Electronic Supplementary Information (ESI)

Tricarboxylate-based Gd^{III} coordination polymers exhibiting large magnetocaloric effects

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Table S1. Selected bond lengths (Å) and angles (°) for **1**[a]

O2—Gd1$^{\#1}$	2.381(2)	Gd1—O3	2.401(2)
O1—Gd1$^{\#2}$	2.364(2)	Gd1—O1W	2.411(2)
O4—Gd1$^{\#3}$	2.321(2)	Gd1—O7	2.444(2)
Gd1—O6$^{\#4}$	2.375(2)	Gd1—O5	2.462(2)
O4$^{\#5}$—Gd1—O2$^{\#6}$	148.13(7)	O1$^{\#2}$—Gd1—O5	141.53(7)
O1$^{\#2}$—Gd1—O2$^{\#6}$	81.35(7)	O6$^{\#4}$—Gd1—O5	73.55(7)
O6$^{\#4}$—Gd1—O2$^{\#6}$	79.67(7)	O2$^{\#6}$—Gd1—O5	125.01(7)
O4$^{\#5}$—Gd1—O3	89.08(8)	O3—Gd1—O5	71.10(7)
O1$^{\#2}$—Gd1—O3	71.30(7)	O1W—Gd1—O5	137.95(7)
O6$^{\#4}$—Gd1—O3	144.55(7)	O7—Gd1—O5	69.36(7)
O2$^{\#6}$—Gd1—O3	119.41(7)	O3—Gd1—O1W	137.83(8)
O4$^{\#5}$—Gd1—O1W	75.82(8)	O4$^{\#5}$—Gd1—O7	140.90(7)
O1$^{\#2}$—Gd1—O1W	71.56(8)	O1$^{\#2}$—Gd1—O7	100.95(8)
O6$^{\#4}$—Gd1—O1W	73.81(8)	O6$^{\#4}$—Gd1—O7	100.74(7)
O2$^{\#6}$—Gd1—O1W	73.28(8)	O2$^{\#6}$—Gd1—O7	69.80(7)

[a]Symmetry transformations used to generate equivalent atoms: #1: *x*, −*y*+5/2, *z*−1/2; #2: −*x*+1, −*y*+2, −*z*+2; #3: *x*, −*y*+3/2, *z*−1/2; #4: −*x*, −*y*+2, −*z*+2; #5: *x*, −*y*+3/2, *z*+1/2; #6: *x*, −*y*+5/2, *z*+1/2.

Table S2. Selected bond lengths (Å) and angles (°) for **2**[a]

O2—Gd1	2.374(11)	Gd1—O5$^{\#5}$	2.366(12)
Gd1—O6$^{\#4}$	2.359(12)	Gd1—O3	2.379(12)
Gd1—N1	2.637(14)	Gd1—O1$^{\#6}$	2.388(11)
Gd1—O4	2.419(11)	Gd1—O1W	2.418(11)
O6$^{\#4}$—Gd1—O5$^{\#5}$	75.6(4)	O5$^{\#5}$—Gd1—O4	133.4(5)
O6$^{\#4}$—Gd1—O2	86.9(4)	O2—Gd1—O4	128.9(4)
O5$^{\#5}$—Gd1—O2	82.0(5)	O3—Gd1—O4	72.1(4)
O6$^{\#4}$—Gd1—O3	138.8(4)	O1$^{\#6}$—Gd1—O4	78.8(4)
O5$^{\#5}$—Gd1—O3	145.6(4)	O1W—Gd1—O4	136.7(4)
O2—Gd1—O3	98.2(5)	O6$^{\#4}$—Gd1—N1	76.0(4)
O6$^{\#4}$—Gd1—O1$^{\#6}$	105.4(4)	O5$^{\#5}$—Gd1—N1	137.2(4)
O5$^{\#5}$—Gd1—O1$^{\#6}$	77.3(4)	O2—Gd1—N1	65.1(4)
O2—Gd1—O1$^{\#6}$	152.3(4)	O3—Gd1—N1	69.5(4)
O3—Gd1—O1$^{\#6}$	88.8(4)	O1$^{\#6}$—Gd1—N1	141.5(4)
O6$^{\#4}$—Gd1—O1W	148.5(4)	O1W—Gd1—N1	121.6(4)
O5$^{\#5}$—Gd1—O1W	74.5(4)	O4—Gd1—N1	64.6(4)
O2—Gd1—O1W	79.4(4)	O3—Gd1—O1W	71.8(4)
O6$^{\#4}$—Gd1—O4	73.1(4)	O1$^{\#6}$—Gd1—O1W	77.4(4)

