Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

A series of lanthanide glutarates: Lanthanide contraction effect on crystal frameworks of lanthanide glutarates

Xiao-Feng Tan, Jian Zhou,* Hua-Hong Zou, Lianshe Fu, Qiuling Tang and Peng Wang

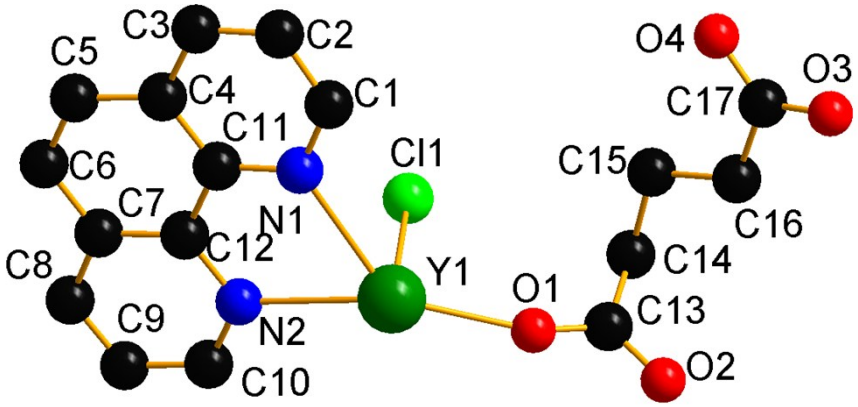


Fig. S1 The asymmetric unit of **1a**. H atoms bonded to C/N atoms have been omitted for clarity.

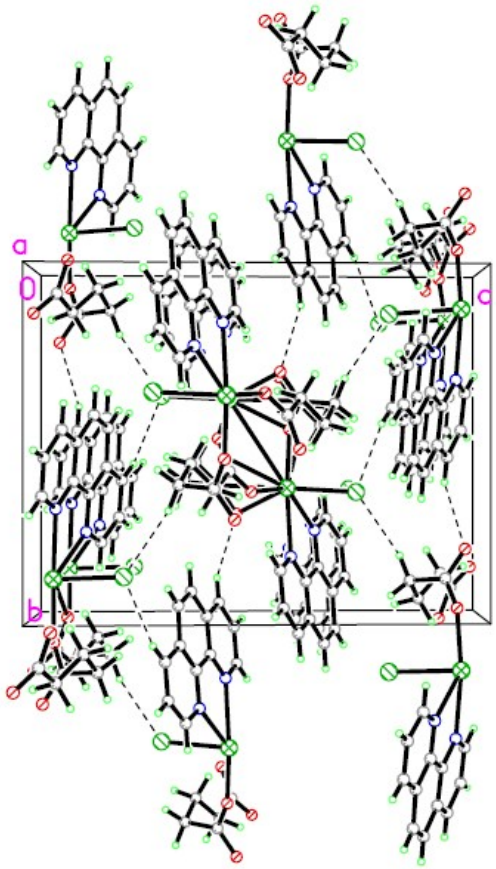


Fig. S2 3-D H-bond network structure of **1a**.

