

Supporting Information

An unusual homospin Co^{II} ferrimagnetic single-chain magnet with large hysteresis

Fei-Zhao, Zhen-Peng Dong, Zhi-Liang Liu and Yan-Qin Wang*

Table S1. Selected distances (Å) and angles (deg) for compound **1**.

Co1-N1	2.106(3)	Co1-O1C	2.162(2)
Co1-N11	2.189(3)	Co2-O2	2.090(2)
Co2-N2	2.119(3)	Co2-O1B	2.130(2)
Co2-O1	2.137(2)	Co2-N12D	2.144(3)
Co2-N8	2.147(3)	N1C-Co1-N1	180.00(7)
N1C-Co1-O1B	95.28(9)	N1-Co1-O1B	84.72(9)
O1B-Co1-O1A	180.00(11)	N1C-Co1-N11	90.93(10)
N1-Co1-N11	89.07(10)	O1B-Co1-N11	82.76(9)
O1A-Co1-N11	97.24(9)	N11-Co1-N11C	180.000(1)
O2-Co2-N2	170.84(10)	O2-Co2-O1B	89.40(9)
N2-Co2-O1B	85.54(9)	O2-Co2-O1	91.12(9)
N2-Co2-O1	96.28(9)	O1B-Co2-O1	87.68(8)
O2-Co2-N12D	92.72(10)	N2-Co2-N12D	92.54(10)
O1B-Co2-N12D	177.49(9)	O2-Co2-N8	82.70(10)
N2-Co2-N8	89.41(11)	O1B-Co2-N8	86.89(9)
O1-Co2-N8	171.81(10)	N12D-Co2-N8	94.71(10)
Co2B-O1-Co2	92.32(8)	Co2B-O1-Co1E	106.44(9)
Co2-O1-Co1E	137.71(10)		

Symmetry codes: A: $x, y-1, z$; B: $-x, 3-y, 1-z$; C: $-x, 2-y, 1-z$; D: $-x, y+3/2, -z+3/2$; E: $x, y+1,$

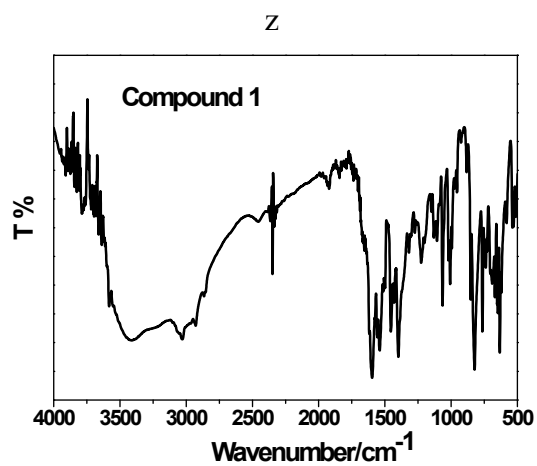


Fig. S1. The IR spectrum of **1**.

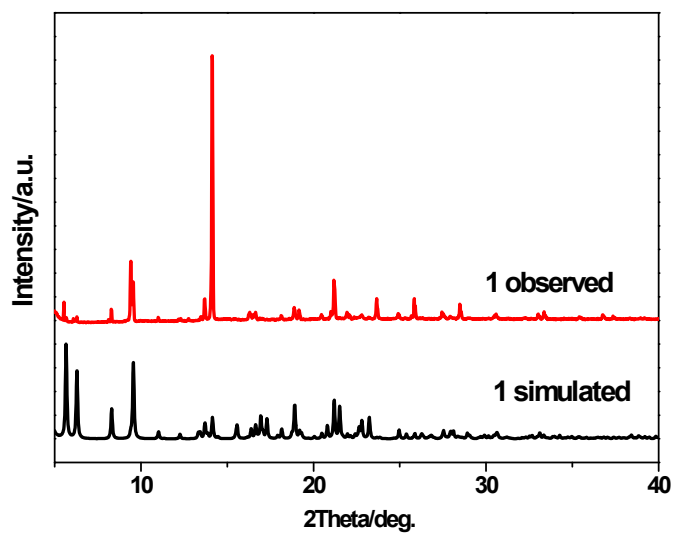
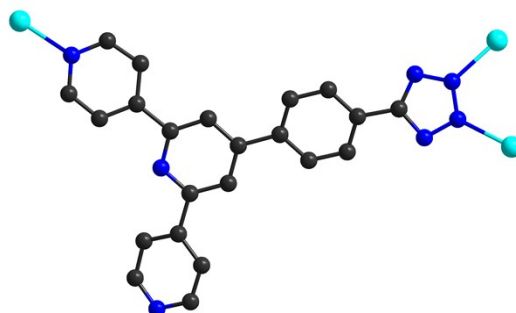


