

Supporting Information

Solvothermal synthesis, structures and physical properties of four new complexes constructed from multivariant tricarboxylate ligand and pyridyl-based ligands

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Table S1 Selected Bond Lengths (Å) and Angles (deg) for Complexs 1-4

Complex 1			
Cd1-O1	2.252(5)	Cd1-O2	2.564(4)
Cd1-O8	2.267(5)	Cd1-O3a	2.572(4)
Cd1-O7	2.295(4)	Cd2-O5	2.219(5)
Cd1-O4a	2.292(5)	Cd2-O10	2.309(5)
Cd1-O9	2.314(5)	Cd2-O11	2.246(6)
O1-Cd1-O8	138.92(17)	O9-Cd1-O2	97.11(16)
O1-Cd1-O7	88.54(17)	O1-Cd1-O3a	136.16(15)
O8-Cd1-O7	95.38(19)	O8-Cd1-O3a	84.79(15)
O1-Cd1-O4a	84.03(16)	O7-Cd1-O3a	82.75(16)
O8-Cd1-O4a	136.77(18)	O4a-Cd1-O3a	53.10(15)
O7-Cd1-O4a	89.12(18)	O9-Cd1-O3a	90.46(16)
O1-Cd1-O9	96.87(17)	O2-Cd1-O3a	167.20(14)
O8-Cd1-O9	83.30(19)	O5b-Cd2-O5	171.4(3)
O7-Cd1-O9	173.17(18)	O5-Cd2-O11	85.69(13)
O4a-Cd1-O9	87.31(17)	O5b-Cd2-O10	107.25(18)
O1-Cd1-O2	53.24(14)	O5-Cd2-O10	78.81(18)
O8-Cd1-O2	85.86(16)	O11-Cd2-O10	133.00(15)
O7-Cd1-O2	89.45(17)	O10-Cd2-O10b	94.0(3)
O4a-Cd1-O2	137.27(16)		
Complex 2			
Cd1-O1	2.321(3)	Cd1-O7	2.366(4)
Cd1-O2	2.413(3)	Cd1-O8	2.333(4)
Cd1-O5a	2.228(3)	Cd1-N1	2.214(4)
N1-Cd1-O5a	134.03(14)	O1-Cd1-O7	86.51(14)

N1-Cd1-O1	143.40(14)	O8-Cd1-O7	176.39(12)
O5a-Cd1-O1	81.97(12)	N1-Cd1-O2	89.97(13)
N1-Cd1-O8	89.46(14)	O5a-Cd1-O2	135.48(11)
O5a-Cd1-O8	91.85(12)	O1-Cd1-O2	53.60(11)
O1-Cd1-O8	96.71(15)	O8-Cd1-O2	95.55(12)
N1-Cd1-O7	86.97(14)	O7-Cd1-O2	85.02(11)
O5a-Cd1-O7	90.22(12)		
Complex 3			
Mn1-O5a	2.118(3)	Mn1-N1	2.221(3)
Mn1-O3	2.149(3)	Mn1-O5b	2.314(4)
Mn1-O7	2.196(3)	Mn1-O4	2.369(3)
O5a-Mn1-O3	144.66(11)	O7-Mn1-O5b	175.10(12)
O5a-Mn1-O7	98.87(12)	N1-Mn1-O5b	88.85(13)
O3-Mn1-O7	93.97(12)	O5a-Mn1-O4	87.95(11)
O5a-Mn1-N1	120.58(13)	O3-Mn1-O4	57.91(10)
O3-Mn1-N1	92.34(12)	O7-Mn1-O4	96.03(12)
O7-Mn1-N1	88.69(13)	N1-Mn1-O4	150.08(12)
O5a-Mn1-O5b	78.77(12)	O5b-Mn1-O4	88.21(12)
O3-Mn1-O5b	90.37(12)		
Complex 4			
Co1-O3	2.012(3)	Co1-O7	2.097(4)
Co1-O5a	2.027(3)	Co1-O5b	2.298(3)
Co1-N1	2.114(4)		
O3-Co1-O5a	139.33(13)	N1-Co1-O5b	90.95(14)
O5a-Co1-N1	121.38(15)	O3-Co1-O5b	87.80(13)
O3-Co1-N1	96.25(15)	O5a-Co1-O5b	77.53(14)
O3-Co1-O7	94.68(13)	N1-Co1-O7	90.89(15)

