ESI

Slow Relaxation of Magnetization on 3D-MOFs Based on Dysprosium Dinuclear Entities Bridged by Dicarboxylic Linkers.

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1. Bond Distances

Table S1. Selected Distances (Å)

1	2	3	
Dy1 O1C 2.2365(19)	Dy1 O1C 2.275(8)	Dy1 O11B 2.2350(19)	Dy2 O11C 2.2914(18)
Dy1 O2A 2.2658(19)	Dy1 O2C 2.277(7)	Dy1 O12A 2.2806(18)	Dy2 O32A 2.3285(18)
Dy1 O2C 2.3081(18)	Dy1 O2A 2.326(5)	Dy1 O1L 2.3703(19)	Dy2 O31B 2.3526(17)
Dy1 O1D 2.316(2)	Dy1 O1A 2.338(6)	Dy1 O11A 2.3769(19)	Dy2 O12C 2.3539(17)
Dy1 O1A 2.3255(19)	Dy1 O1N 2.348(6)	Dy1 O1P 2.388(2)	Dy2 O31 2.3707(18)
Dy1 O1E 2.334(2)	Dy1 O2B 2.389(6)	Dy1 O12B 2.3976(17)	Dy2 O1M 2.3822(18)
Dy1 O2B 2.3840(19)	Dy1 O1M 2.417(7)	Dy1 O32C 2.4259(17)	Dy2 O1N 2.4252(19)
Dy1 O1B 2.4299(19)	Dy1 O1B 2.461(6)	Dy1 O31C 2.4504(17)	Dy2 O32B 2.5644(19)
Dy1 C1B 2.768(3)	Dy1 C1B 2.761(9)	Dy1 C31C 2.771(2)	Dy2 C31B 2.797(2)

2. Continuous Shape Measures Calculations

Table S2. Continuous Shape Measures Calculations for compounds **1-3**.

```
OP-8            1 D8h   Octagon
HPY-8           2 C7v   Heptagonal pyramid
HBPY-8          3 D6h   Hexagonal bipyramid
CU-8            4 Oh    Cube
SAPR-8          5 D4d   Square antiprism
TDD-8           6 D2d   Triangular dodecahedron
JGBF-8          7 D2d   Johnson gyrobifastigium J26
JETBPY-8        8 D3h   Johnson elongated triangular bipyramid J14
JBTPR-8         9 C2v   Biaugmentedtrigonal prism J50
BTPR-8         10 C2v   Biaugmentedtrigonal prism
JSD-8          11 D2d   Snub diphenoid J84
TT-8           12 Td    Triakis tetrahedron
ETBPY-8        13 D3h   Elongated trigonalbipyramid

Structure [ML8 ]          OP-8        HPY-8       HBPY-8
CU-8       SAPR-8         TDD-8       JGBF-8     JETBPY-8
JBTPR-8       BTPR-8         JSD-8          TT-8       ETBPY-8
Comp 1           ,      30.002,      21.747,      15.708,
10.390,       0.773,       2.667,      15.761,      26.656,
2.622,        1.897,       5.311,      11.043,      22.469
Comp 2           ,      31.338,      23.048,      14.547,
9.578,        1.869,       1.901,      13.598,      26.173,
2.006,        1.418,       4.198,      10.246,      21.957
Comp 3 Dy1       ,      31.638,      21.688,      14.178,
9.171,        2.218,       1.137,      14.403,      26.055,
2.835,        2.090,       3.401,       9.926,      21.743
Comp 3 Dy2       ,      30.648,      22.531,      15.258,
10.585,       1.381,       2.531,      14.164,      26.525,
1.811,        1.185,       4.484,      11.030,      23.402
```

3. Luminescence Properties

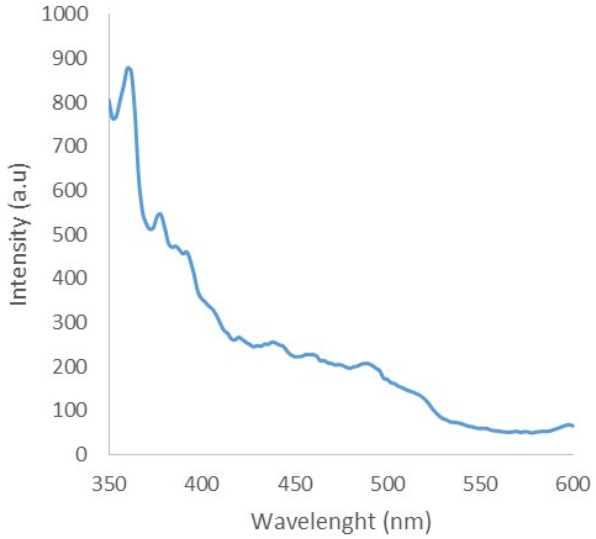

Figure S1. Experimental emission spectrum of 5-Cyano-1,3-benzenedicarboxylic acid.