Fig. S2 The PXRD patterns of the as-synthesized compound **1** with the simulated data.



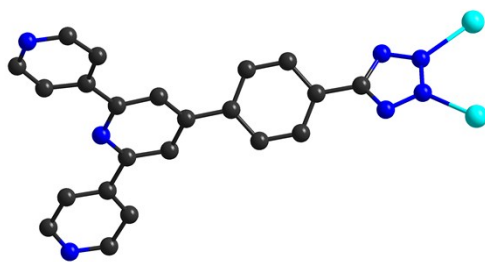


Fig. S3. The coordination and linkage modes of the ligands in **1**.

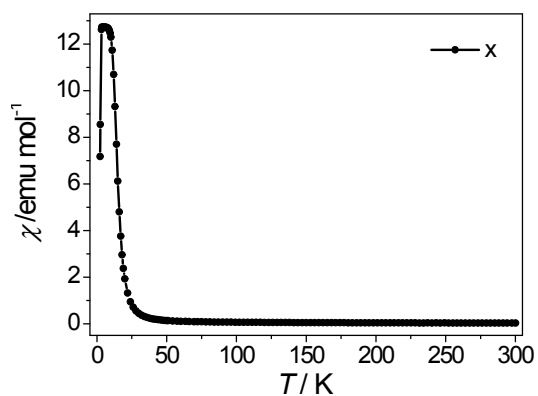


Fig. S4. The χ - T plot at 1 kOe for **1**.

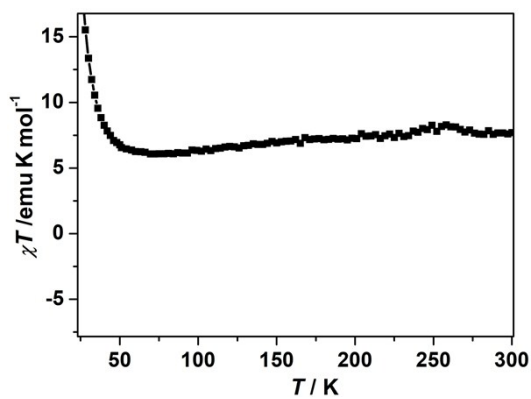


Fig. S5. The enlarged image of χT - T plot at 1 kOe in 30-200 K for **1**.

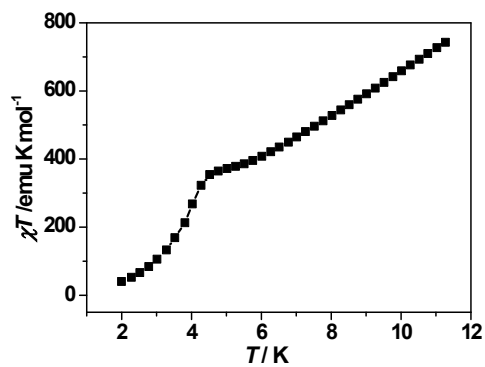


Fig. S6. The χT - T plot at 20 Oe in the temperature range of 2-11 K for **1**.

