Supporting Information

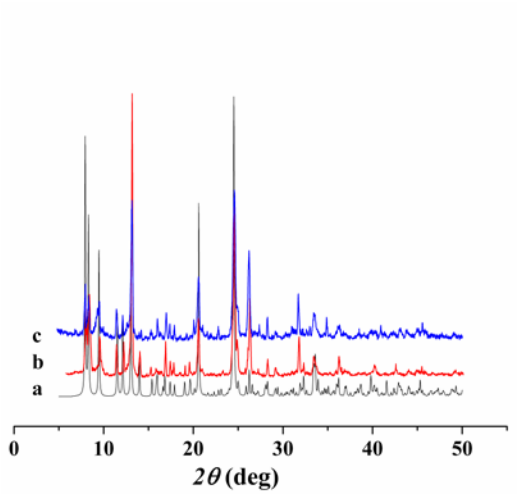

Fig. S1 The powder X-ray diffraction patterns: (a) the simulated one based on the X-ray single crystal data and the experimental patterns of compound Dy(**1**) (b) and Tb(**2**) (c) .

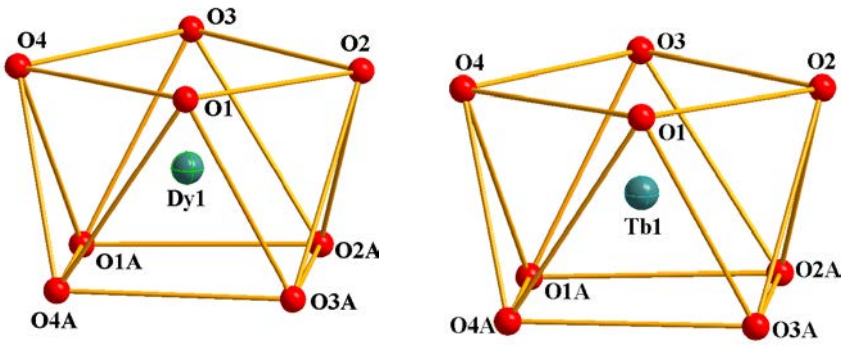

Fig. S2 The square-antiprismatic coordination of the Dy1 and Tb1 ions in Dy(**1**) and Tb(**2**) .

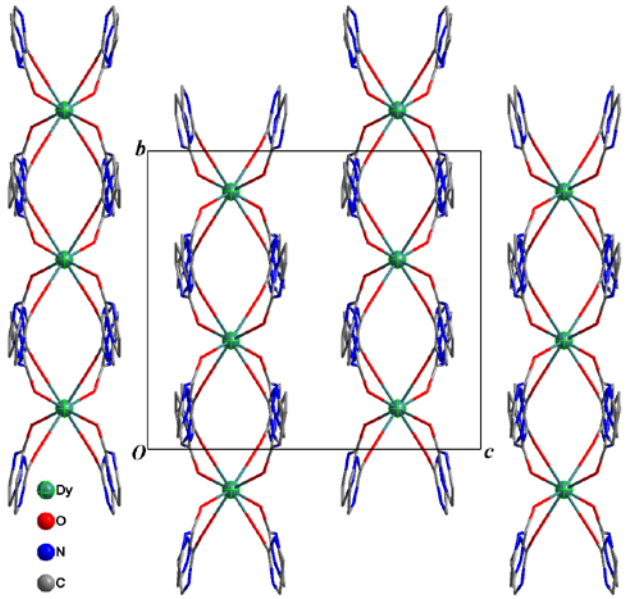

Fig. S3 View of the packing arrangement along the crystallographic a-axis for Dy(**1**).

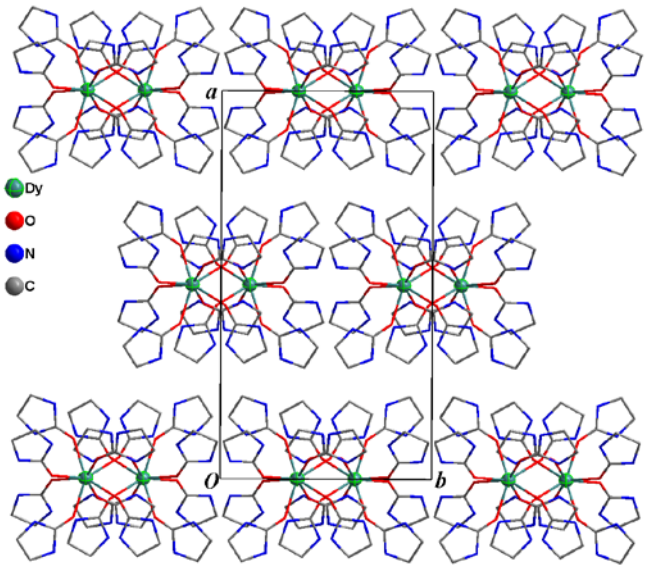

Fig. S4 View of the packing arrangement along the crystallographic c-axis for Dy(**1**).

