Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

Syntheses, Structures and Magnetic Properties of Symmetrical Schiff-base Supported Dinuclear Ln(III) Compounds

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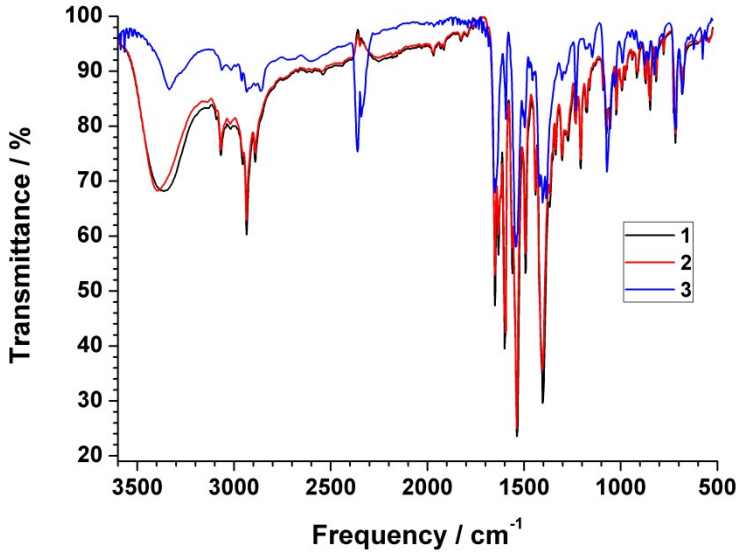

Fig. S1 IR spectra of crystalline samples of compounds 1-3.

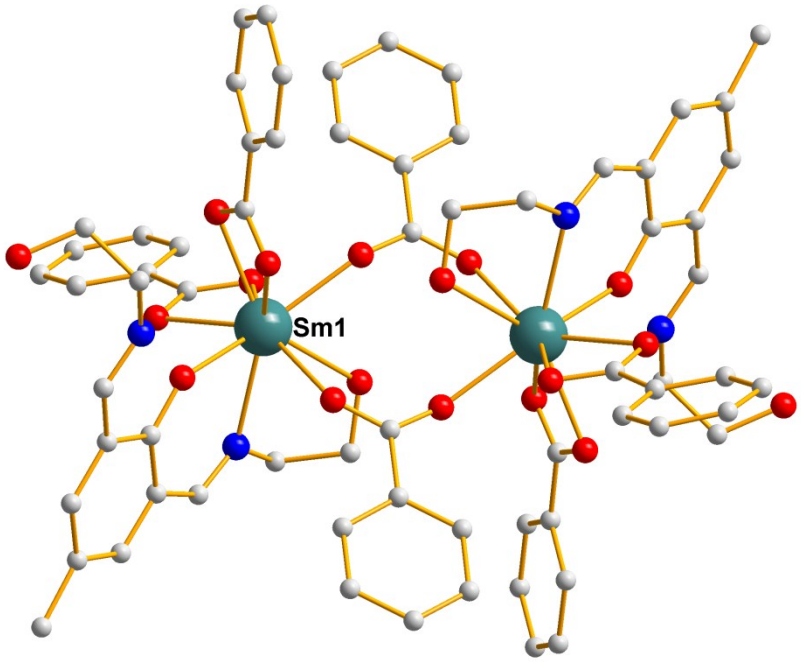

Fig. S2 Partially labeled crystal structure of the compound **1** with hydrogen atoms omitted for clarity.