[a]Symmetry transformations used to generate equivalent atoms: #1: −*x*+1/2, *y*+1/2, −*z*+1/2; #4: −*x*+1/2, *y*−1/2, −*z*+1/2; #5: *x, y−1, z*; #6: *x−1, y, z*.

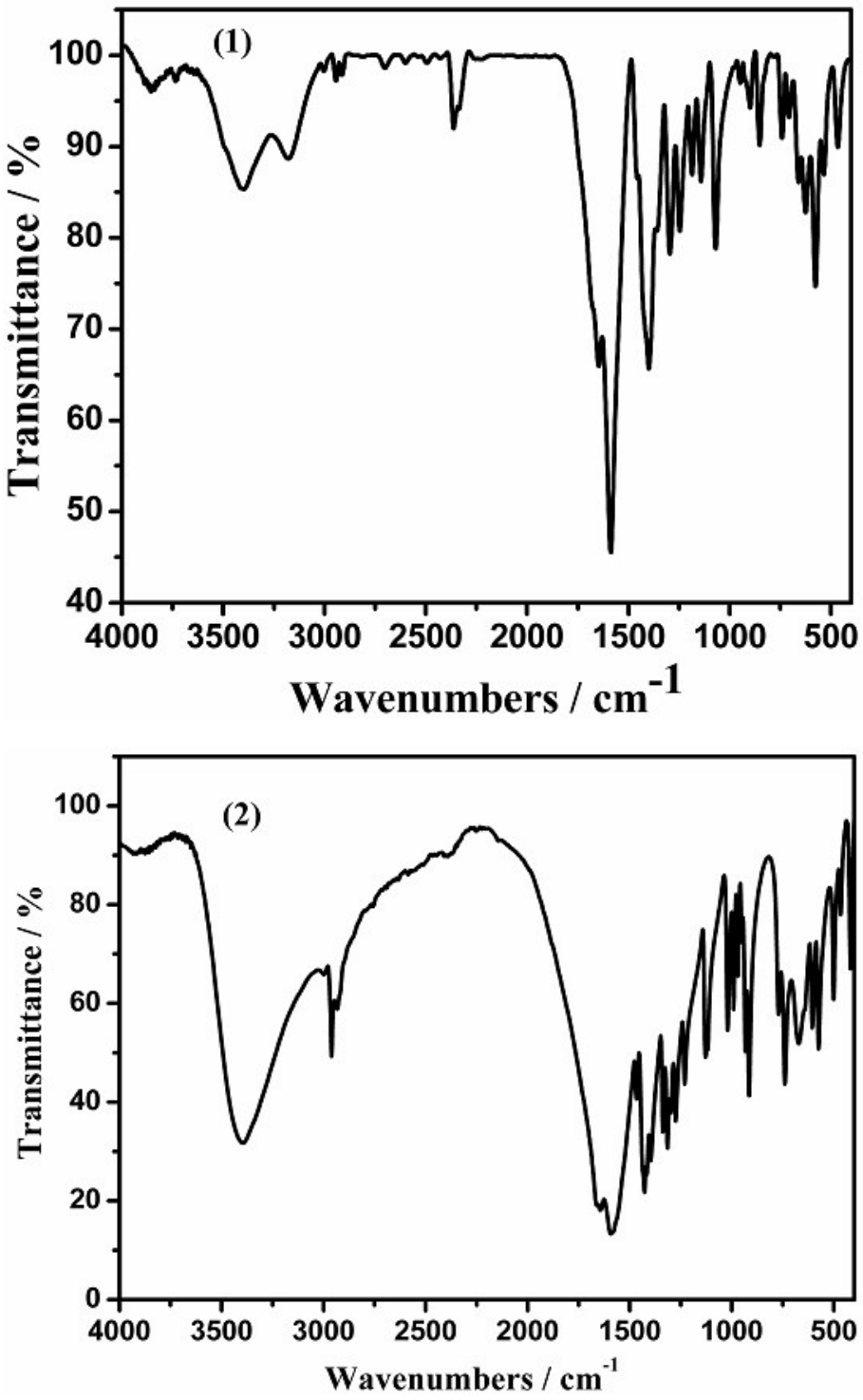
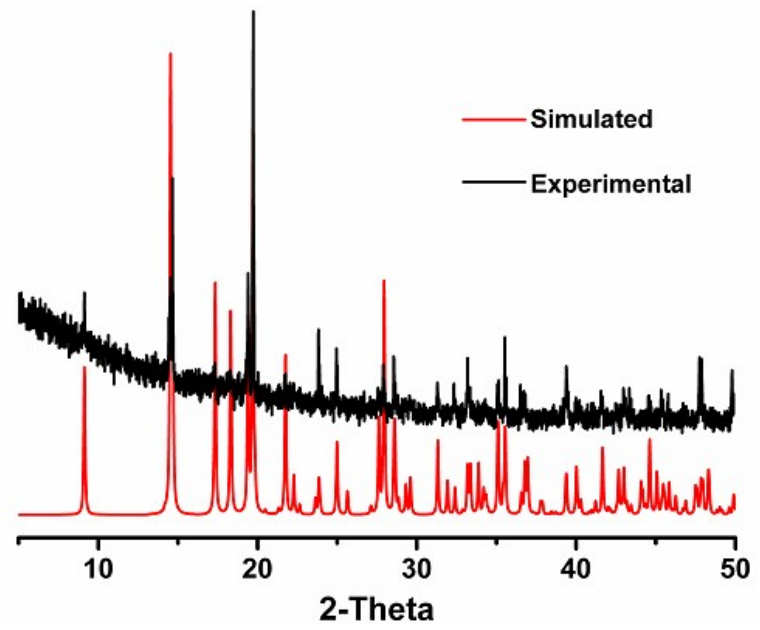
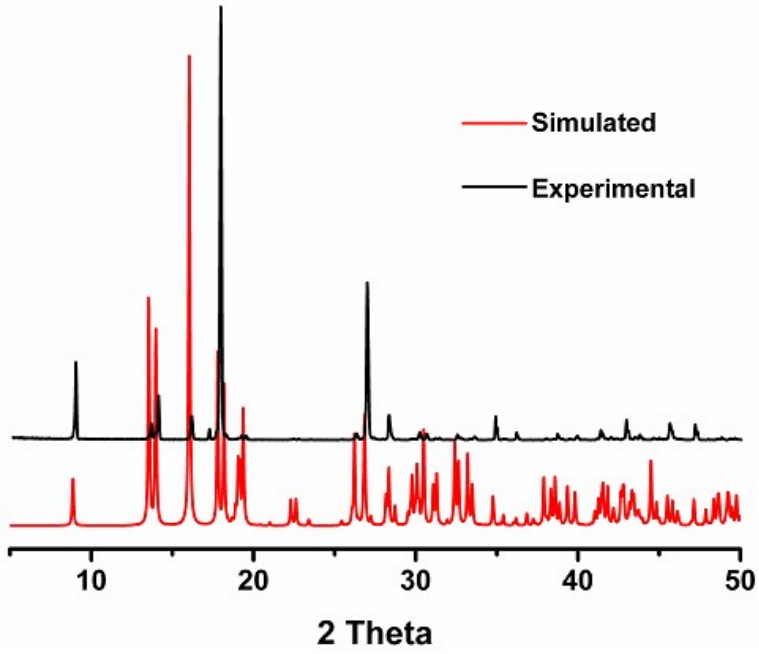


Fig. S1. The IR spectra of complexes **1** and **2**.