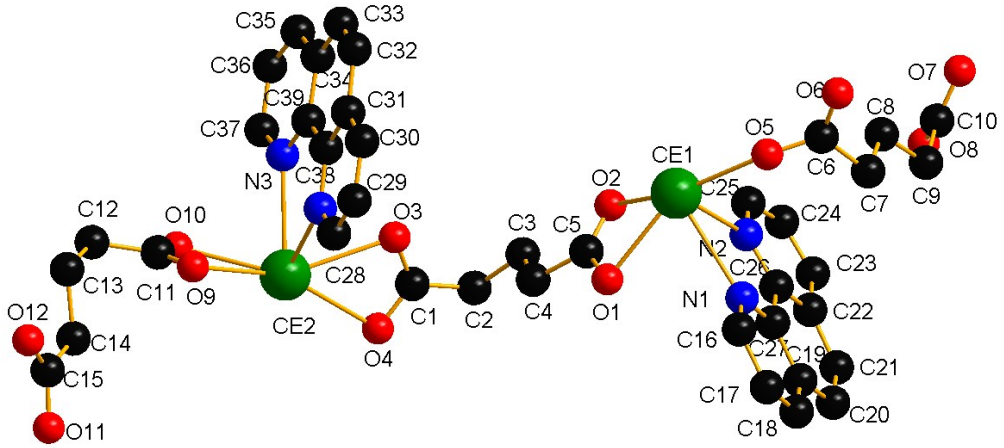


Fig. S3 The asymmetric unit of **2a**. H atoms bonded to C/N atoms have been omitted for clarity.

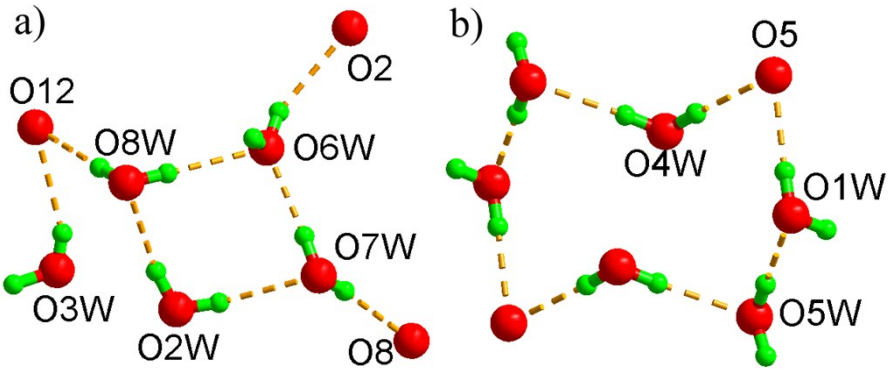


Fig. S4 The O–H···O H-bonds between the coordinated H_2O molecules and free H_2O molecules or O atoms of –COO- groups, showing $(H_2O)_4$ ring (a) and chain-like $(H_2O)_3$ unit (b).

