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Four coordination polymers based on dinuclear and trinuclear units with new multifunctional pyridyl-dicarboxylate ligands: luminescence and magnetic properties

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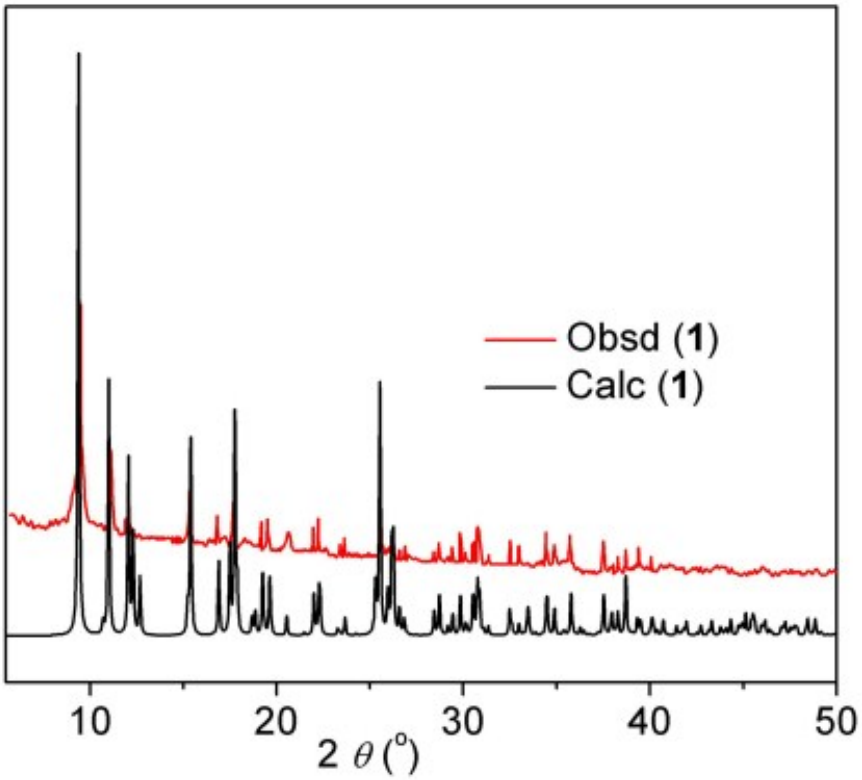

Fig. S1. PXRD patterns for **1** (simulated: black; experimental: red).

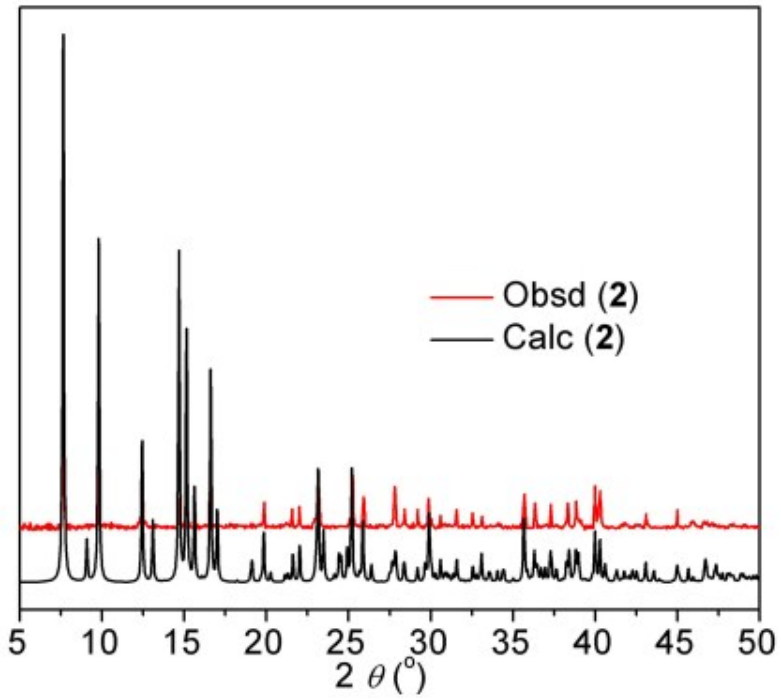

Fig. S2. PXRD patterns for **2** (simulated: black; experimental: red).

