SUPPORTING INFORMATION

to the paper entitled

Synthesis, Structures and Properties of Functional 2-D Lanthanide Coordination Polymers $[Ln_2(dpa)_2(C_2O_4)_2(H_2O)_2]_n$ (dpa=2,2'-(2-methylbenzimidazolium-1,3-diyl)diacetate, $C_2O_4^{2-}$=oxalate, Ln=Nd, Eu,Gd, Tb)

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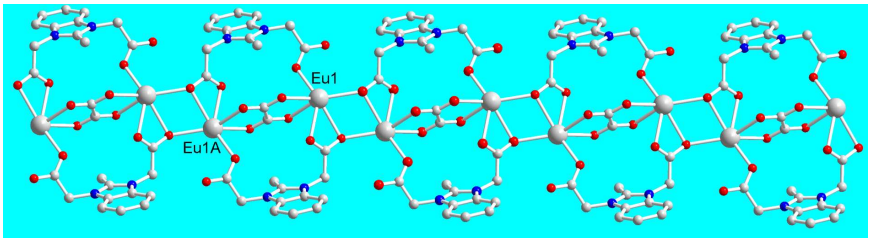
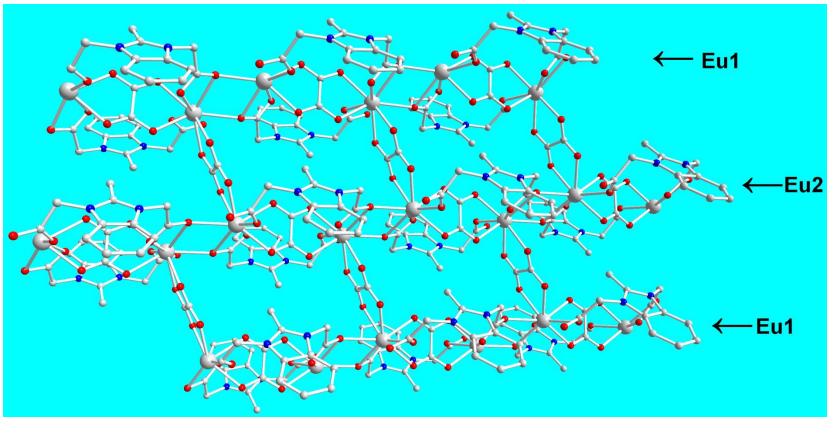
Fig. S1. (a) The view of 1D chain of Eu^{3+} with Eu_2O_2 subunits in **2**.

(b) The view of 2D structure of **2**.

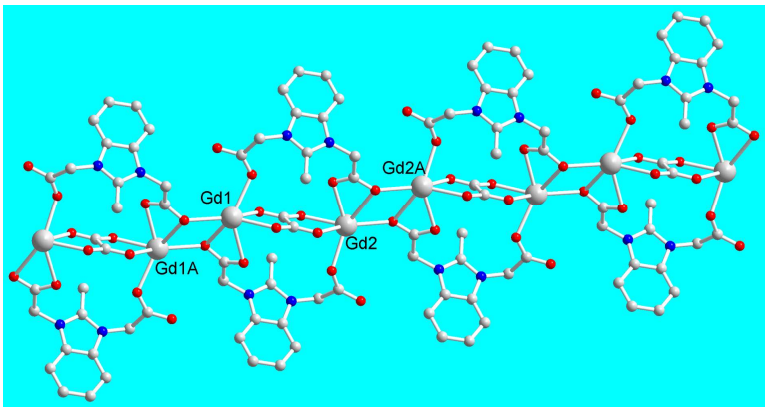


a



b

Fig. S2. (a) The view of 1D chain containing SUBs of $[Gd_2(dpa)_2(H_2O)_2(C_2O_4)_2]$ with different Gd^{3+} ions. (b) The view of the 2D structure of **3**.



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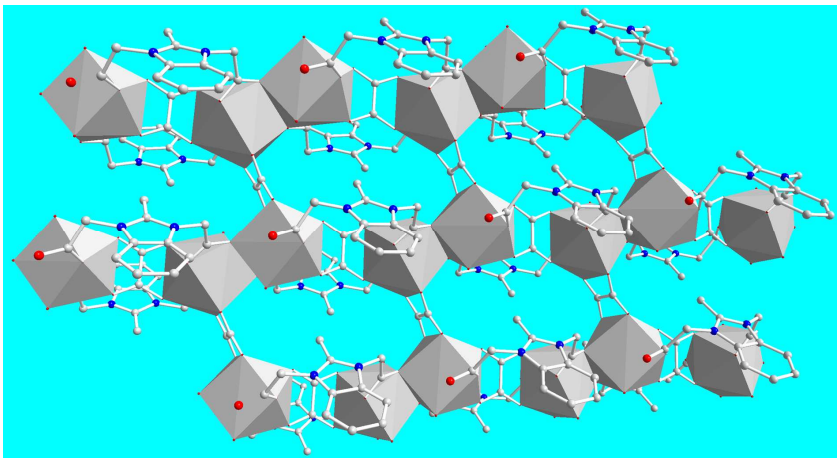

b

Fig. S3. Thermogravimetric analysis for complexes **2**, **3** and **4**.

