Supporting Information

Superb Alkali-resistant $Dy^{III}_2Ni^{II}_4$ Single Molecule Magnet

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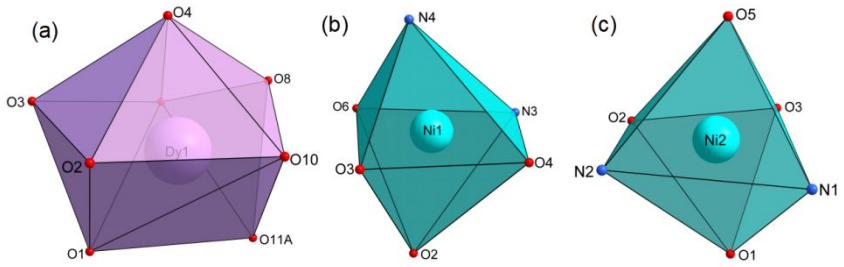

Figure S1. The coordination environments of Dy (a) and Ni (b and c) in **1**.

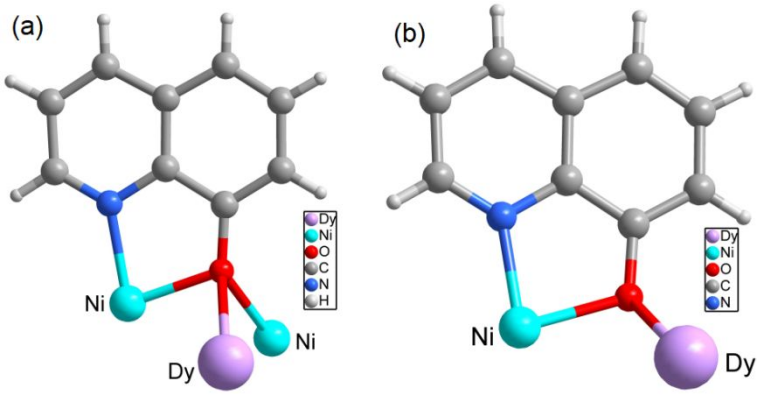

Figure S2. Different binding modes of L^{-}: μ_3-η^1:η^1:η^2 (a) and μ-η^1:η^2 (b) in **1**.

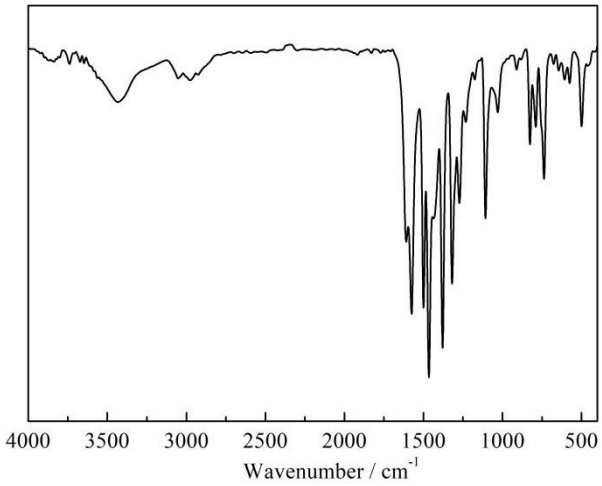

Figure S3. FT-IR spectra of **1**.

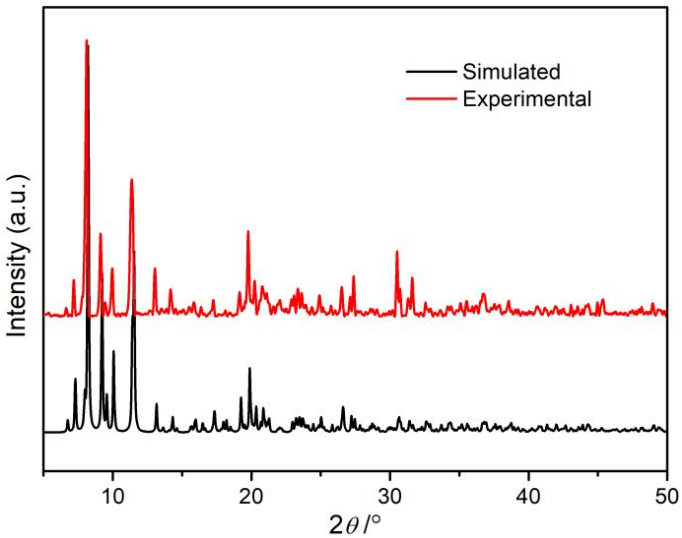

Figure S4. PXRD patterns of simulation, as-synthesized samples of **1**.

