)	O(1)-Tb(1)-O(17)	123.92(9)
O(12)-Tb(1)-O(17)	77.03(9)	O(19)-Tb(1)-O(17)	130.94(9)
O(13)-Tb(1)-O(18)	78.61(10)	O(1)-Tb(1)-O(18)	89.91(9)
O(12)-Tb(1)-O(18)	108.49(9)	O(19)-Tb(1)-O(18)	81.95(9)
O(17)-Tb(1)-O(18)	54.04(9)	O(13)-Tb(1)-N(6)	72.76(10)
O(1)-Tb(1)-N(6)	134.60(10)	O(12)-Tb(1)-N(6)	73.21(10)
O(19)-Tb(1)-N(6)	125.33(9)	O(17)-Tb(1)-N(6)	81.15(10)
O(18)-Tb(1)-N(6)	131.61(10)	O(13)-Tb(1)-N(5)	101.60(10)
O(1)-Tb(1)-N(5)	78.75(10)	O(12)-Tb(1)-N(5)	84.22(10)
O(19)-Tb(1)-N(5)	79.52(10)	O(17)-Tb(1)-N(5)	145.02(10)
O(18)-Tb(1)-N(5)	160.74(10)	N(6)-Tb(1)-N(5)	65.15(10)
O(16)#1-Tb(2)-O(3)	75.08(9)	O(16)#1-Tb(2)-O(2)	74.72(9)
O(3)-Tb(2)-O(2)	75.45(9)	O(16)#1-Tb(2)-O(20)	134.13(9)
O(3)-Tb(2)-O(20)	78.20(9)	O(2)-Tb(2)-O(20)	132.34(9)
O(16)#1-Tb(2)-O(21)	75.58(9)	O(3)-Tb(2)-O(21)	144.17(9)
O(2)-Tb(2)-O(21)	77.34(9)	O(20)-Tb(2)-O(21)	137.62(9)
O(16)#1-Tb(2)-O(10)	141.34(9)	O(3)-Tb(2)-O(10)	122.82(8)
O(2)-Tb(2)-O(10)	77.60(8)	O(20)-Tb(2)-O(10)	84.52(9)
O(21)-Tb(2)-O(10)	72.40(9)	O(16)#1-Tb(2)-N(3)	68.85(10)
O(3)-Tb(2)-N(3)	85.29(10)	O(2)-Tb(2)-N(3)	142.09(10)
O(20)-Tb(2)-N(3)	72.43(10)	O(21)-Tb(2)-N(3)	102.77(10)
O(10)-Tb(2)-N(3)	139.34(10)	O(16)#1-Tb(2)-N(4)	110.86(10)
O(3)-Tb(2)-N(4)	141.75(10)	O(2)-Tb(2)-N(4)	142.75(10)
O(20)-Tb(2)-N(4)	71.31(10)	O(21)-Tb(2)-N(4)	69.18(10)
O(10)-Tb(2)-N(4)	77.12(10)	N(3)-Tb(2)-N(4)	64.06(12)
O(16)#1-Tb(2)-O(9)	134.19(9)	O(3)-Tb(2)-O(9)	72.59(8)

