

Electronic Supplementary Information

Magnetization Dynamics of a Dy-isocarbonyl Complex

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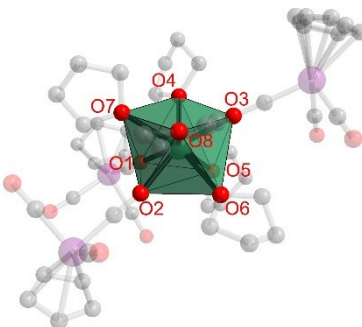
Table S1. Crystallographic Data for **1·thf**.

Compound	[{CpW(CO) ₂ (μ-CO)} ₃ Dy(thf) ₅]·thf
Formula	C ₄₈ H ₆₃ DyO ₁₅ W ₃
Crystal system	triclinic
Space group	$\bar{1}$
a, Å	11.1292(8)
b, Å	11.2334(8)
c, Å	20.7030(16)
α , °	97.367(4)
β , °	101.318(4)
γ , °	92.721(4)
Volume, Å ³	2509.9(3)
Z	2
T, K	110(2)
ρ_{calcd} (mg/m ³)	2.109
F(000)	1518
Θ_{min} , Θ_{max} , °	2.2156, 25.2033
R_1^a , wR_2^b ($I > 2\sigma(I)$)	0.0431, 0.0890
R_1^a , wR_2^b (all data)	0.0702, 0.1027

^a $R_1 = 3\|F_o| - |F_c|\|/3\|F_o\|$. ^b $wR_2 = [3[w(F_o^2 - F_c^2)^2]/3[w(F_o^2)^2]]^{1/2}$, $w = 1/\sigma^2(F_o^2) + (aP)^2 + bP$, where $P = [\max(0 \text{ or } F_o^2) + 2(F_c^2)]/3$.

Table S2. Selected geometric parameters in **1·thf**.

Dy - O1, Å	2.320(5)
Dy - O2, Å	2.267(5)
Dy - O3, Å	2.270(5)
Dy - O4, Å	2.428(5)
Dy - O5, Å	2.384(5)
Dy - O6, Å	2.462(5)
Dy - O7, Å	2.385(5)
Dy - O8, Å	2.432(5)
O1 - Dy - O2, °	71.8(2)
O2 - Dy - O6, °	72.4(2)
O6 - Dy - O5, °	72.3(2)
O5 - Dy - O1, °	73.3(2)
O3 - Dy - O4, °	72.6(2)
O4 - Dy - O7, °	73.8(2)
O7 - Dy - O8, °	73.5(2)
O8 - Dy - O3, °	75.4(2)



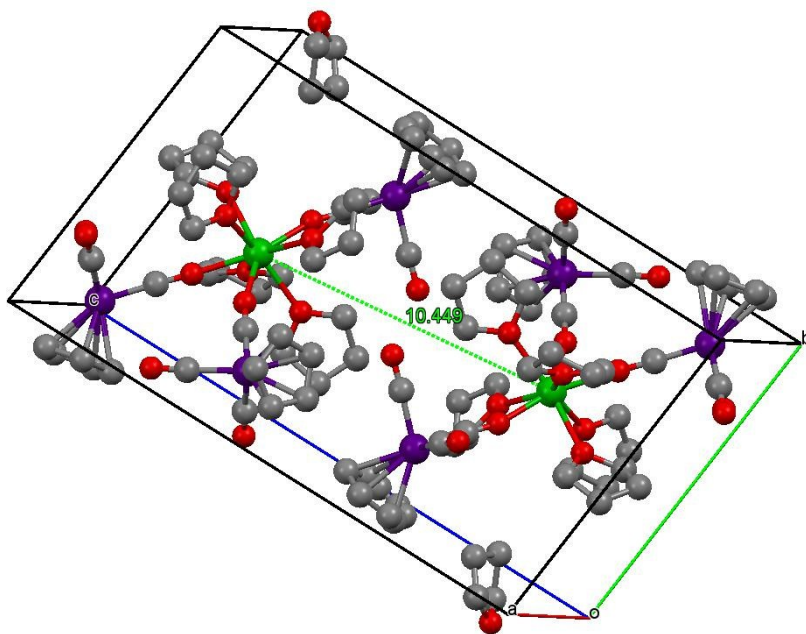


Figure S1. Unit cell packing diagram of **1·thf** depicting the closest Dy^{III}-Dy^{III} contact of 10.45 Å.