O5a-Co1-O7

99.20(14)

O7-Co1-O5b

176.73(13)

Symmetry codes: for **1**: (a) $x+1/2, y-1/2, z$; (b) $-x, y, -z$; for **2**: (a) $x, y+1, z$; for **3**: (a) $x, y+1, z$; (b) $-x+1, -y+1, -z+1$; for **4**: (a) $x, y+1, z$; (b) $-x+1, -y+1, -z+1$.

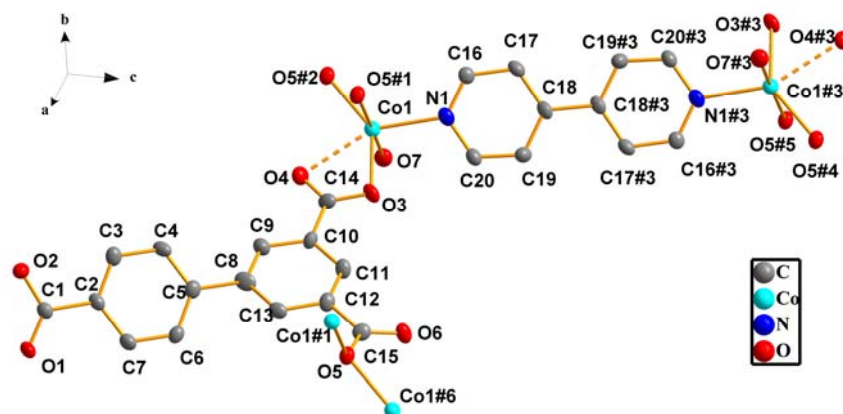


Fig. S1 Coordination environment of the Co(II) ion in **4** with 30% ellipsoid probability. The hydrogen atoms are omitted for clarity. Symmetry codes: #1 = $1-x, 1-y, 1-z$; #2 = $x, 1+y, z$; #3 = $1-x, 2-y, 2-z$; #4 = $1-x, 1-y, 2-z$; #5 = $x, 1+y, 1+z$; #6 = $x, -1+y, z$. Dashed lines mean weak interactions.

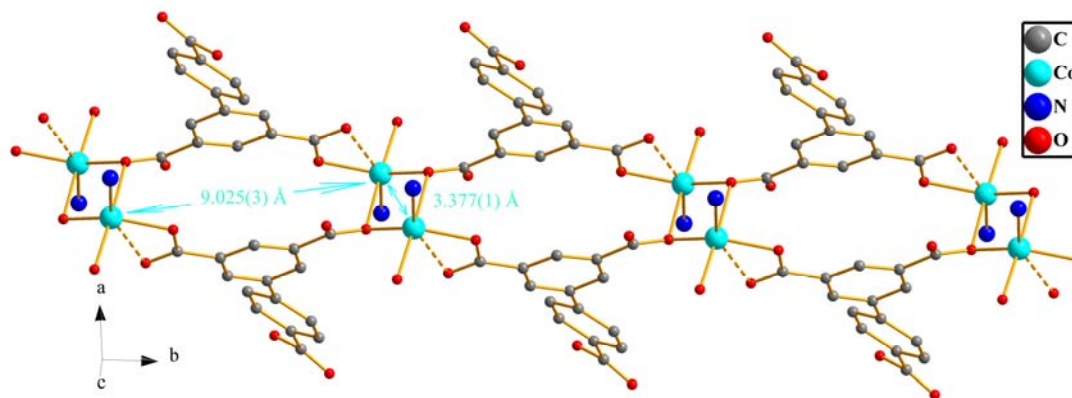


Fig. S2 View of a 1D ribbonlike chain of Co atoms in **4** bridged by HL^{2-} ligands. The hydrogen atoms and bipy ligands are omitted for clarity. Dashed lines mean weak interactions.