O(2)-Tb(2)-O(9)	66.38(8)	O(20)-Tb(2)-O(9)	68.15(8)
O(21)-Tb(2)-O(9)	116.34(8)	O(10)-Tb(2)-O(9)	50.45(8)
N(3)-Tb(2)-O(9)	137.77(9)	N(4)-Tb(2)-O(9)	114.67(9)
O(5)-Tb(3)-O(4)	101.75(9)	O(5)-Tb(3)-O(7)#2	87.80(9)
O(4)-Tb(3)-O(7)#2	150.15(9)	O(5)-Tb(3)-O(11)	141.60(9)
O(4)-Tb(3)-O(11)	79.14(9)	O(7)#2-Tb(3)-O(11)	110.62(9)
O(5)-Tb(3)-O(9)	146.27(9)	O(4)-Tb(3)-O(9)	79.43(9)
O(7)#2-Tb(3)-O(9)	77.27(9)	O(11)-Tb(3)-O(9)	72.07(9)
O(5)-Tb(3)-O(8)	74.17(9)	O(4)-Tb(3)-O(8)	79.82(9)
O(7)#2-Tb(3)-O(8)	75.68(8)	O(11)-Tb(3)-O(8)	141.75(9)
O(9)-Tb(3)-O(8)	72.90(9)	O(5)-Tb(3)-N(2)	71.47(10)
O(4)-Tb(3)-N(2)	75.18(9)	O(7)#2-Tb(3)-N(2)	134.42(9)
O(11)-Tb(3)-N(2)	71.77(9)	O(9)-Tb(3)-N(2)	138.90(9)
O(8)-Tb(3)-N(2)	131.72(9)	O(5)-Tb(3)-N(1)	83.76(9)
O(4)-Tb(3)-N(1)	135.36(9)	O(7)#2-Tb(3)-N(1)	73.29(9)
O(11)-Tb(3)-N(1)	70.76(9)	O(9)-Tb(3)-N(1)	119.34(9)
O(8)-Tb(3)-N(1)	142.34(9)	N(2)-Tb(3)-N(1)	64.63(10)
		9	
Yb(1)-O(13)	2.251(6)	Yb(1)-O(1)	2.270(6)
Yb(1)-O(12)	2.289(6)	Yb(1)-O(19)	2.355(6)
Yb(1)-O(17)	2.360(6)	Yb(1)-O(18)	2.391(6)
Yb(1)-N(6)	2.470(8)	Yb(1)-N(5)	2.479(7)
Yb(2)-O(16)#1	2.292(6)	Yb(2)-O(3)	2.302(6)
Yb(2)-O(20)	2.323(5)	Yb(2)-O(2)	2.338(6)
Yb(2)-O(10)	2.370(6)	Yb(2)-O(21)	2.382(6)
Yb(2)-N(3)	2.498(5)	Yb(2)-N(4)	2.516(5)
Yb(2)-O(9)	2.846(6)	Yb(3)-O(5)	2.225(6)
Yb(3)-O(4)	2.293(6)	Yb(3)-O(7)#2	2.294(6)
Yb(3)-O(9)	2.304(6)	Yb(3)-O(11)	2.352(5)
Yb(3)-O(8)	2.375(6)	Yb(3)-N(1)	2.512(7)
Yb(3)-N(2)	2.525(6)		
O(13)-Yb(1)-O(1)	143.4(3)	O(13)-Yb(1)-O(12)	141.0(2)
O(1)-Yb(1)-O(12)	75.6(2)	O(13)-Yb(1)-O(19)	74.4(2)
O(1)-Yb(1)-O(19)	69.7(2)	O(12)-Yb(1)-O(19)	143.8(2)
O(13)-Yb(1)-O(17)	76.8(2)	O(1)-Yb(1)-O(17)	122.2(2)
O(12)-Yb(1)-O(17)	77.6(2)	O(19)-Yb(1)-O(17)	130.3(2)
O(13)-Yb(1)-O(18)	80.0(2)	O(1)-Yb(1)-O(18)	87.1(2)
O(12)-Yb(1)-O(18)	107.8(2)	O(19)-Yb(1)-O(18)	80.9(2)
O(17)-Yb(1)-O(18)	54.7(3)	O(13)-Yb(1)-N(6)	72.7(2)
O(1)-Yb(1)-N(6)	136.8(2)	O(12)-Yb(1)-N(6)	74.2(2)
O(19)-Yb(1)-N(6)	126.8(2)	O(17)-Yb(1)-N(6)	80.0(2)
O(18)-Yb(1)-N(6)	131.4(2)	O(13)-Yb(1)-N(5)	99.9(2)
O(1)-Yb(1)-N(5)	81.1(2)	O(12)-Yb(1)-N(5)	85.1(2)