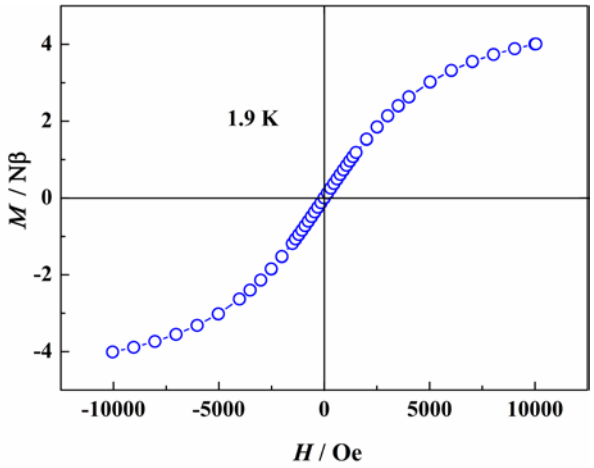

Fig. S5 Field dependence of the magnetization of Dy(**1**) measured at 1.9 K.

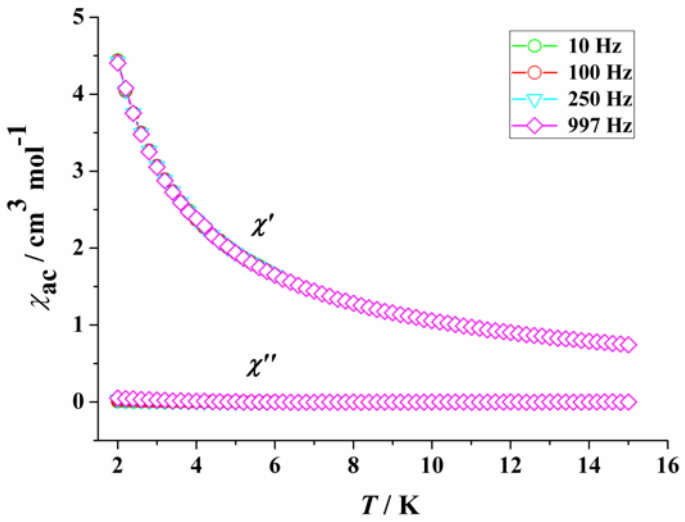

Fig. S6 Temperature dependence of the in-phase (top) and out-of phase (bottom) ac susceptibility signals under zero dc field for Dy(**1**).

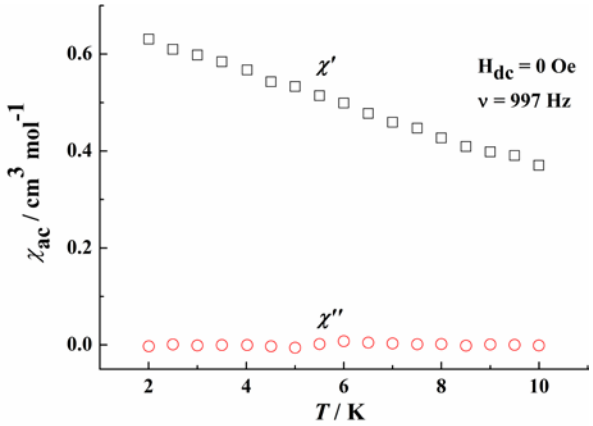

Fig. S7 Temperature dependence of the in-phase and out-of phase ac susceptibility signals under zero dc field for Tb(**2**).

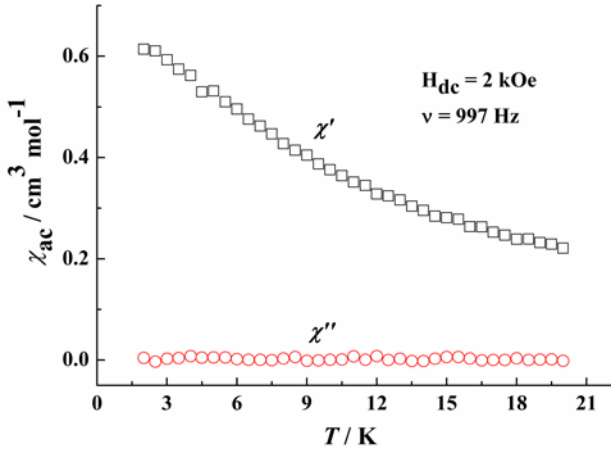

Fig. S8 Temperature dependence of the in-phase and out-of phase ac susceptibility signals under 2 kOe dc field for Tb(**2**).