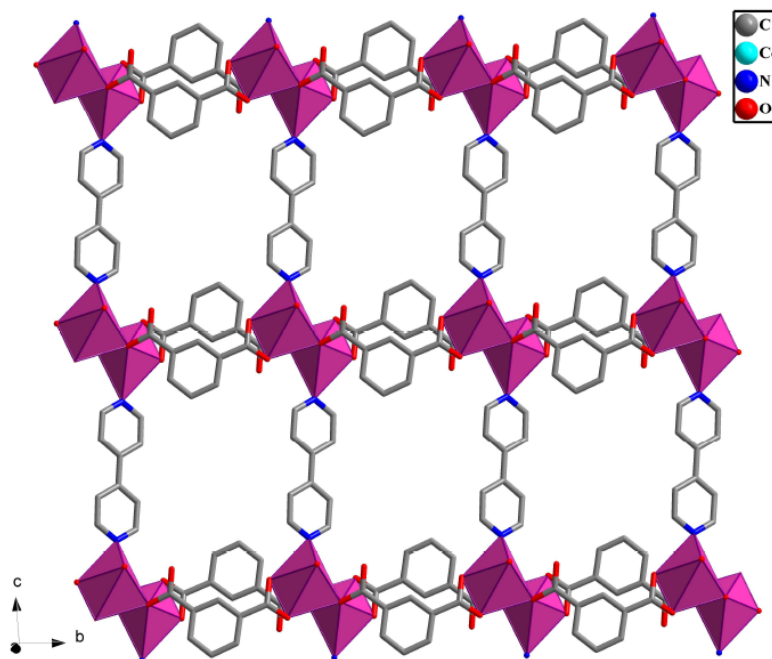


Fig. S3 The 2D layer formed with ribbonlike chains pillared by rigid bipy ligands of **4**. The hydrogen atoms and benzyloxy groups are omitted for clarity.

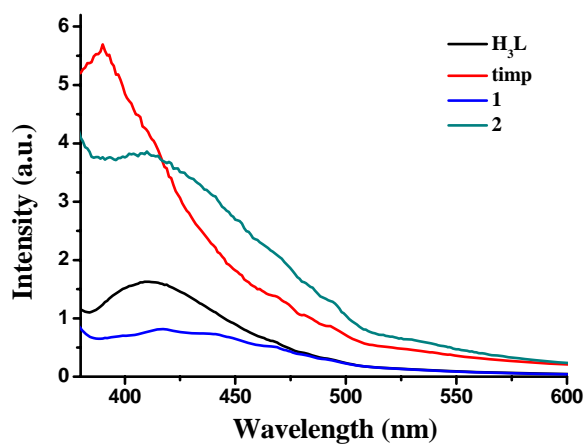


Fig. S4 Solid-state photoluminescent spectra of **1**, **2**, H₃L ligand and timp ligand at room temperature.