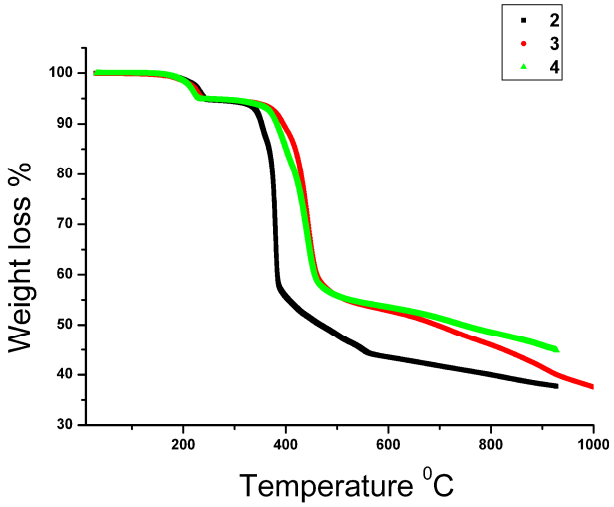

Fig. **S4**. Magnetisation at 2.0 K vs applied field for **4**

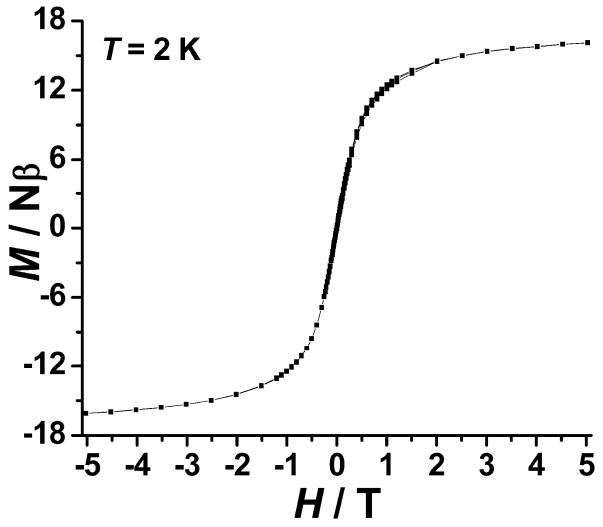

Table S1. Selected bond Lengths (Å) for complexes 1, 2, 3 and 4

1			
Nd(1)-O(6)^{i}	2.411(3)	Nd(1)-O(9)	2.512(3)
Nd(1)-O(5)	2.416(3)	Nd(1)-O(3)^{iii}	2.517(3)
Nd(1)-O(2)	2.423(3)	Nd(1)-O(4)^{i}	2.614(3)
Nd(1)-O(7)	2.477(3)	Nd(1)-O(3)^{i}	2.680(3)
Nd(1)-O(8)^{ii}	2.489(3)		
i -x,-y+1,-z ii -x+1,-y+2,-z iii x,y+1,z iv x,y-1,z			
2			
Eu(1)-O(13)^{iii}	2.370(3)	Eu(2)-O(16)	2.364(3)
Eu(1)-O(14)	2.380(3)	Eu(2)-O(17)^{iv}	2.379(3)
Eu(1)-O(4)^{i}	2.383(3)	Eu(2)-O(5)	2.418(3)
Eu(1)-O(15)	2.437(3)	Eu(2)-O(12)	2.421(3)
Eu(1)-O(10)	2.450(3)	Eu(2)-O(11)	2.439(3)
Eu(1)-O(9)	2.461(3)	Eu(2)-O(19)	2.485(3)
Eu(1)-O(1)	2.462(3)	Eu(2)-O(8)^{i}	2.495(3)
Eu(1)-O(2)^{iii}	2.592(3)	Eu(2)-O(7)^{iv}	2.551(3)
Eu(1)-O(1)^{ii}	2.658(3)	Eu(2)-O(8)^{iv}	2.591(3)
i x+1,y,z ii -x+2,-y,-z+1 iii -x+3,-y,-z+1 iv -x+1,-y+1,-z			
3			
Gd(1)-O(12)	2.373(2)	Gd(2)-O(5)	2.372(2)
Gd(1)-O(2)	2.407(2)	Gd(2)-O(9)	2.385(3)
Gd(1)-O(16)^{i}	2.411(2)	Gd(2)-O(18)	2.416(2)
Gd(1)-O(15)^{i}	2.435(2)	Gd(2)-O(14)	2.440(2)
Gd(1)-O(7)^{ii}	2.482(2)	Gd(2)-O(13)	2.442(3)
Gd(1)-O(17)	2.489(2)	Gd(2)-O(3)^{iii}	2.454(3)
Gd(1)-O(8)	2.562(3)	Gd(2)-O(4)	2.540(3)
Gd(1)-O(7)	2.568(2)	Gd(2)-O(3)	2.744(3)
Gd(2)-O(10)	2.364(2)		
i x-1,y,z ii -x+1,-y+1,-z+1 iii -x+2,-y+2,-z			
4			
Tb(1)-O(8)^{i}	2.330(3)	Tb(2)-O(15)^{ii}	2.358(3)
Tb(1)-O(13)	2.350(3)	Tb(2)-O(11)	2.391(3)
Tb(1)-O(14)	2.377(3)	Tb(2)-O(5)^{ii}	2.393(3)
Tb(1)-O(17)	2.423(3)	Tb(2)-O(12)	2.412(3)
Tb(1)-O(9)	2.424(3)	Tb(2)-O(18)	2.459(3)
Tb(1)-O(7)	2.424(3)	Tb(2)-O(3)^{iii}	2.464(3)
Tb(1)-O(10)	2.445(3)	Tb(2)-O(3)^{ii}	2.546(3)
Tb(2)-O(16)^{ii}	2.331(3)	Tb(2)-O(4)^{ii}	2.572(3)
i -x+1,-y+1,-z ii x+1,y,z iii -x+1,-y,-z+1			