4. Magnetic Properties

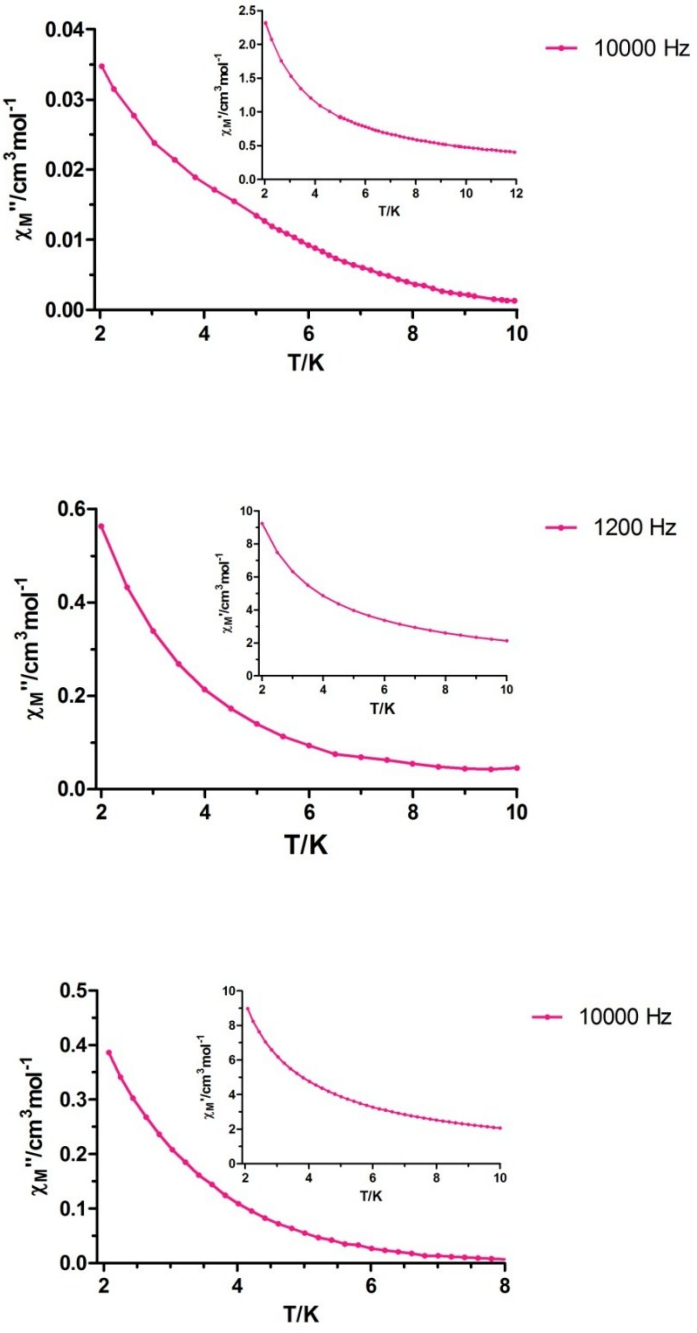

Figure S2. Temperature dependence of the in-phase χ_M' (insets) and out-of-phase χ_M''components of the ac susceptibility at different frequencies under zero external dc field for compounds **1** (top), **2** (middle) and **3** (bottom).