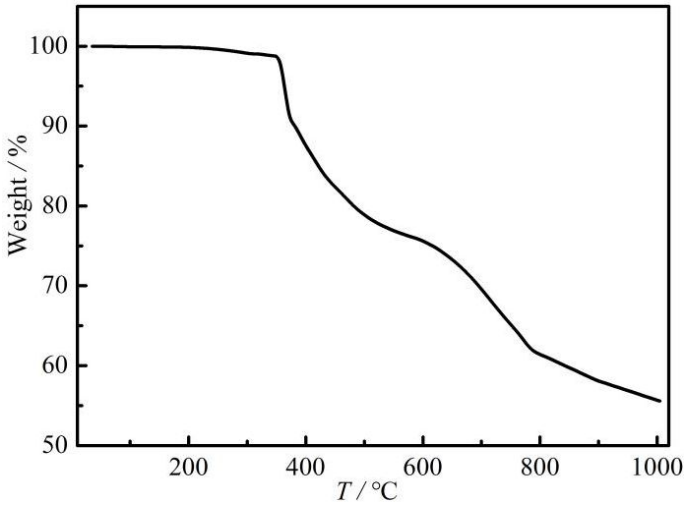

Figure S5. TGA curve of **1**.

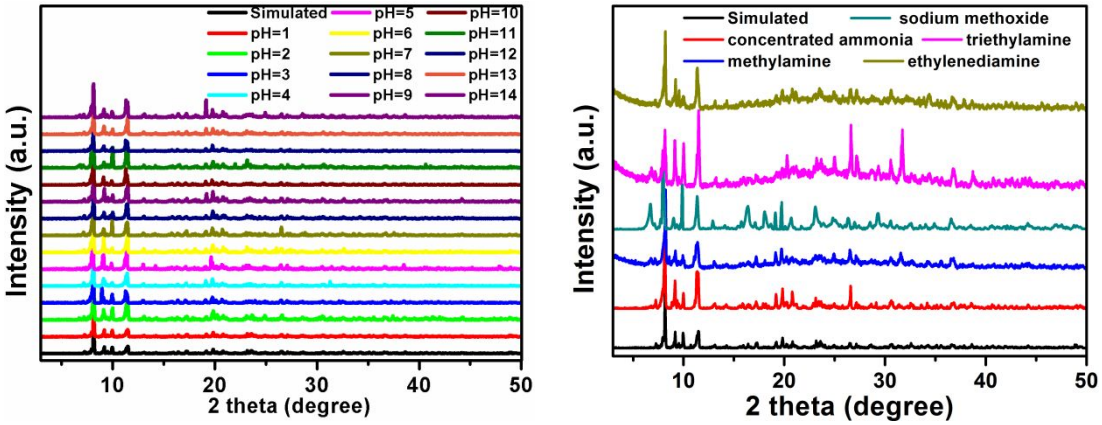

Figure S6. PXRD patterns of simulation and **1** after treated in different solutions for one days at room temperature.

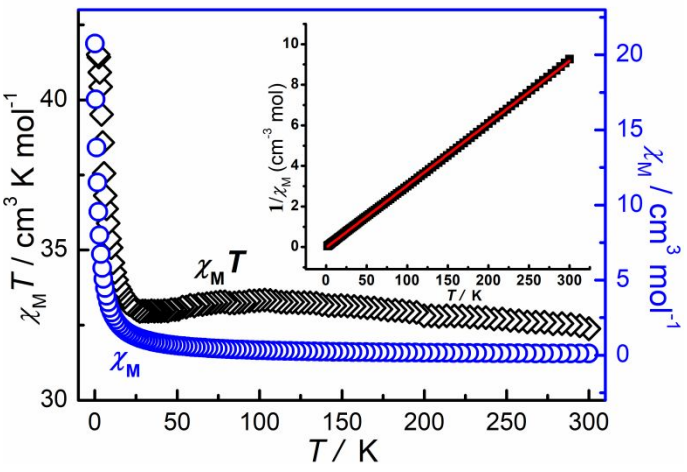

Figure S7. χ_M, $\chi_M T$ and χ^{-1} versus T curves for **1**.

