Electronic Supplementary Information

Old Dog, New Tricks: 2,2´-Biphenol as a Bridging and Book-End Ligand in Discrete and Extended Co(II) Architectures

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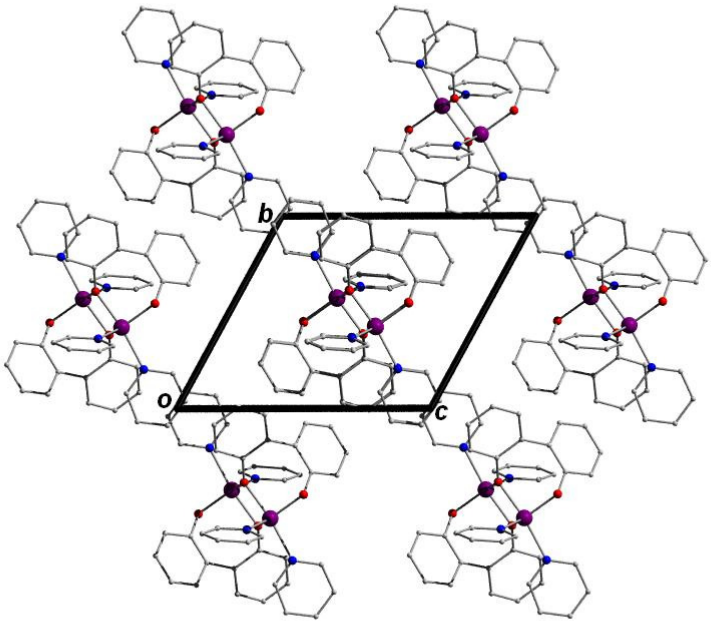

Figure S1 Packing of **1** as viewed along the *a* axis of the unit cell. Colour code: Purple (Co), Red (O), Blue (N), Grey (C). Light Grey (H). H atoms have been omitted for clarity.

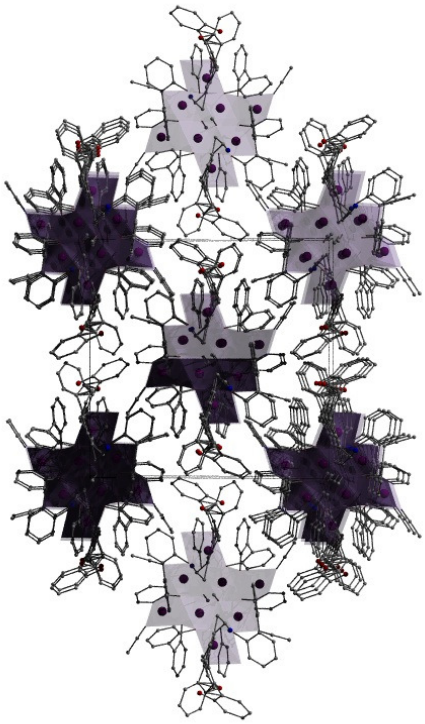

Fig. S2 Polyhedral representation highlighting the packing arrangement in **3** as viewed along the a axis of the unit cell. Colour code as used in figure S2