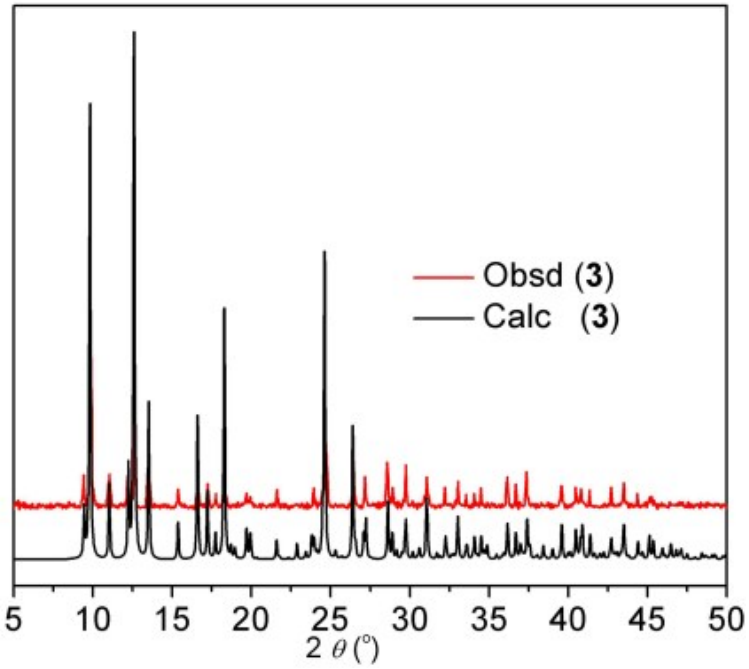

Fig. S3. PXRD patterns for **3** (simulated: black; experimental: red).

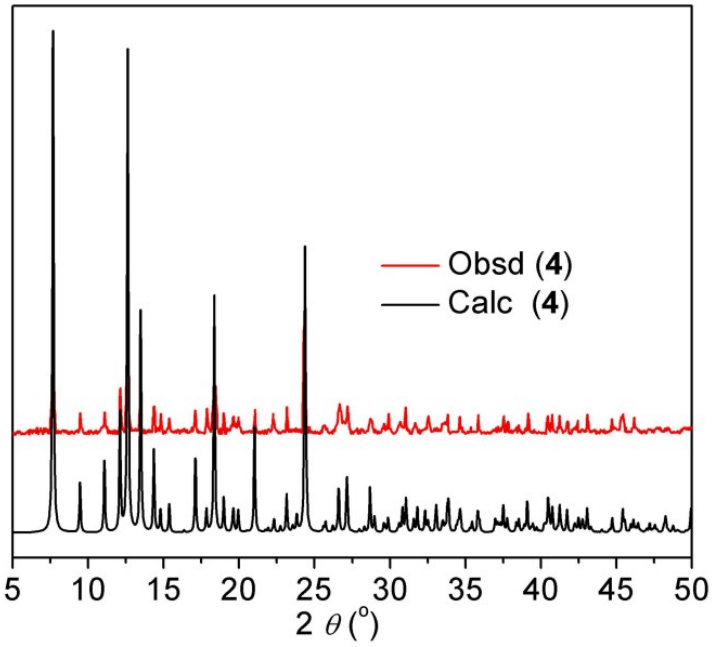

Fig. S4. PXRD patterns for **4** (simulated: black; experimental: red).

Table S1 Selected bond lengths [Å] and angles [°] for **1** - **4**.