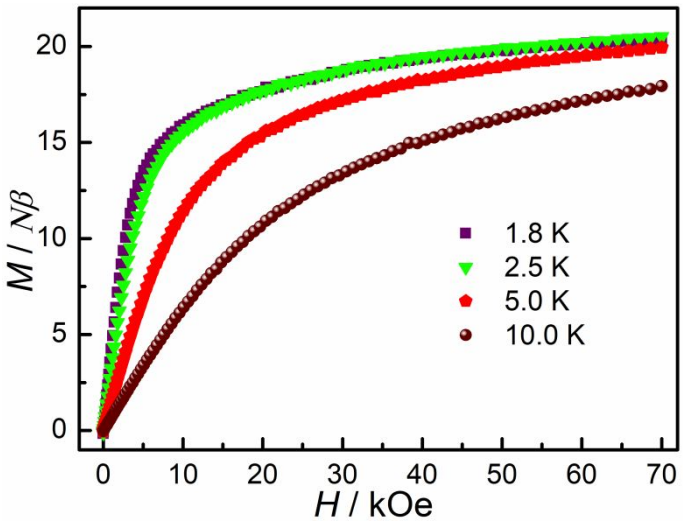

Figure S8. *M* versus *H* plots for **1** at different temperatures.

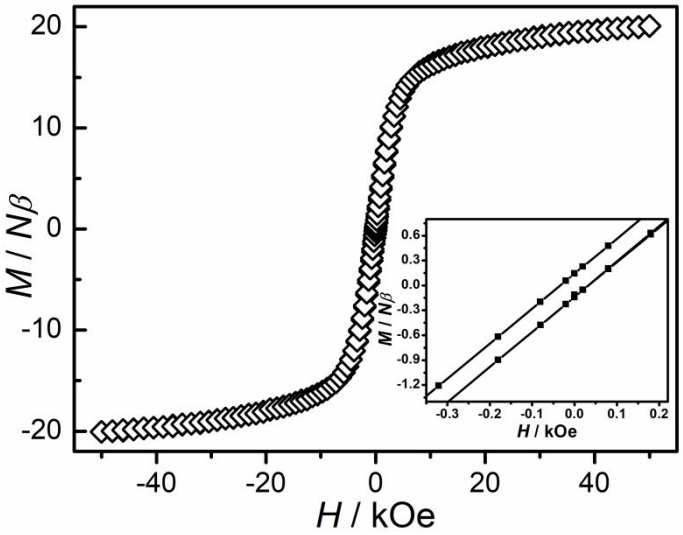

Figure S9. Plot of magnetic hysteresis loops for **1** at 1.8 K.

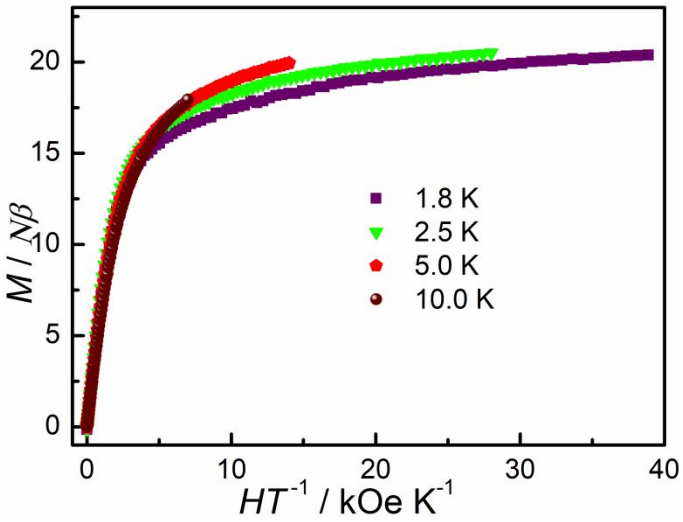

Figure S10. M versus HT^{-1} plots for **1** at different temperatures.