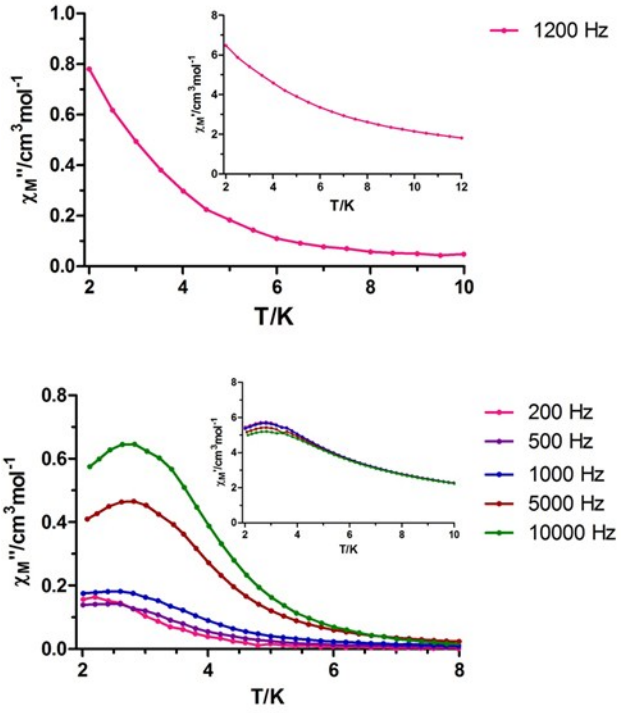

Figure S3. Temperature dependence of the in-phase χ_M' (insets) and out-of-phase χ_M'' components of the *ac* susceptibility at different frequencies under an applied external field of 1000 Oe for compounds **2** (top) and **3** (bottom).

5. PXRD

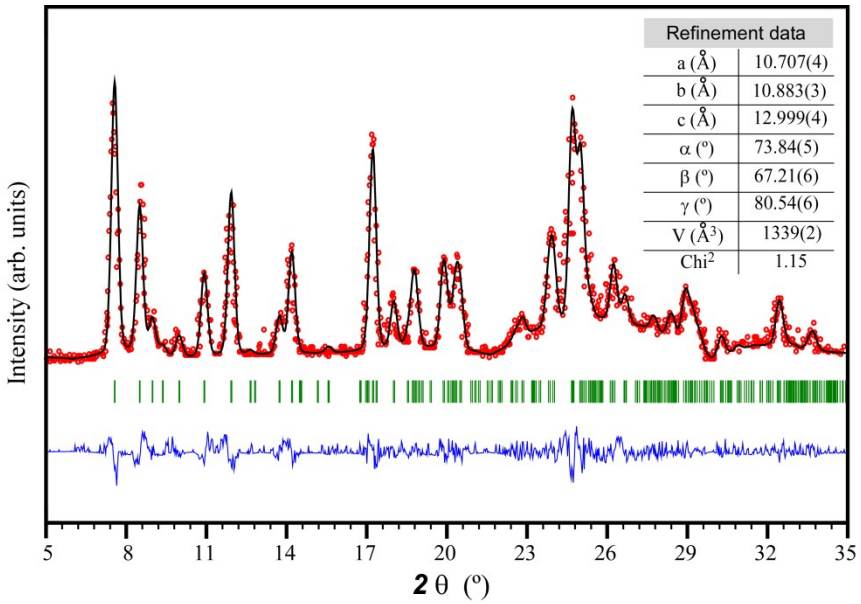

Figure S4. LeBail Refinement for compound **1**.

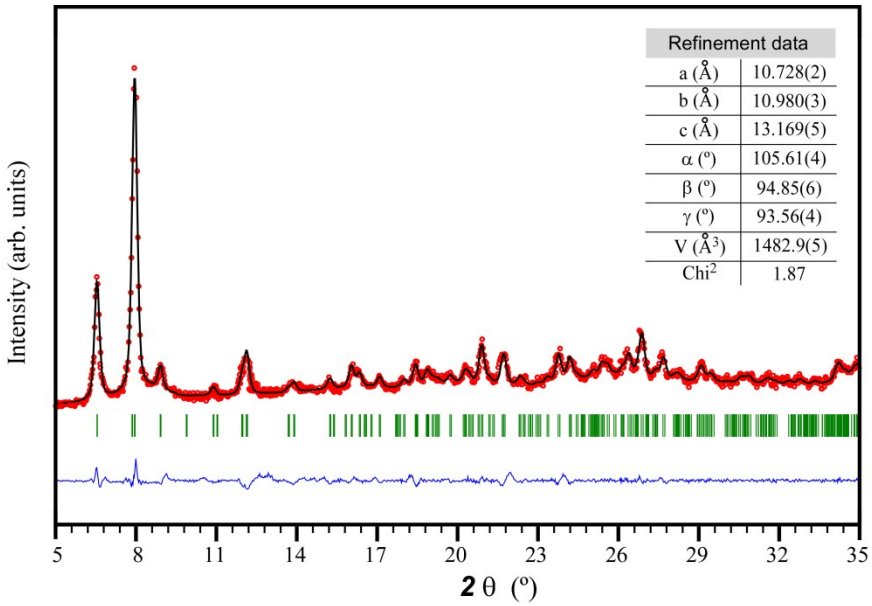

Figure S5. LeBail Refinement for compound **2**.