O(19)-Yb(1)-N(5)	79.7(2)	O(17)-Yb(1)-N(5)	145.2(3)
O(18)-Yb(1)-N(5)	159.8(3)	N(6)-Yb(1)-N(5)	66.3(3)
O(16)#1-Yb(2)-O(3)	77.3(2)	O(16)#1-Yb(2)-O(20)	135.1(2)
O(3)-Yb(2)-O(20)	76.0(2)	O(16)#1-Yb(2)-O(2)	76.2(2)
O(3)-Yb(2)-O(2)	75.94(19)	O(20)-Yb(2)-O(2)	129.6(2)
O(16)#1-Yb(2)-O(10)	141.9(2)	O(3)-Yb(2)-O(10)	118.9(2)
O(20)-Yb(2)-O(10)	82.9(2)	O(2)-Yb(2)-O(10)	75.4(2)
O(16)#1-Yb(2)-O(21)	75.7(2)	O(3)-Yb(2)-O(21)	145.3(2)
O(20)-Yb(2)-O(21)	138.7(2)	O(2)-Yb(2)-O(21)	76.6(2)
O(10)-Yb(2)-O(21)	73.5(2)	O(16)#1-Yb(2)-N(3)	69.9(2)
O(3)-Yb(2)-N(3)	85.0(2)	O(20)-Yb(2)-N(3)	72.4(2)
O(2)-Yb(2)-N(3)	143.9(2)	O(10)-Yb(2)-N(3)	140.4(2)
O(21)-Yb(2)-N(3)	105.6(2)	O(16)#1-Yb(2)-N(4)	111.2(2)
O(3)-Yb(2)-N(4)	141.3(2)	O(20)-Yb(2)-N(4)	72.2(2)
O(2)-Yb(2)-N(4)	142.4(2)	O(10)-Yb(2)-N(4)	78.5(2)
O(21)-Yb(2)-N(4)	70.2(2)	N(3)-Yb(2)-N(4)	64.9(2)
O(16)#1-Yb(2)-O(9)	133.92(19)	O(3)-Yb(2)-O(9)	69.99(19)
O(20)-Yb(2)-O(9)	66.24(19)	O(2)-Yb(2)-O(9)	65.16(19)
O(10)-Yb(2)-O(9)	49.02(17)	O(21)-Yb(2)-O(9)	116.0(2)
N(3)-Yb(2)-O(9)	135.52(19)	N(4)-Yb(2)-O(9)	114.7(2)
O(5)-Yb(3)-O(4)	102.0(2)	O(5)-Yb(3)-O(7)#2	87.0(2)
O(4)-Yb(3)-O(7)#2	149.3(2)	O(5)-Yb(3)-O(9)	146.1(2)
O(4)-Yb(3)-O(9)	79.4(2)	O(7)#2-Yb(3)-O(9)	77.2(2)
O(5)-Yb(3)-O(11)	141.6(2)	O(4)-Yb(3)-O(11)	79.1(2)
O(7)#2-Yb(3)-O(11)	111.7(2)	O(9)-Yb(3)-O(11)	72.2(2)
O(5)-Yb(3)-O(8)	74.6(2)	O(4)-Yb(3)-O(8)	78.5(2)
O(7)#2-Yb(3)-O(8)	75.7(2)	O(9)-Yb(3)-O(8)	72.5(2)
O(11)-Yb(3)-O(8)	141.0(2)	O(5)-Yb(3)-N(1)	84.4(2)
O(4)-Yb(3)-N(1)	136.2(2)	O(7)#2-Yb(3)-N(1)	73.4(2)
O(9)-Yb(3)-N(1)	118.3(2)	O(11)-Yb(3)-N(1)	70.6(2)
O(8)-Yb(3)-N(1)	143. 2(2)	O(5)-Yb(3)-N(2)	71.0(2)
O(4)-Yb(3)-N(2)	75.1(2)	O(7)#2-Yb(3)-N(2)	135.1(2)
O(9)-Yb(3)-N(2)	139.4(2)	O(11)-Yb(3)-N(2)	72.3(2)
O(8)-Yb(3)-N(2)	130.5(2)	N(1)-Yb(3)-N(2)	66.1(2)

Symmetry transformations used to generate equivalent atoms: For **6**: #1: -x+1, -y, -z; #2: -x+1, -y+1, -z+1. For **7**: #1: -x+2, -y+1, -z+1; #2: -x+1, -y, -z. For **8**: #1: -x, -y, -z. #2: -x+1, -y+1, -z+1; For **9**: #1: -x, -y+1, -z; #2 -x+1, -y+2, -z+1.

Table S3 Selected bond lengths (Å) and angles (°) for complexes **10**-**11**

	10		
Eu(1)-O(2)#1	2.338(6)	Eu(1)-O(10)#1	2.343(6)
Eu(1)-O(8)	2.345(8)	Eu(1)-O(12)	2.373(6)
Eu(1)-O(4)	2.396(7)	Eu(1)-O(6)	2.418(6)