Compound **1**			
Zn1-O5A	1.9639(16)	Zn1-O1	1.9787(16)
Zn1-N1B	2.0471(19)	Zn1-O3	2.084(2)
Zn1-O1C	2.4582(18)		
O5A-Zn1-O1	123.13(7)	O5A-Zn1-N1B	113.71(8)
O1-Zn1-N1B	118.98(7)	O5A-Zn1-O3	96.00(8)
O1-Zn1-O3	97.76(8)	N1B-Zn1-O3	96.62(9)
O5A-Zn1-O3C	86.08(7)	O1-Zn1-O1C	75.05(7)
N1B-Zn1-O1C	89.21(7)	O3-Zn1-O1C	172.38(8)
A x, y-1, z; B x-1, y-1, z-1; C -x, -y, -z.			
Compound **2**			
Mn1-O4A	2.101(2)	Mn1-O5	2.140(3)
Mn1-N1B	2.213(2)	Mn1-O2	2.230(2)
Mn1-O1	2.420(2)	Mn1-Cl1	2.5331(10)
Mn2-O3A	2.109(2)	Mn2-O1	2.200(2)
Mn2-Cl1	2.5957(8)		

O4A-Mn1-O5	89.05(11)	O4A-Mn1-N1B	109.87(9)
O5-Mn1-N1B	98.93(10)	O4A-Mn1-O2	157.88(8)
O5-Mn1-O2	86.67(10)	N1B-Mn1-O2	92.23(8)
O4A-Mn1-O1	101.73(7)	O5-Mn1-O1	84.34(9)
N1B-Mn1-O1	148.24(8)	O2-Mn1-O1	56.26(7)
O4A-Mn1-Cl1	88.61(7)	O5-Mn1-Cl1	165.65(8)
N1B-Mn1-Cl1	95.18(7)	O2-Mn1-Cl1	90.19(7)
O1-Mn1-Cl1	82.28(6)	O3C-Mn2-O3	180.00(10)
O3C-Mn2-O1D	86.68(8)	O3A-Mn2-O1	93.32(8)
O1D-Mn2-O1	180.00(10)	O3C-Mn2-Cl1	90.27(6)
O3A-Mn2-Cl1	89.73(6)	O1D-Mn2-Cl1	94.76(5)
O1-Mn2-Cl1	85.24(5)	Cl1-Mn2-Cl1D	180.0

A x-1/2, -y+3/2, -z+1; B x, -y+3/2, z-1/2; C -x+3/2, y-1/2, z; D -x+1, -y+1, -z+1.

Compound **3**			
Co1-O1	2.260(3)	Co1-O3	2.180(3)
Co1-O2	2.170(3)	Co1-N1B	2.107(4)
Co1-O8	2.062(4)	Co1-O6A	2.040(3)
Co2-O7A	1.974(3)	Co2-O2	2.105(3)
Co2-O3	2.251(3)		
O6A-Co1-O8	87.57(14)	O6A-Co1-N1B	111.90(13)
O8-Co1-N1B	89.77(15)	O6A-Co1-O2	95.47(11)
O8-Co1-O2	96.35(14)	O1B-Co1-O2	152.20(12)
O6A-Co1-O3	85.11(12)	O8-Co1-O3	170.81(14)
N1B-Co1-O3	98.11(14)	O2-Co1-O3	78.86(11)
O6A-Co1-O1	152.34(12)	O8-Co1-O1	86.01(14)
N1B-Co1-O1	94.96(12)	O2-Co1-O1	58.66(10)
O3-Co1-O1	97.94(12)	O7A-Co2-O2	88.16(11)
O7A-Co2-O7C	180.000(1)	O7C-Co2-O2	91.84(11)
O2D-Co2-O2	180.00(13)	O7A-Co2-O3D	86.69(12)

O7C-Co2-O3D	93.31(12)	O2D-Co2-O3D	78.65(11)
O2-Co2-O3D	101.35(11)	O7A-Co2-O3	93.31(12)
O7C-Co2-O3	86.69(12)	O2D-Co2-O3	101.35(11)
O2-Co2-O3	78.65(11)	O3D-Co2-O3	180.0

A x+1/2, -y+3/2, z+1/2; B x, y+1, z; C-x, y, -z-1/2; D -x+1/2, -y+3/2, -z.