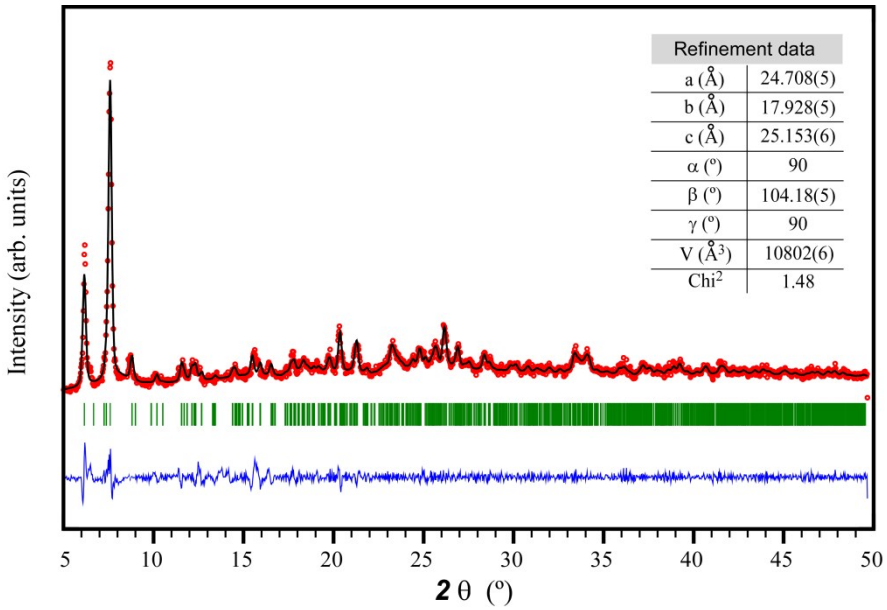

Figure S6. LeBail Refinement for compound **3**.

6. TG spectra

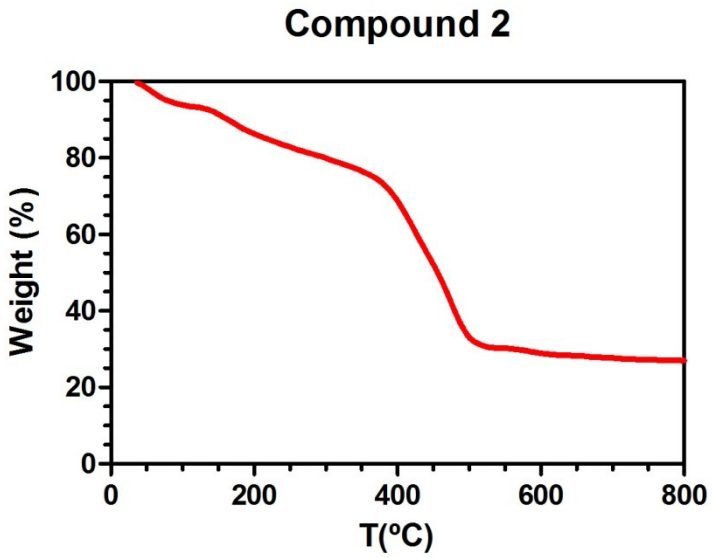

Figure S7. TG spectrum for compound **2**.

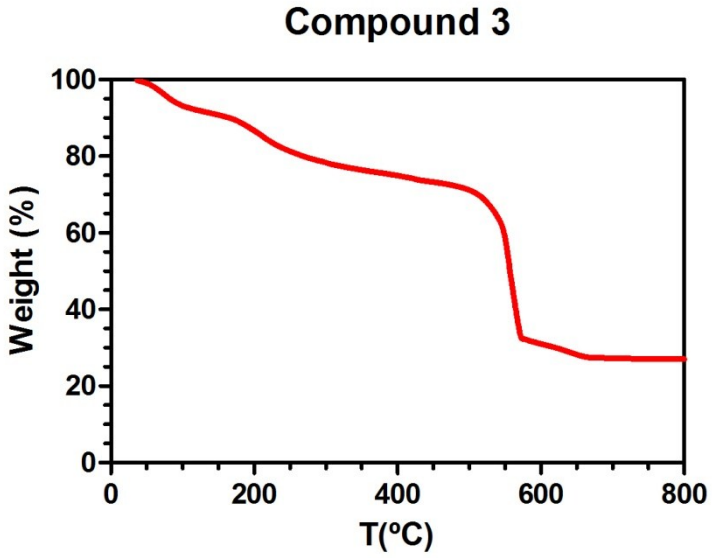

Figure S8. TG spectrum for compound **3**.