Eu(1)-N(1)	2.588(9)	Eu(1)-N(2)	2.611(10)
Eu(2)-O(9)	2.338(6)	Eu(2)-O(1)	2.348(6)
Eu(2)-O(5)	2.368(6)	Eu(2)-O(3)	2.375(8)
Eu(2)-O(11)	2.395(7)	Eu(2)-O(7)	2.409(7)
Eu(2)-N(3)	2.594(9)	Eu(2)-N(4)	2.601(9)
O(2)#1-Eu(1)-O(10)#1	78.1(2)	O(2)#1-Eu(1)-O(8)	79.7(2)
O(10)#1-Eu(1)-O(8)	82.1(3)	O(2)#1-Eu(1)-O(12)	148.4(3)
O(10)#1-Eu(1)-O(12)	80.7(2)	O(8)-Eu(1)-O(12)	74.4(3)
O(2)#1-Eu(1)-O(4)	135.8(2)	O(10)#1-Eu(1)-O(4)	139.5(2)
O(8)-Eu(1)-O(4)	119.6(3)	O(12)-Eu(1)-O(4)	74.2(2)
O(2)#1-Eu(1)-O(6)	73.5(2)	O(10)#1-Eu(1)-O(6)	149.2(2)
O(8)-Eu(1)-O(6)	81.3(2)	O(12)-Eu(1)-O(6)	119.1(2)
O(4)-Eu(1)-O(6)	71.2(2)	O(2)#1-Eu(1)-N(1)	75.0(3)
O(10)#1-Eu(1)-N(1)	106.0(2)	O(8)-Eu(1)-N(1)	150.9(3)
O(12)-Eu(1)-N(1)	133.9(3)	O(4)-Eu(1)-N(1)	72.3(2)
O(6)-Eu(1)-N(1)	78.0(3)	O(2)#1-Eu(1)-N(2)	117.5(2)
O(10)#1-Eu(1)-N(2)	72.8(3)	O(8)-Eu(1)-N(2)	144.8(3)
O(12)-Eu(1)-N(2)	77.4(3)	O(4)-Eu(1)-N(2)	71.0(3)
O(6)-Eu(1)-N(2)	131.6(3)	N(1)-Eu(1)-N(2)	62.4(3)
O(9)-Eu(2)-O(1)	76.4(2)	O(9)-Eu(2)-O(5)	144.1(3)
O(1)-Eu(2)-O(5)	74.6(2)	O(9)-Eu(2)-O(3)	80.8(3)
O(1)-Eu(2)-O(3)	82.9(3)	O(5)-Eu(2)-O(3)	75.2(3)
O(9)-Eu(2)-O(11)	78.3(2)	O(1)-Eu(2)-O(11)	149.2(3)
O(5)-Eu(2)-O(11)	119.9(2)	O(3)-Eu(2)-O(11)	76.0(3)
O(9)-Eu(2)-O(7)	138.4(2)	O(1)-Eu(2)-O(7)	138.0(2)
O(5)-Eu(2)-O(7)	77.3(2)	O(3)-Eu(2)-O(7)	118.9(2)
O(11)-Eu(2)-O(7)	72.7(2)	O(9)-Eu(2)-N(3)	114.2(2)
O(1)-Eu(2)-N(3)	76.1(3)	O(5)-Eu(2)-N(3)	78.5(3)
O(3)-Eu(2)-N(3)	149.9(3)	O(11)-Eu(2)-N(3)	131.1(3)
O(7)-Eu(2)-N(3)	68.1(2)	O(9)-Eu(2)-N(4)	74.1(3)
O(1)-Eu(2)-N(4)	110.4(2)	O(5)-Eu(2)-N(4)	136.4(3)
O(3)-Eu(2)-N(4)	147.3(3)	O(11)-Eu(2)-N(4)	78.7(3)
O(7)-Eu(2)-N(4)	71.5(3)	N(3)-Eu(2)-N(4)	62.1(3)
		11	
Tb(1)-O(2)#1	2.320(6)	Tb(1)-O(10)#1	2.322(5)
Tb(1)-O(8)	2.328(6)	Tb(1)-O(12)	2.345(6)
Tb(1)-O(4)	2.374(6)	Tb(1)-O(6)	2.395(6)
Tb(1)-N(2)	2.560(7)	Tb(1)-N(1)	2.586(7)
Tb(2)-O(9)	2.303(6)	Tb(2)-O(1)	2.331(5)
Tb(2)-O(5)	2.345(6)	Tb(2)-O(3)	2.352(6)
Tb(2)-O(11)	2.356(6)	Tb(2)-O(7)	2.386(5)
Tb(2)-N(3)	2.572(7)	Tb(2)-N(4)	2.573(8)