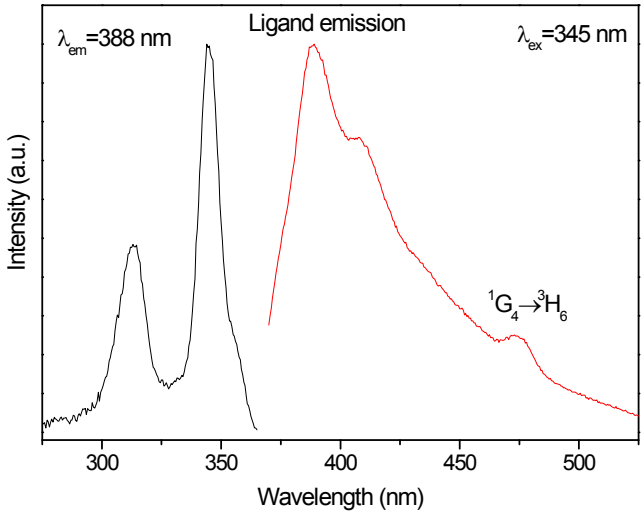
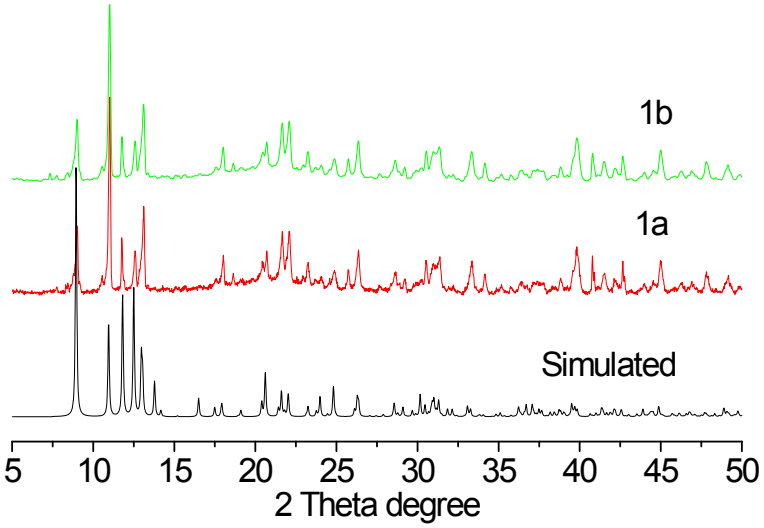
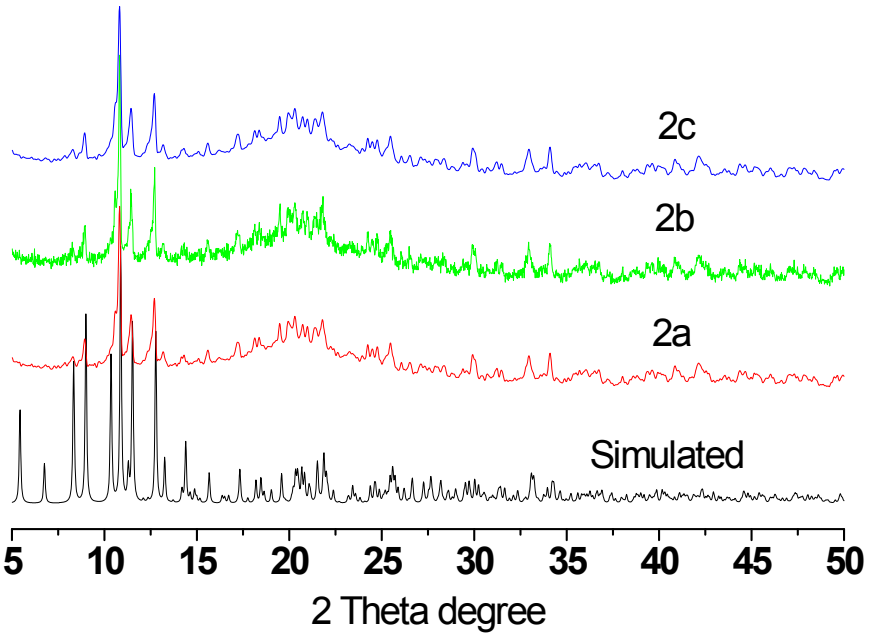


Fig. S5 Excitation (left, λem=388 nm) and emission (right, λex=345 nm) spectra for **1b**.


1b
1a
Simulated
5
10
15
20
25
30
35
40
45
50
2 Theta degree


2c
2b
2a
Simulated
5
10
15
20
25
30
35
40
45
50
2 Theta degree

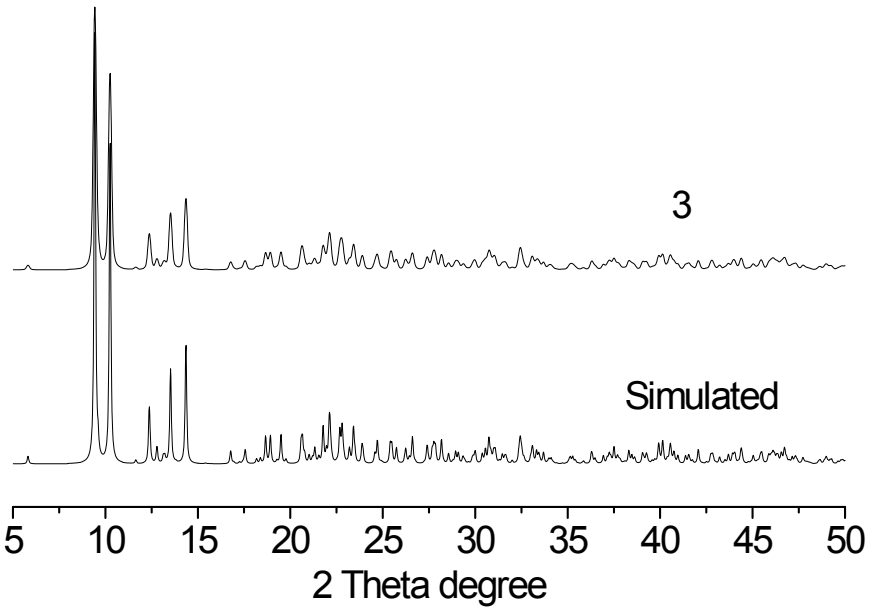


Fig. S6 Experimental powder XRD patterns of all compounds.