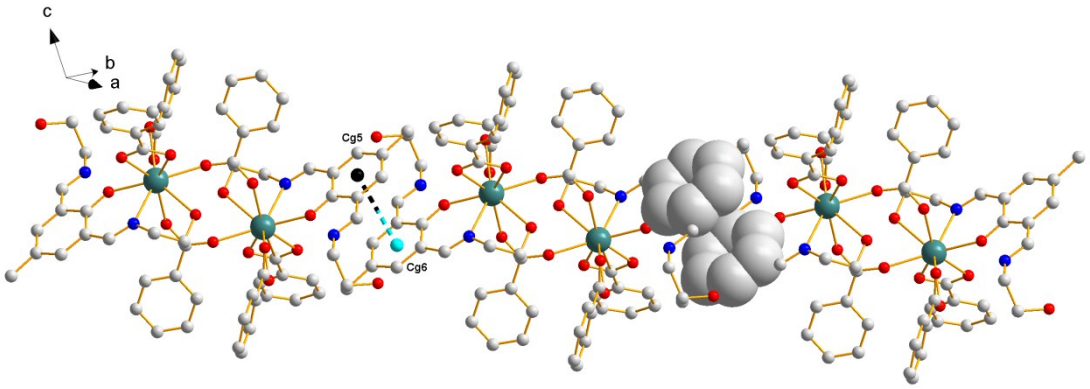

Fig. S3 Crystal packing of compound 1 showing the formation of a supramolecular chain along the crystallographic *a* axis, through π-π interactions. The distance Cg5···Cg6 is 3.6569(2) Å.

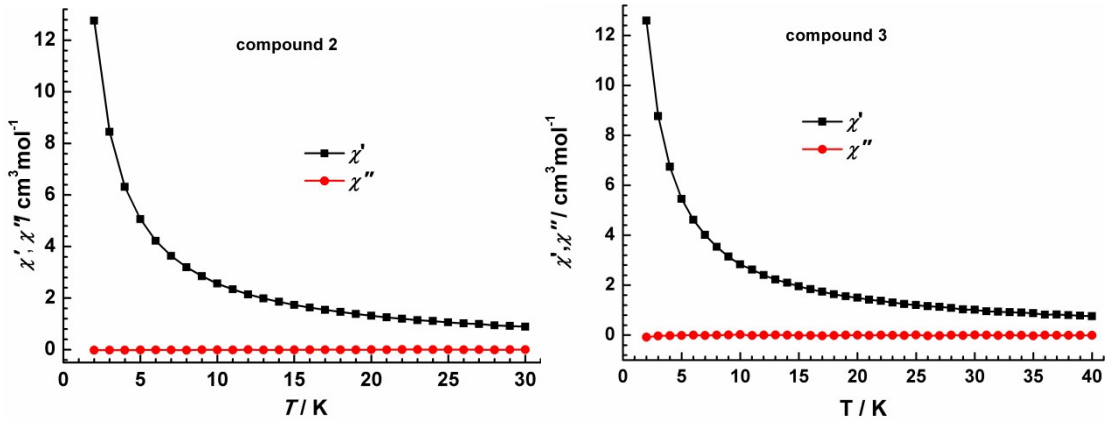

Fig. S4 Temperature dependence of the in-phase (black) and out-of-phase (red) ac susceptibility for compounds **2** (left) and **3** (right) under zero dc field at 997 Hz.

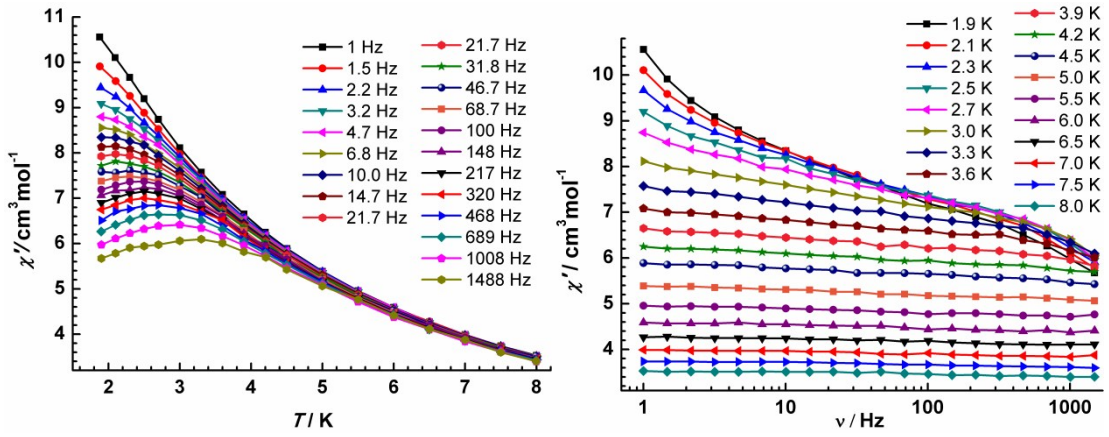

Fig. S5 Frequency dependence (left) and temperature dependence (right) of the in phase ac susceptibility of compound **3** under 1300 Oe dc field.