O(2)#1-Tb(1)-O(10)#1	77.9(2)	O(2)#1-Tb(1)-O(8)	78.9(2)
O(10)#1-Tb(1)-O(8)	82.0(2)	O(2)#1-Tb(1)-O(12)	148.2(2)
O(10)#1-Tb(1)-O(12)	80.8(2)	O(8)-Tb(1)-O(12)	74.9(2)
O(2)#1-Tb(1)-O(4)	136.3(2)	O(10)#1-Tb(1)-O(12)	139.5(2)
O(8)-Tb(1)-O(4)	119.6(2)	O(12)-Tb(1)-O(4)	73.7(2)
O(2)#1-Tb(1)-O(6)	73.69(19)	O(10)#1-Tb(1)-O(6)	149.2(2)
O(8)-Tb(1)-O(6)	81.2(2)	O(12)-Tb(1)-O(6)	119.0(2)
O(4)-Tb(1)-O(6)	71.2(2)	O(2)#1-Tb(1)-N(2)	74.8(2)
O(10)#1-Tb(1)-N(2)	106.1(2)	O(8)-Tb(1)-N(2)	150.0(2)
O(12)-Tb(1)-N(2)	134.4(2)	O(4)-Tb(1)-N(2)	73.0(2)
O(6)-Tb(1)-N(2)	77.7(2)	O(2)#1-Tb(1)-N(1)	117.6(2)
O(10)#1-Tb(1)-N(1)	72.4(2)	O(8)-Tb(1)-N(1)	144.6(2)
O(12)-Tb(1)-N(1)	77.2(2)	O(4)-Tb(1)-N(1)	71.6(2)
O(6)-Tb(1)-N(1)	132.1(2)	N(2)-Tb(1)-N(1)	63.3(3)
O(9)-Tb(2)-O(1)	76.3(2)	O(9)-Tb(2)-O(5)	143.6(2)
O(1)-Tb(2)-O(5)	74.01(19)	O(9)-Tb(2)-O(3)	80.4(2)
O(1)-Tb(2)-O(3)	82.9(2)	O(5)-Tb(2)-O(3)	75.5(2)
O(9)-Tb(2)-O(11)	78.5(2)	O(1)-Tb(2)-O(11)	149.1(2)
O(5)-Tb(2)-O(11)	120.1(2)	O(3)-Tb(2)-O(11)	75.5(2)
O(9)-Tb(2)-O(7)	139.2(2)	O(1)-Tb(2)-O(7)	137.5(2)
O(5)-Tb(2)-O(7)	77.1(2)	O(3)-Tb(2)-O(7)	119.0(2)
O(11)-Tb(2)-O(7)	73.2(2)	O(9)-Tb(2)-N(3)	73.8(2)
O(1)-Tb(2)-N(3)	111.1(2)	O(5)-Tb(2)-N(3)	137.2(2)
O(3)-Tb(2)-N(3)	146.1(2)	O(11)-Tb(2)-N(3)	78.2(2)
O(7)-Tb(2)-N(3)	72.0(2)	O(9)-Tb(2)-N(4)	77.9(2)
O(1)-Tb(2)-N(4)	75.7(2)	O(5)-Tb(2)-N(4)	149.5(2)
O(3)-Tb(2)-N(4)	149.5(2)	O(11)-Tb(2)-N(4)	131.9(2)
O(7)-Tb(2)-N(4)	68.2(2)	N(3)-Tb(2)-N(4)	63.6(2)

Symmetry transformations used to generate equivalent atoms:For **10**: #1: x, -y+1/2, z+1/2; #2: x,-y+1/2,z-1/2. For **11**: #1: x, -y+3/2, z+1/2; #2 x,-y+3/2,z-1/2.

Table S4 CIE chromaticity coordinates for the $Dy_{0.986}Eu_{0.014}$ doped complex excited at 320 to 360nm

$Dy_{0.986}Eu_{0.014}$	
Excitation wavelength (λ_{ex} / nm)	CIE chromaticity coordinates (x, y)
320	(0.341, 0.351)A
330	(0.355, 0.352)
340	(0.358, 0.351)
350	(0.355, 0.345)
352	**(0.349, 0.338)B**
360	(0.295, 0.279)C

Table S5 CIE chromaticity coordinates for the $Dy_{0.973}Gd_{0.018}Eu_{0.009}$ doped complex excited at 320 to 360nm

$Dy_{0.973}Gd_{0.018}Eu_{0.009}$	
Excitation wavelength (λ_{ex} / nm)	CIE chromaticity coordinates (x, y)
320	(0.321, 0.34)A
330	(0.332, 0.34)
340	(0.332, 0.336)
345	**(0.331, 0.332) B**
350	(0.324, 0.321)
360	(0.271, 0.262)C