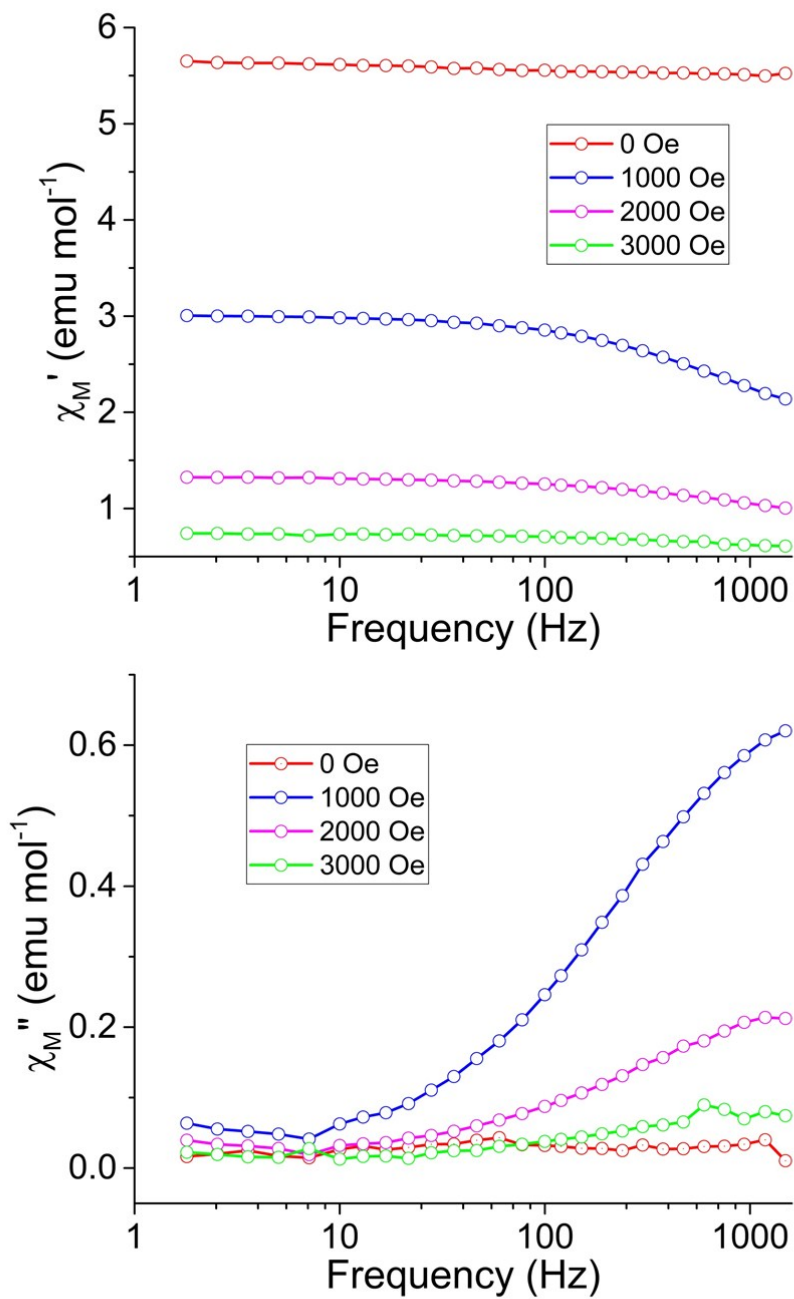


Figure S2. Frequency dependence of the in-phase (top) and out-of-phase (bottom) components of the ac magnetic susceptibility for **1·thf** under variable applied dc fields of 0 to 3000 Oe at 1.8 K and a 5 Oe switching field. Lines are a guide for the eye.