Compound **4**

Ni1-O6A	2.020(2)	Ni1-O8	2.033(3)
Ni1-N1B	2.088(3)	Ni1-O3	2.095(3)
Ni1-O1	2.161(2)	Ni1-O2	2.173(2)
Ni2-O7A	1.967(2)	Ni2-O2	2.071(2)
Ni2-O3	2.149(2)		
O6A-Ni1-O8	87.80(11)	O6A-Ni1-N1B	105.58(10)
O8-Ni1-N1B	89.90(12)	O6A-Ni1-O3	85.77(10)
O8-Ni1-O3	169.51(10)	N1B-Ni1-O3	99.81(11)
O6A-Ni1-O1	157.07(9)	O8-Ni1-O1	87.66(10)
N1B-Ni1-O1	96.87(10)	O3-Ni1-O1	95.06(9)
O6A-Ni1-O2	97.47(9)	O8-Ni1-O2	93.13(11)
O1B-Ni1-O2	156.84(10)	O3-Ni1-O2	79.52(9)
O1-Ni1-O2	60.38(8)	O7A-Ni2-O7C	180.000(1)
O7C-Ni2-O2	91.62(9)	O7A-Ni2-O2	88.38(9)
O2-Ni2-O2D	180.00(12)	O7C-Ni2-O3	87.13(9)
O7A-Ni2-O3	92.87(9)	O3-Ni2-O2	80.61(9)
O2D-Ni2-O3	99.39(9)	O3-Ni2-O3D	180.00(4)
O1-Ni2-O2		O1-Ni2-O2	

A x, -y, z+1/2; B x, y+1, z; C -x+2, y, -z+1/2; D -x+2, -y, -z+1.

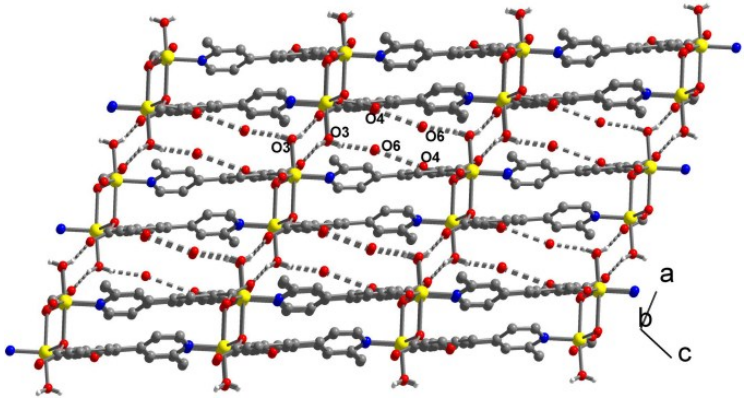

Fig. S5 The 3D structure assembled through hydrogen bonding interactions in **1**.

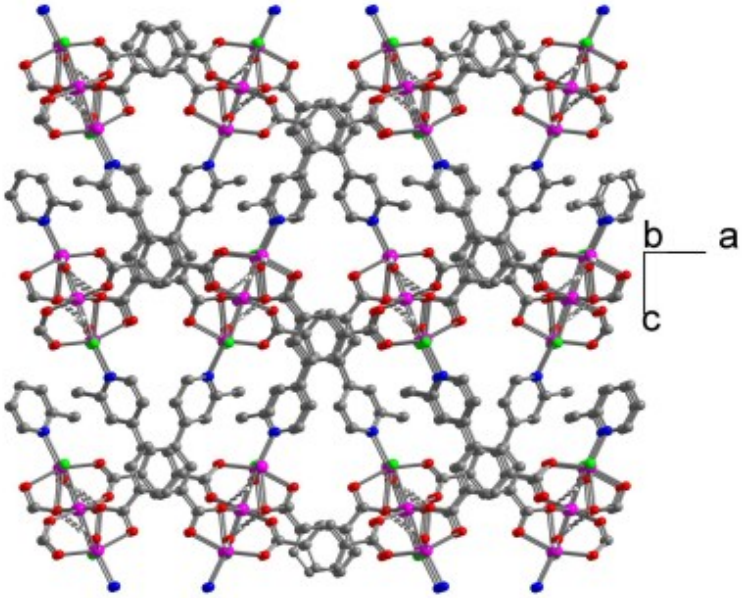

Fig. S6 Views of the 3D structure of **2**.