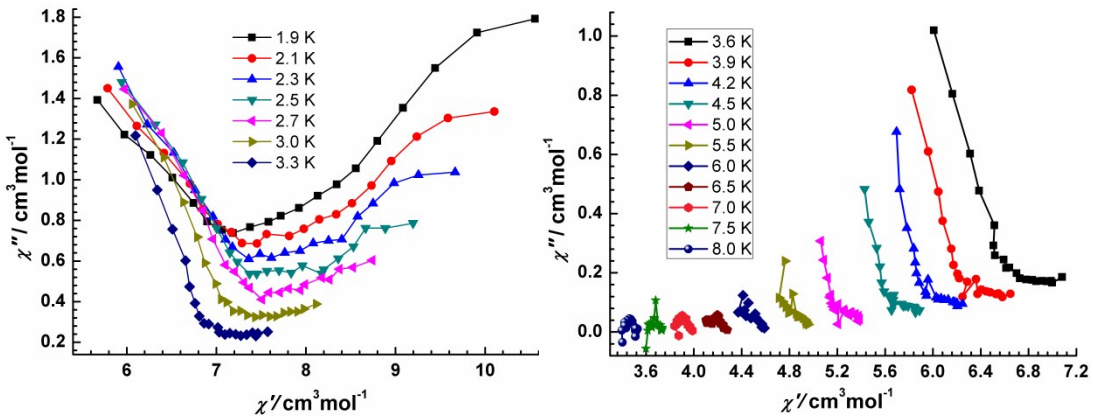

Fig. S6 Cole–Cole plots measured under 1300 Oe dc field.

Table S1. The CShM values calculated by *SHAPE* 2.1 for compounds **1-3**.

	Coordination number	capped square antiprism	tricapped trigonal prism	---
Sm1 in compound 1	9	1.689	1.673	---
Dy1 in compound 2	9	1.618	1.566	---
	Coordination number	Square antiprism	Biaugmented trigonal prism	Triangular dodecahedron
Dy1 in compound 3	8	17.744	14.654	15.450

Table S2. Examples of Dy_2 complexes with dialkoxo and dicarboxylato bridging groups exhibiting slow relaxation of the magnetization.

Dy_2 complexes with dialkoxo bridging groups				
compounds	symmetry	relaxation process	Ueff/K (H_{dc}/Oe)	Refs.
$[Dy_2ovph_2Cl_2(MeOH)_3]$	asymmetric	two thermally activated relaxation processes	150, 198	1
$[Dy_2(ovph)_2(NO_3)_2(H_2O)_2]$	symmetric	one thermally activated relaxation process QTM process	69	2
$[Dy_2(HL^1)_2(PhCOO)_2(CH_3OH)_2]$	symmetric	single thermally activated relaxation process	94	3
$[Dy_2(H_2cht)_2Cl_4(H_2O)(MeCN)]$	symmetric	one thermally activated relaxation process containing QTM process	124(2)	4
$[Dy_2(L^2)_2(NO_3)_4]$	symmetric	slow relaxation of the magnetization	72.45 (1000)	5
$[Dy_2(HL^3)_2(NO_3)_4]$	symmetric	one thermally activated relaxation process containing QTM process	41.55	5
$[Dy_2(HL)_2(PhCOO)_2(DMF)_2]$	symmetric	one thermally activated relaxation process containing QTM process	61	6
$[Dy_2(H_4L')_2(PhCOO)_4]$ (**3**)	symmetric	filed-induced slow relaxation of the magnetization	--	present work
Dy_2 complexes with dicarboxylato bridging groups (η^1:η^1-μ_2 coordination mode)				
$[Dy(3\text{-}PNO)(Bza)_3(H_2O)]$	symmetric	field-induced slow relaxation of the magnetization	--	7
$[Dy(4\text{-}PNO)(Bza)_3(H_2O)]$	symmetric	field-induced SMM	24 (1000), 27 (1500)	7
$[Dy_2(H_3L)_2(PhCOO)_6]$ (**2**)	symmetric	field-induced slow relaxation of the magnetization	--	present work

"--" indicate that energy barrier cannot be calculated from ac susceptibility.

References

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