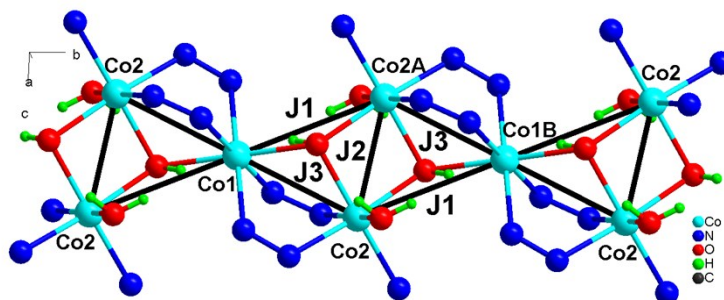


Fig. S7. Magnetic exchange ways between Co(II) ions in **1**.

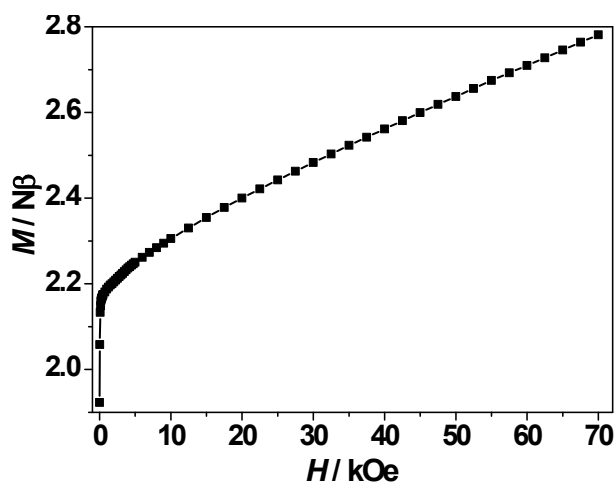


Fig. S8. The M-H curve of **1** at 2 K.

Table S2. The obtained parameters fitted the general Debye model

Temperature (K)	τ_0	alfa	χ_t	χ_s
6.0	0.110	0.30	128.54	5.69
6.2	0.084	0.34	135.36	5.40
6.4	0.052	0.33	137.74	6.70
6.6	0.033	0.33	138.52	8.37
6.8	0.021	0.32	139.50	10.53
7.0	0.016	0.37	153.98	8.60
7.2	0.009	0.31	142.87	16.89
7.4	0.006	0.31	145.25	21.65

7.6	0.004	0.30	148.07	28.17
7.8	0.002	0.30	151.33	36.98
8.0	0.002	0.19	136.63	50.57

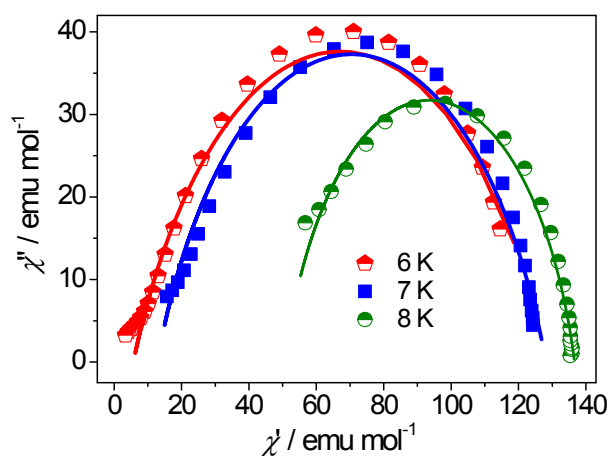


Fig. S9. Cole-Cole diagrams for **1**, plotted using $\chi'(f)$ and $\chi''(f)$ at 6 K, 7 K, 8K. The solid lines represent the fits to a general Debye model.

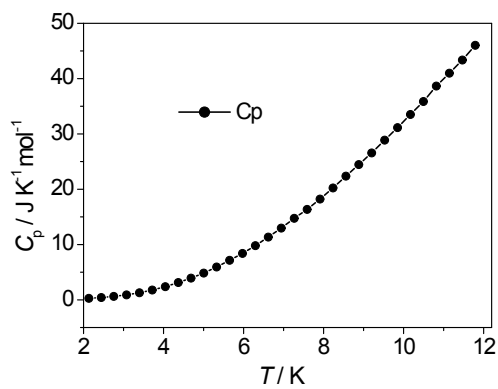


Fig. S10. The C_p - T curve for **1**.