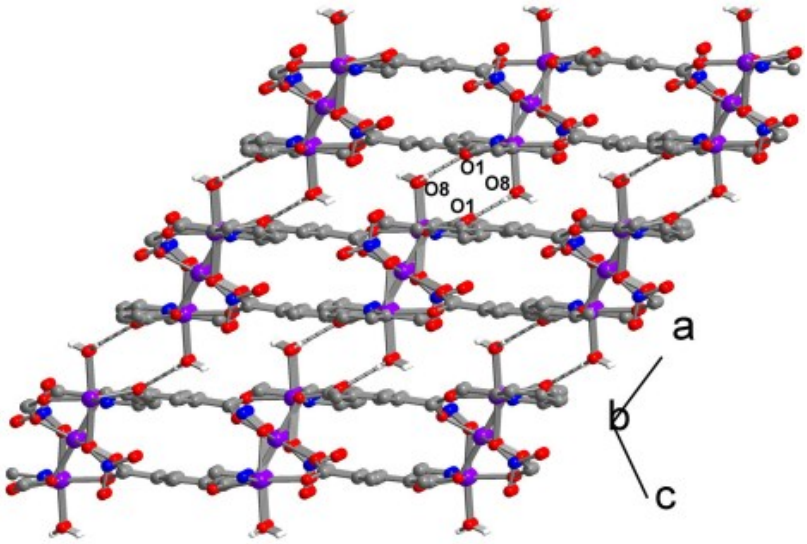

Fig. S7 The 3D packing of the layers in **3**.

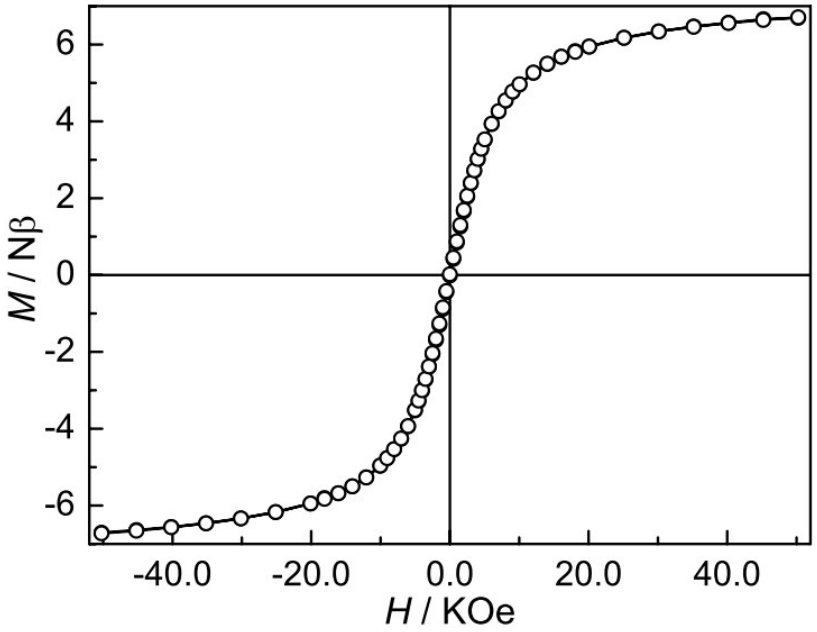

Fig. S8 Isothermal magnetization of **3** at 2 K.