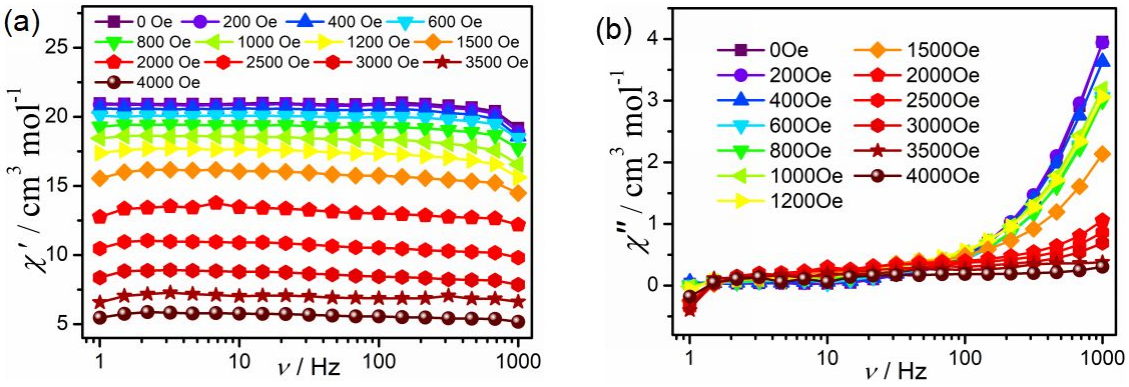

Figure S11. Frequency-dependent χ' (a) and χ'' (b) ac susceptibilities under different dc fields for **1** at 2 K in the frequency range of 1-1000 Hz.

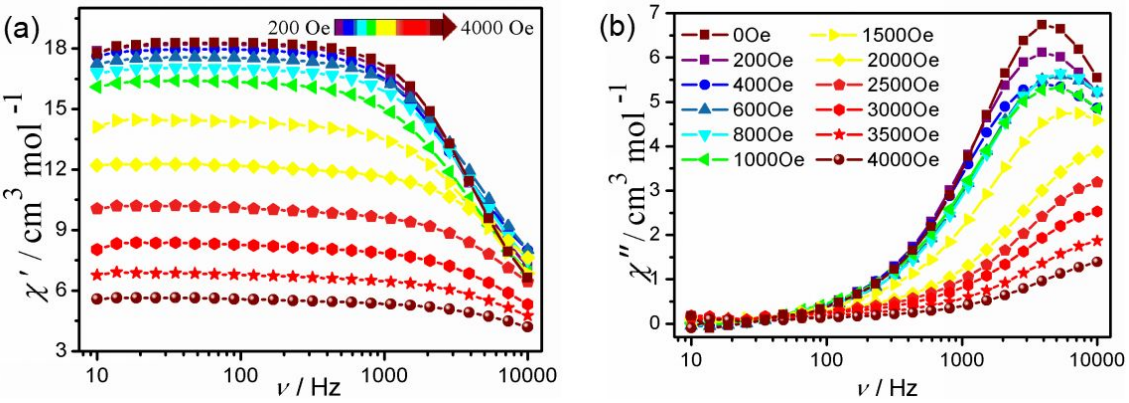

Figure S12. Frequency-dependent χ' (a) and χ'' (b) ac susceptibilities under different dc fields for **1** at 2 K in the frequency range of 1-10000 Hz.

Table S1. Selected bond lengths / Å and bond angles / ° for **1**.