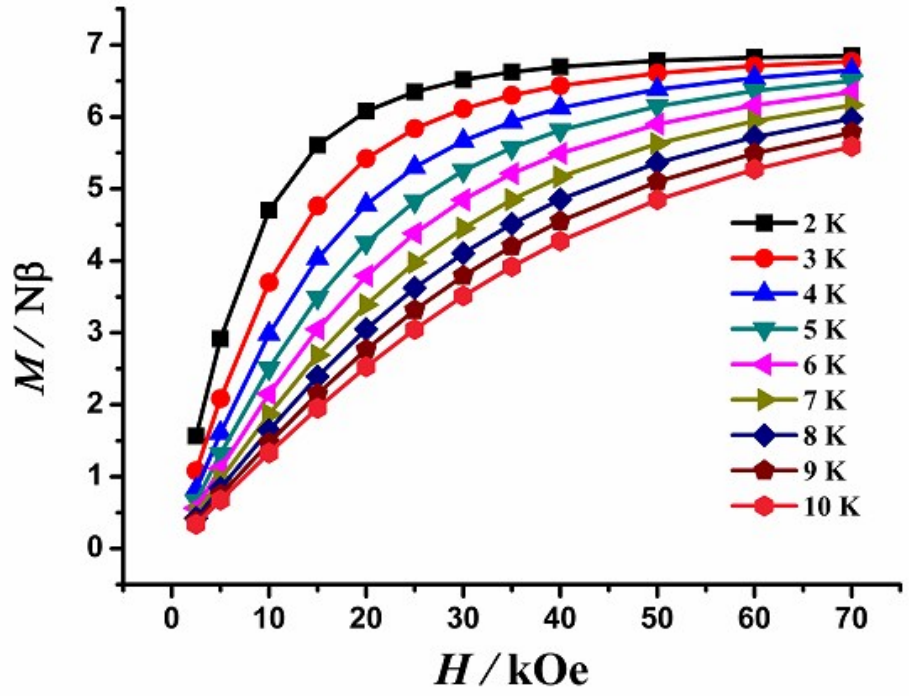


(a)

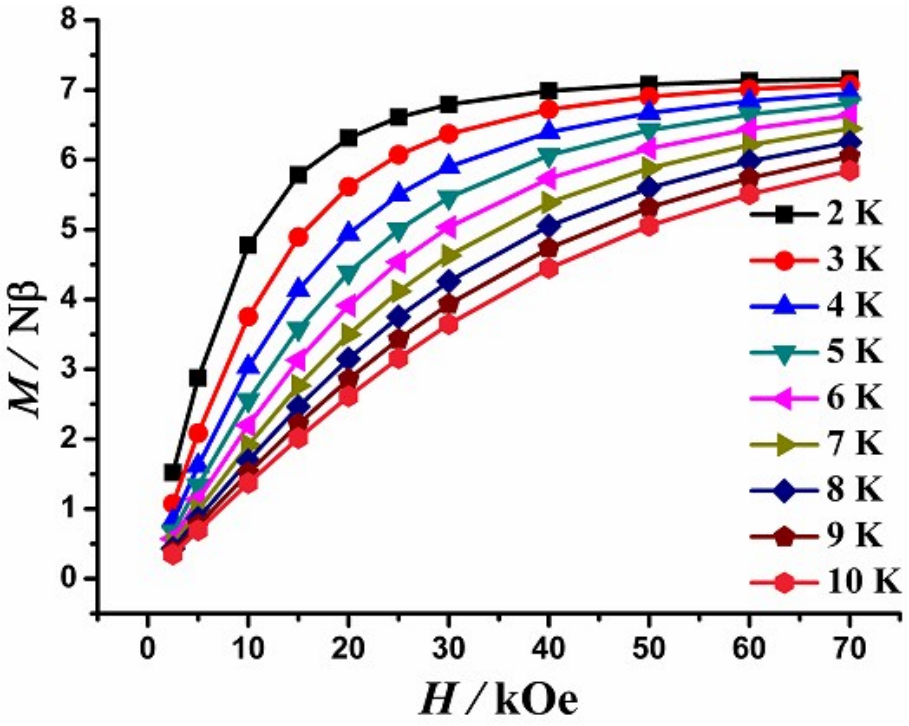


(b)

Fig. S2. XRPD patterns of **1** (a) and **2** (b).



(a)



(b)

Fig. S3. The *M vs. H* plots of **1** (a) and **2** (b) at T = 2–10 K and H = 2.5–70 kOe.