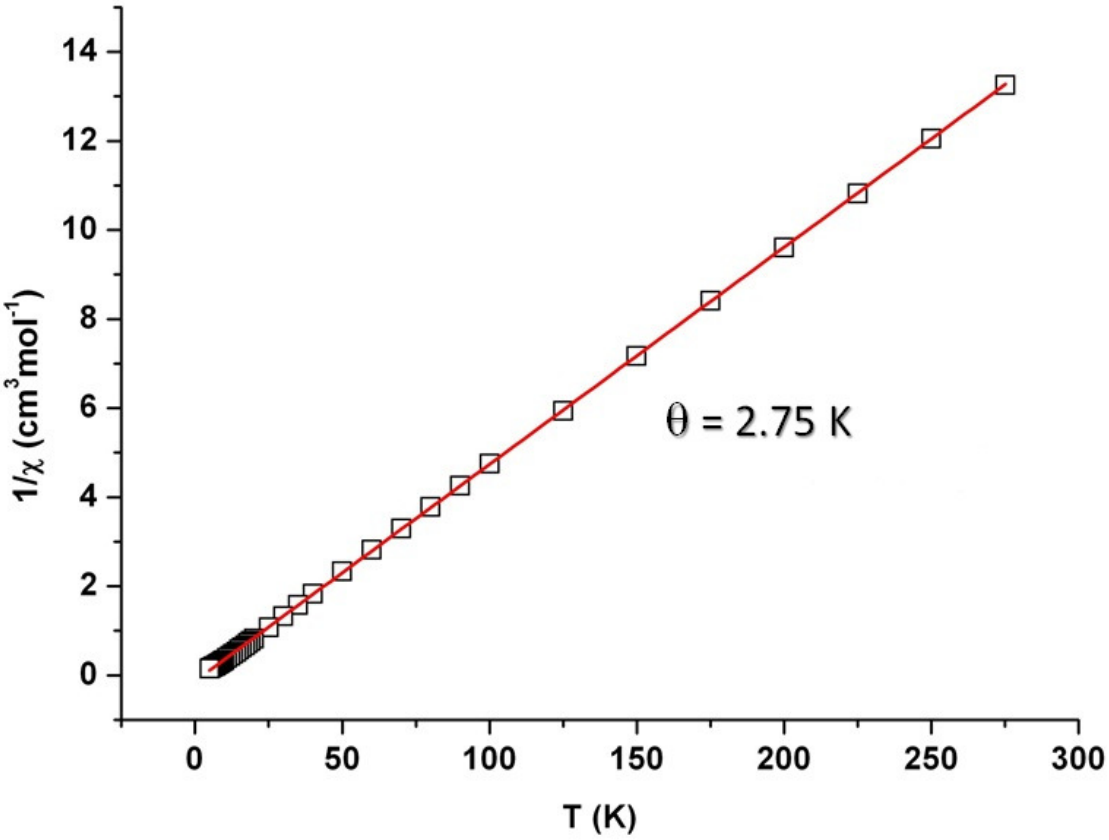

Fig. S3 Plot of 1/χ vs. T obtained from a polycrystalline sample of **3** measured in an external field of 0.1 T in the 300-5 K temperature range.

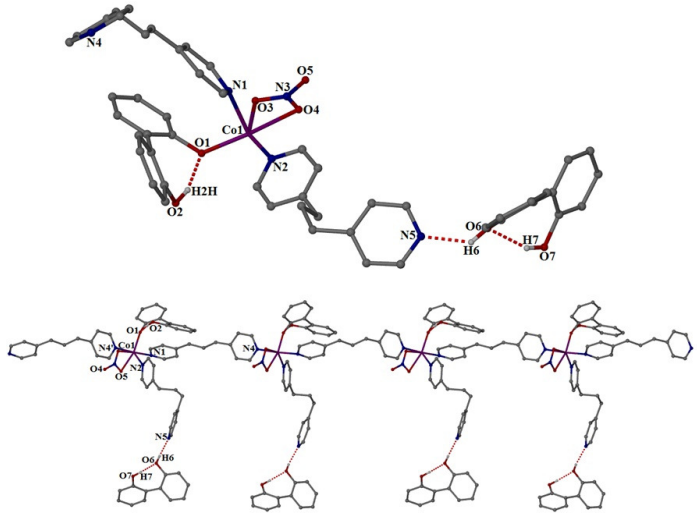

Fig. S4 (top) Asymmetric unit in **4**. (bottom) A single 1D wave-like Co(II) backbone in **4** showing the pendant arms (ribs) which H-bond to the book-end LH_2 units.

Table S1 Crystal data obtained from **5** carried out at 150K.

	5
Formula	$C_{60}H_{42}N_8O_{10}Co_2$
Formula Weight	1152.88
Crystal system	Monoclinic
Space group	$P2_1/c$
a / Å	10.1508(6)
b / Å	14.8829(7)
c / Å	18.3001(9)
α, β, γ (°)	90, 101.469(5), 90
V / Å^3	2709.5(2)
Z	2
D_c (g cm^{-3})	1.413
μ (mm^{-1})	0.680
Reflections	4954
Unique reflections	3145
GOF on F^2	1.061
R_{int}	0.0429
R1 [I>2σ(I)]	0.0695
wR2 (all data)	0.2023
Restraints, Parameters	0, 362

X-ray diffraction details on the collection of 1-5

The structures of **1**-**5** were collected on an Xcalibur S single crystal diffractometer (Oxford Diffraction) using an enhanced Mo source. Each data reduction was carried out on the CrysAlisPro software package. The structures were solved by direct methods (SHELXS-97)[1] and refined by full matrix least squares using SHELXL-97.[2] SHELX operations were automated using the OSCAIL software package.[3] All hydrogen atoms in **1**-**5** were assigned to idealised positions.

The two crystallographically related 2,2'-biphenolate (LH^-) ligands in **3** exhibited disorder and so were modelled isotropically over two sites in 50:50 occupancy. This was carried out using the CRYSTALS program at the University of Edinburgh. Rigid restraints were also imposed on the aromatic rings of these ligands.

1. G. M. Sheldrick, *Acta. Crystallogr., Sect. A: Found. Crystallogr.,* 1990, **A46**, 467.

2. G. M. Sheldrick, SHELXL-97, A computer programme for crystal structure determination, University of Gottingen, 1997.

3. P. McArdle, P. Daly and D. Cunningham, *J. Appl. Crystallogr.*, 2002, **35**, 378.