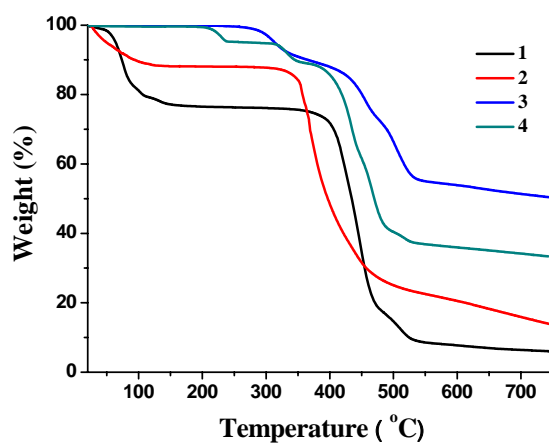


Fig. S5 The TGA diagrams of complexes **1-4**

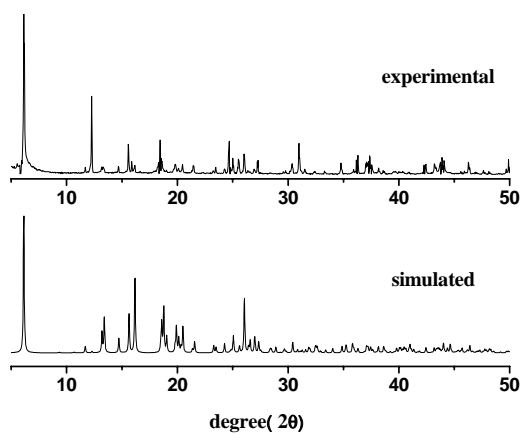


Fig. S6 Powder X-ray diffraction patterns of complex **1**

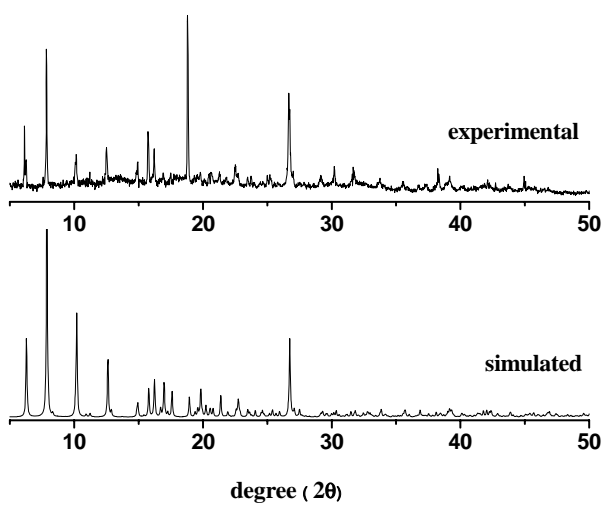


Fig. S7 Powder X-ray diffraction patterns of complex **2**

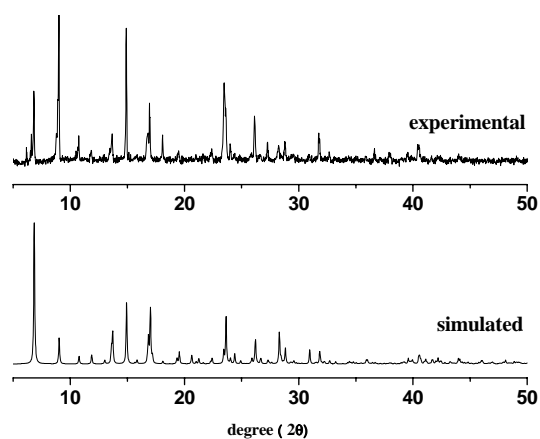


Fig. S8 Powder X-ray diffraction patterns of complex 3

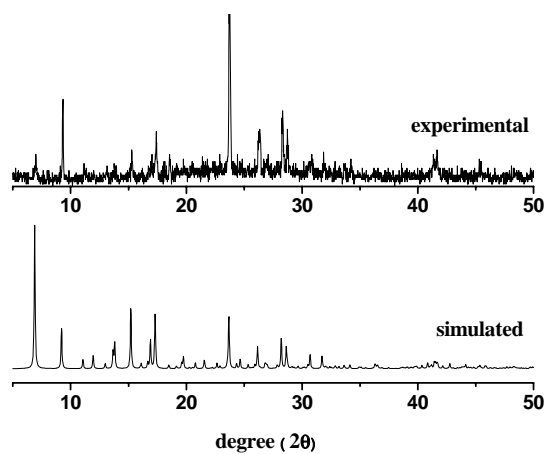


Fig. S9 Powder X-ray diffraction patterns of complex 4