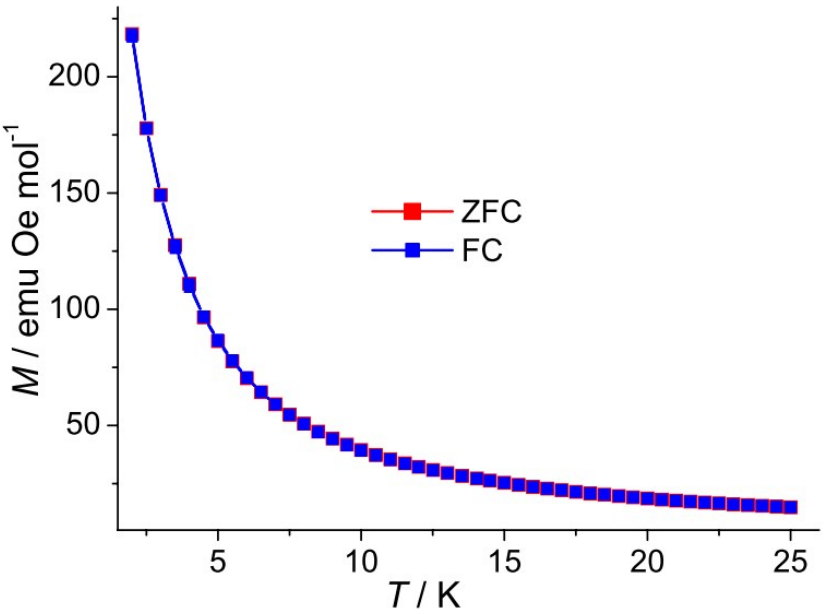

Fig. S9 The FC/ZFC curves at low temperature for 3.

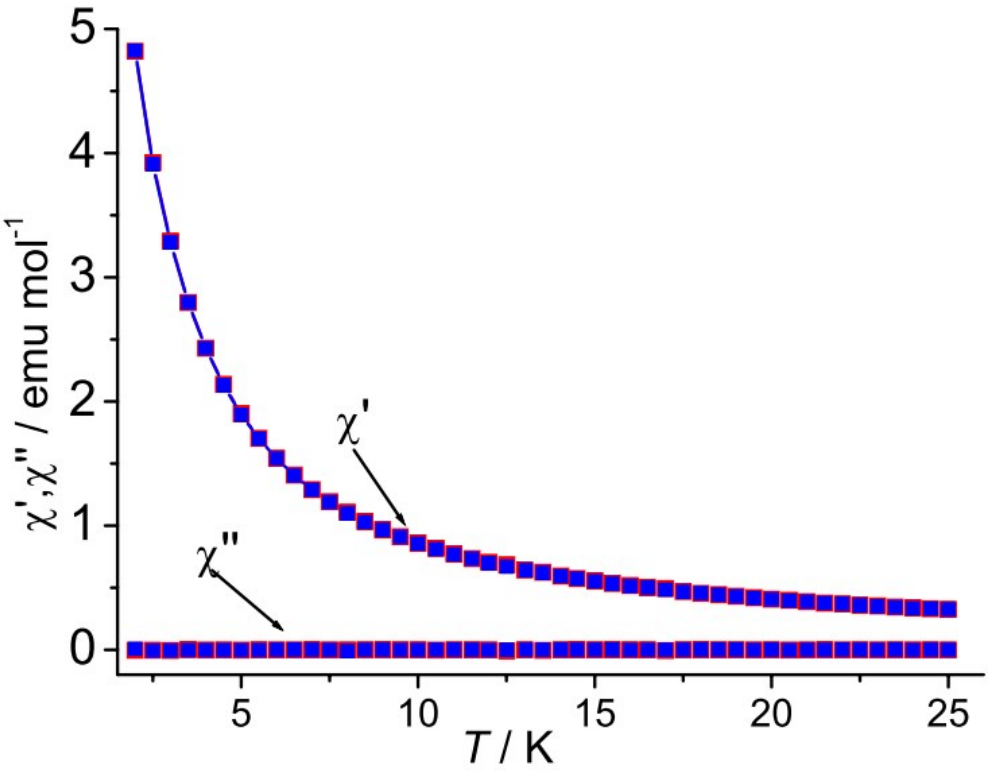

Fig. S10 χ'(T) and χ''(T) plots for **3** at frequencies of 10, 100 Hz with H*dc* = 0 and H*ac* = 3 Oe.