Table S2. Hydrogen bonds [Å and deg.] for complexes 1, 2, 3 and 4

1

D-H...A	d(D-H)	d(H...A)	d(D...A)	<(DHA)
O(9)-H(9C)...O(8)^{ii}	0.85	1.96	2.775(4)	160.4
O(9)-H(9D)...O(10)^{iii}	0.85	1.73	2.515(9)	153.0
O(10)-H(10B)...O(1)^{iii}	0.85	1.88	2.693(12)	161.1
O(10)-H(10A)...O(1)^{i}	0.85	1.79	2.612(11)	161.7

i x,y-1,z ii x-1,y,z iii -x,-y+1,-z+1

2

D-H...A	d(D-H)	d(H...A)	d(D...A)	<(DHA)
O(15)-H(15B)...O(10)^{i}	0.85	1.89	2.728(4)	166.7
O(15)-H(15C)...O(20)^{ii}	0.85	1.82	2.638(4)	161.3
O(19)-H(19A)...O(6)	0.85	2.22	2.910(5)	137.7
O(19)-H(19B)...O(11)^{iv}	0.85	2.04	2.795(4)	147.0
O(20)-H(20D)...O(3)^{v}	0.85	1.88	2.728(5)	173.0
O(20)-H(20E)...O(6)^{ii}	0.85	1.91	2.756(5)	173.0

i -x+2,-y,-z+1 ii -x+1,-y+1,-z iii -x+1,-y+1,-z+1 iv -x+2,-y+1,-z v -x,-y+1,-z+1

3

D-H...A	d(D-H)	d(H...A)	d(D...A)	<(DHA)
O(17)-H(17A)...O(1)	0.85	2.21	2.910(4)	139.0
O(17)-H(17B)...O(15)^{ii}	0.85	1.96	2.802(4)	170.5
O(18)-H(18A)...O(14)^{i}	0.85	1.91	2.746(3)	166.4
O(18)-H(18B)...O(19)	0.85	1.81	2.628(4)	161.2
O(19)-H(19A)...O(1)^{iii}	0.85	1.89	2.737(4)	174.1
O(19)-H(19B)...O(6)	0.85	1.89	2.739(4)	174.2

i -x+2,-y+2,-z ii -x+2,-y+1,-z+1 iii x,y+1,z

4

D-H...A	d(D-H)	d(H...A)	d(D...A)	<(DHA)
O(17)-H(17B)...O(9)^{i}	0.85	2.00	2.827(4)	165.2
O(17)-H(17C)...O(19)	0.85	1.83	2.680(5)	173.4
O(18)-H(18A)...O(12)^{iii}	0.85	2.04	2.796(4)	147.0
O(18)-H(18B)...O(5)ii	0.85	2.58	2.822(4)	97.9
O(19)-H(19A)...O(2)	0.85	1.91	2.762(5)	179.3
O(19)-H(19B)...O(6)iv	0.85	1.92	2.769(5)	179.3

i -x+1,-y+1,-z ii x+1,y,z iii -x+2,-y,-z+1 iv x,y+1,z