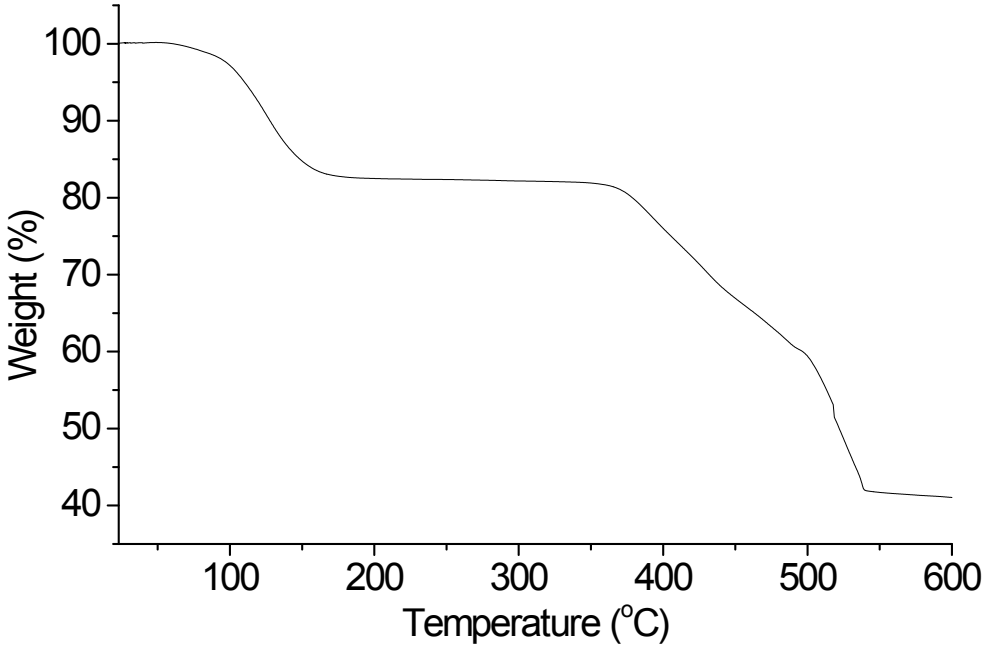


Fig. S7 Thermogravimetric analyses curve of **3**.

A two-step weight loss occurs in the range of 60-550 °C, which is related to the removal of H_2O molecules and the glu ligands (found, 59.1%; calcd, 59.9%).

Table S1. Hydrogen bonds for **3** [Å and deg].

D−H...A	d(D−H)	d(H···A)	d(D···A)	<(DHA)
O(1W)−H(1WC)···O(5)#3	0.85	1.93	2.773(4)	175.7
O(2W)−H(2WB)···O(7W)#1	0.85	2.13	2.946(5)	161.0
O(2W)−H(2WC)···O(8W)	0.85	2.02	2.834(5)	160.2
O(4W)−H(4WC)···O(5)	0.85	1.99	2.841(6)	175.9
O(4W)−H(4WD)···O(5W)	0.85	2.01	2.854(8)	176.0
O(5W)−H(5WC)···O(3)	0.85	1.90	2.746(5)	177.6
O(5W)−H(5WD)···O(1W)#2	0.85	1.92	2.769(6)	177.6
O(6W)−H(6WA)···O(2)	0.85	2.15	2.878(5)	143.7

Symmetry transformations used to generate equivalent atoms: (#1) x+1,y,z; (#2) x,y-1,z; (#3) -x+2,-y+1,-z+2.