Dy1-O1	2.2961(17)	Dy1-O11[1]	2.2837(19)	Ni2-O1	2.0646(19)
Dy1-O2	2.4567(17)	Ni1-O2	2.1525(19)	Ni2-O3	2.1384(18)
Dy1-O3	2.5694(18)	Ni1-O3	2.0692(18)	Ni2-O5	2.013(2)
Dy1-O4	2.3136(18)	Ni1-O4	2.0697(17)	Ni2-O2	2.0917(17)
Dy1-O7	2.430(2)	Ni1-O6	2.0163(19)	Ni2-N1	2.031(2)
Dy1-O8	2.472(2)	Ni1-N3	2.030(2)	Ni2-N2	2.044(3)
Dy1-O10	2.2581(19)	Ni1-N4	2.058(2)	O2-Dy1-O3	60.02(6)
O1-Dy1-O3	67.98(6)	O2-Dy1-O8	148.63(6)	O1-Dy1-O4	134.13(6)
O1-Dy1-O2	73.23(6)	O1-Dy1-O8	137.46(7)	O1-Dy1-O7	94.33(7)
O1-Dy1-N5	116.92(7)	O4-Dy1-O2	74.18(6)	O4-Dy1-O3	68.04(6)
O4-Dy1-O8	76.70(7)	O4-Dy1-O7	88.23(7)	O10-Dy1-O2	78.09(7)
O10-Dy1-O3	132.60(6)	O10-Dy1-O1	122.18(8)	O10-Dy1-O4	80.66(7)
O10-Dy1-O11[1]	82.60(7)	O10-Dy1-O8	85.98(7)	O10-Dy1-O7	138.01(7)
O11[1]-Dy1-O2	130.09(7)	O11[1]-Dy1-O3	141.08(6)	O11[1]-Dy1-O1	79.39(7)
O11[1]-Dy1-O4	146.29(7)	O11[1]-Dy1-O8	73.11(7)	O11[1]-Dy1-O7	84.93(7)
O11[1]-Dy1-N5	77.59(7)	O8-Dy1-O3	118.22(7)	O7-Dy1-O2	137.18(6)
O7-Dy1-O3	77.24(6)	O7-Dy1-O8	52.04(6)	O3-Ni1-O2	73.12(7)
O3-Ni1-O4	82.91(7)	O6-Ni1-O2	92.32(8)	O6-Ni1-O3	103.47(7)
O6-Ni1-O4	172.63(8)	O6-Ni1-N3	92.19(8)	O6-Ni1-N4	88.22(9)
O4-Ni1-O2	85.96(7)	N3-Ni1-O2	102.46(8)	N3-Ni1-O3	163.79(8)
N3-Ni1-O4	81.21(8)	N3-Ni1-N4	103.73(9)	N4-Ni1-O2	153.76(8)
N4-Ni1-O3	81.24(8)	N4-Ni1-O4	96.50(8)	O2-Ni2-O3	72.97(7)
O1-Ni2-O2	86.11(7)	O1-Ni2-O3	80.97(7)	N2-Ni2-O2	81.01(8)
N2-Ni2-O3	153.94(8)	N2-Ni2-O1	96.01(9)	O5-Ni2-O2	101.74(8)
O5-Ni2-O3	93.14(8)	O5-Ni2-O1	168.45(9)	O5-Ni2-N2	93.60(9)
O5-Ni2-N1	90.61(9)	N1-Ni2-O2	167.65(9)	N1-Ni2-O3	106.54(9)
N1-Ni2-O1	81.66(9)	N1-Ni2-N2	98.53(10)		

Symmetry codes: 1-X, -Y, 1-Z

Table S2. Some typical coordination compounds with excellent alkali resistance.

Coordination Compounds	Dimension	Medium	Concentration	Temperature / °C	Time / h	Ref.
1	0 D	NaOH	20 M	RT	> 720	This work
1	0 D	Et_3N	7 M	RT	> 240	This work
$Hf_{13}(\mu_4\text{-}O)_8(OCH_3)_{36}$	0 D	NaOH	20 M	100	2	1
$[Zn_5(H_2L^n)_6](NO_3)_4]$	0 D	$NH_3{\cdot}H_2O$	14 M	Refluxed	24	2
$[Dy_4(\mu_4\text{-}O)(HL^3)_4(H_2L^3)_2]$	0D	NaOH	20 M	RT	48	3
ZIF-8	3 D	NaOH	8 M	100	24	4
PCN-601	3 D	NaOH	20 M	100	24	4
$\{[Ln_3(\mu_6\text{-}CO_3)(\mu_3\text{-}OH)_6]OH\}_n$ (Ln = Gd, Tb, Dy)	3 D	NaOH	20 M	NG	72	5
ZrPP-1	3D	NaOH	20M	NG	168	6

NG: Not Given, H_3L^n = (1,2-bis-(benzo[d]imidazol-2-yl)-ethenol (Ref. 2), (H_3L^3 = 3-(((2-hydroxynaphthaen-1-yl)methylene)amino)-propane-1,2-diol (Ref. 3).

References

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