Table S1. Selected Bond Angles (Å) of **1** and **2**.[a]

Compound Dy(**1**)		Compound Tb(**1**)	
O(3A)−Dy(1)−O(4)	138.55(8)	O(3A)−Tb(1)−O(4)	138.39(7)
O(3)−Dy(1)−O(4)	73.59(8)	O(3)−Tb(1)−O(4)	73.63(7)
O(3A)−Dy(1)−O(3)	146.10(11)	O(3A)−Tb(1)−O(3)	146.23(11)
O(4)−Dy(1)−O(4A)	73.57(12)	O(4)−Tb(1)−O(4A)	73.39(11)
O(3A)−Dy(1)−O(1)	74.90(8)	O(3A)−Tb(1)−O(1)	74.81(8)
O(3)−Dy(1)−O(1)	115.30(9)	O(3)−Tb(1)−O(1)	115.46(8)
O(4)−Dy(1)−O(1)	74.56(8)	O(4)−Tb(1)−O(1)	74.46(8)
O(4A)−Dy(1)−O(1)	78.91(9)	O(4A)−Tb(1)−O(1)	78.73(8)
O(1)−Dy(1)−O(1A)	146.73(12)	O(1)−Tb(1)−O(1A)	146.42(11)
O(3A)−Dy(1)−O(2A)	74.82(8)	O(3A)−Tb(1)−O(2A)	74.80(7)
O(3)−Dy(1)−O(2A)	77.94(8)	O(3)−Tb(1)−O(2A)	77.98(8)
O(4)−Dy(1)−O(2A)	144.57(8)	O(4)−Tb(1)−O(2A)	144.79(7)
O(4A)−Dy(1)−O(2A)	118.60(9)	O(4A)−Tb(1)−O(2A)	118.80(8)
O(1)−Dy(1)−O(2A)	138.12(8)	O(1)−Tb(1)−O(2A)	138.00(7)
O(1A)−Dy(1)−O(2A)	73.61(8)	O(1A)−Tb(1)−O(2A)	74.03(8)
O(2A)−Dy(1)−O(2)	72.29(11)	O(2A)−Tb(1)−O(2)	71.82(11)

[a] Compounds **1** and **2**, A: $-x,\ y,\ -z+1/2$.

Table **S2**. Geometrical parameters of hydrogen bonds for **1** and **2**.[a]

D−H···A	D−H (Å)	H···A (Å)	D···A (Å)	<DHA (°)
Compound Dy(**1**)				
N1−H1A···O4	0.860	2.179	2.878(4)	138.13
N2−H2A···O9	0.860	2.219	3.003 (11)	151.45
N3−H3A···O1	0.860	2.189	2.879 (4)	137.07
N4−H4A···O6$^{\#1}$	0.860	2.195	3.013(10)	158.73
N5−H5A···O2	0.860	2.182	2.882(4)	138.25
N6−H6A···O8$^{\#1}$	0.860	2.216	2.940 (11)	141.72
N7−H7A···O3	0.860	2.261	2.930(4)	134.64
N8−H8A···O5$^{\#2}$	0.860	2.269	2.830(9)	122.95
Compound Tb(**2**)				
N1−H1A···O4	0.860	2.174	2.872 (4)	138.06
N2−H2A···O9	0.860	2.219	2.999 (12)	150.77
N3−H3A···O1	0.860	2.198	2.888 (4)	137.12
N4−H4A···O6	0.860	2.193	3.006(10)	157.71
N5−H5A···O2	0.860	2.183	2.880 (4)	137.93
N6−H6A···O8$^{\#1}$	0.860	2.230	2.950 (11)	141.24
N7−H7A···O3	0.860	2.263	2.934 (4)	134.89
N8−H8A···O5$^{\#2}$	0.860	2.278	2.837(9)	122.80

[a] Compounds **1** and **2**: #1 $-x, y, -z+1/2$; #2 $x, y+1, z$.

Electronic Supplementary Material (ESI) for CrystEngComm