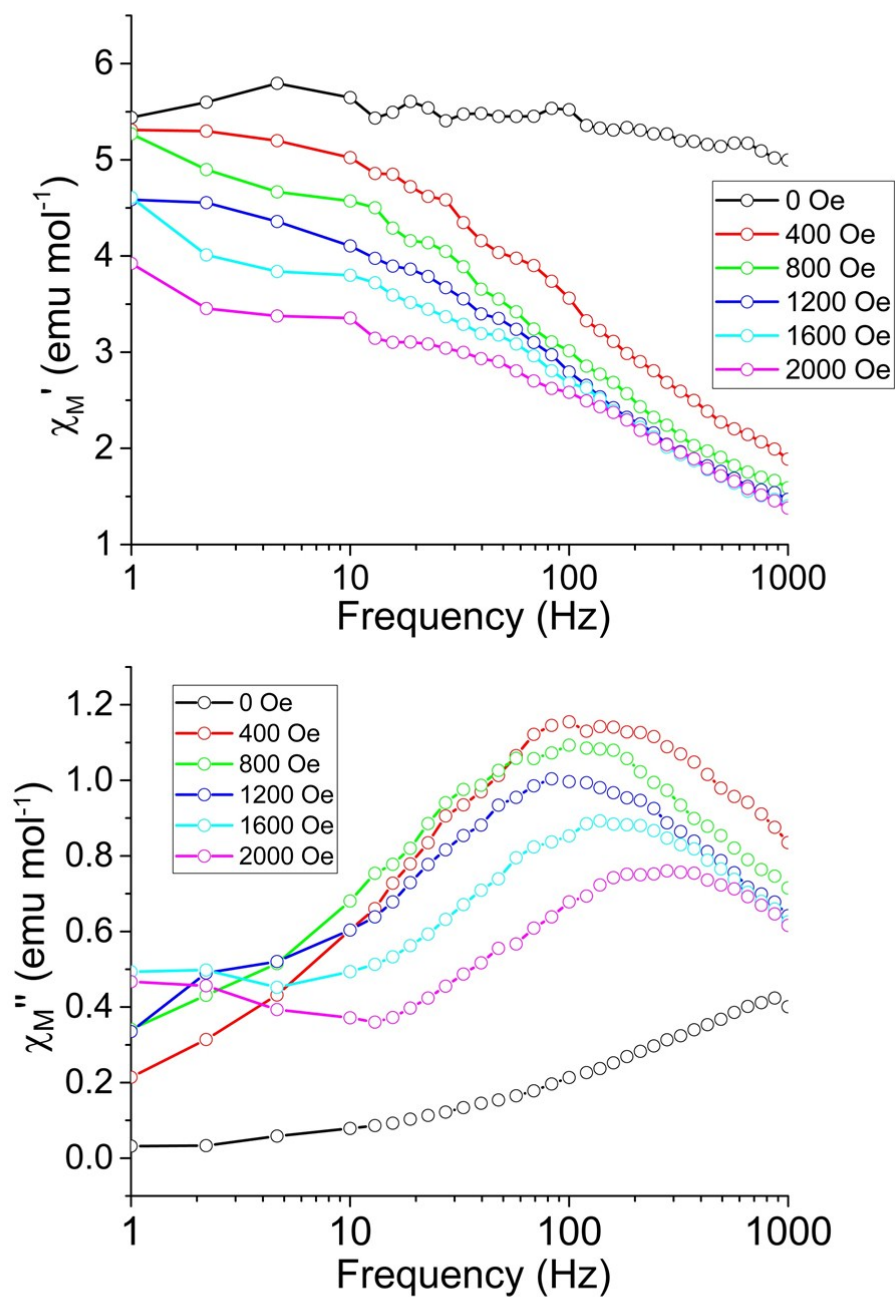


Figure S3. Frequency dependence of the in-phase (top) and out-of-phase (bottom) components of the ac magnetic susceptibility for the dilution sample (12:1 Y:Dy) of **1·thf** under variable applied dc fields of 0 to 2000 Oe at 1.8 K and a 2 Oe switching field. Lines are a guide for the eye.

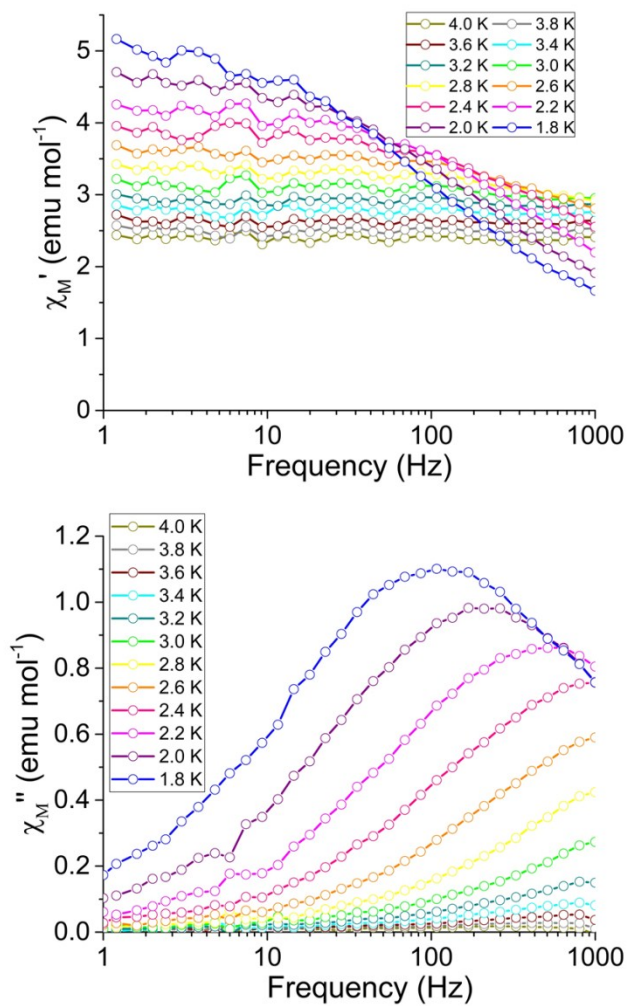


Figure S4. Frequency dependence of the in-phase (χ_M') (top) and out-of-phase (χ_M'') (bottom) ac susceptibility measurements of a 12:1 (Y:Dy) magnetic dilution of **1·thf** under a 400 Oe applied dc field and 2 Oe switching field. Lines are a guide for the eye.