Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supplementary Information

Cyanide-bridged Heterobimetallic Magnetic Complexes Based on Metalloporphyrinate and Tricyanometalate Building Blocks

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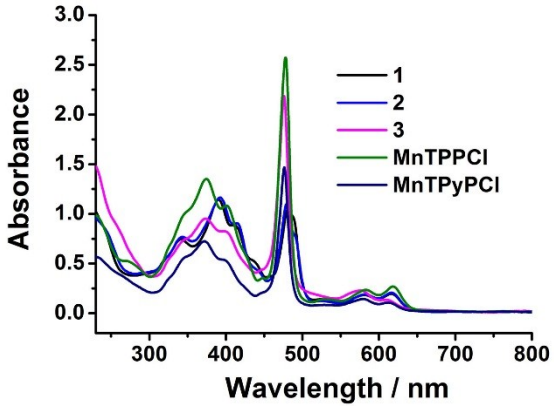

Fig. S1 UV-Vis absorption spectra for all compounds in CH_2Cl_2 (5×10^{-5} M).

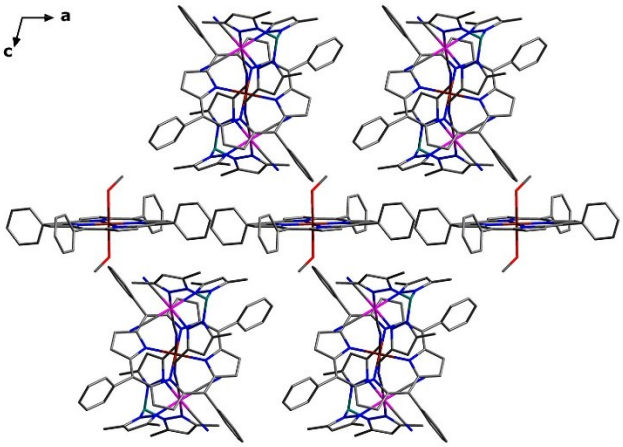

Fig. S2 Crystal packing of complex **1** with hydrogen atoms omitted for clarity.

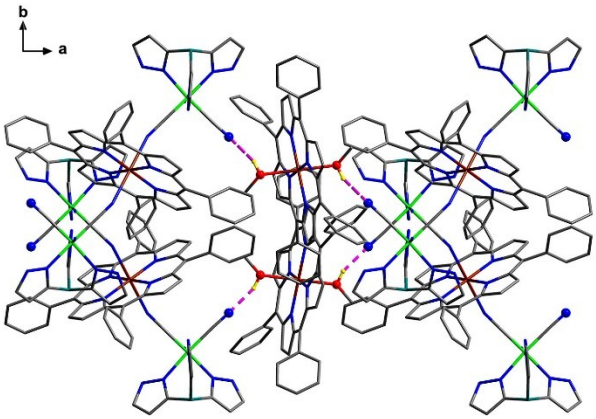

Fig. S3 Crystal packing of complex **2** with hydrogen atoms omitted for clarity. The dotted purple lines represent the hydrogen-bonds.

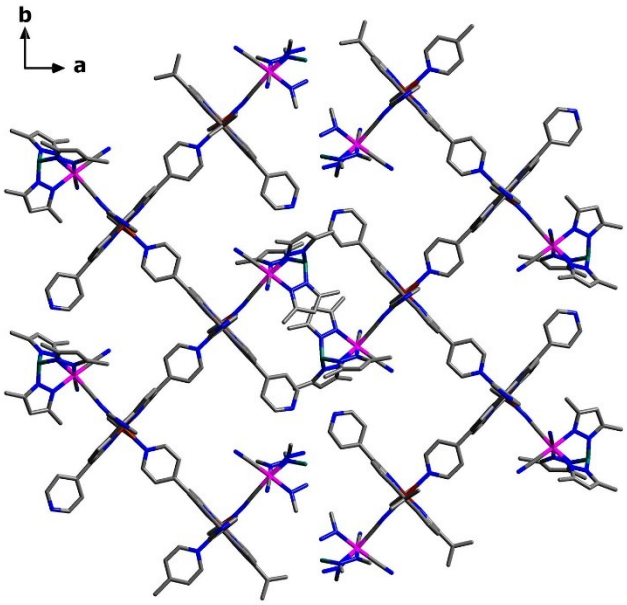

Fig. S4 Crystal packing of complex **3** with hydrogen atoms omitted for clarity.

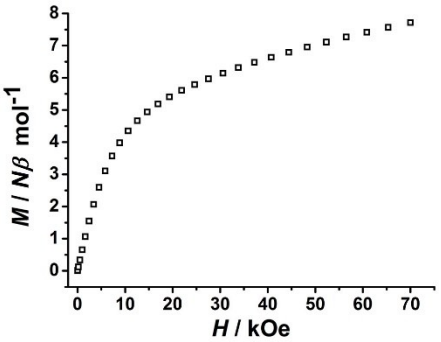

Fig. S5 Field-dependent magnetization for **1** at 1.8 K.

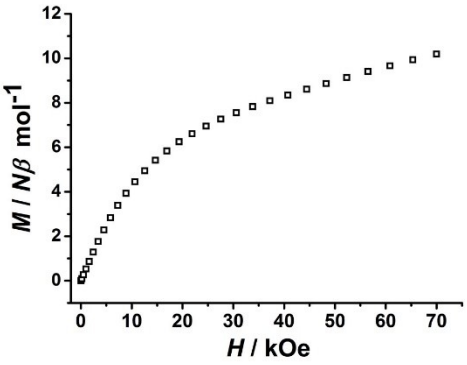

Fig. S6 Field-dependent magnetization for **2** at 1.8 K.

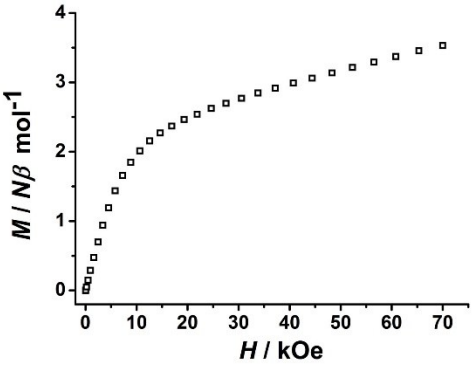

Fig. S7 Field-dependent magnetization for **3** at 1.8 K.

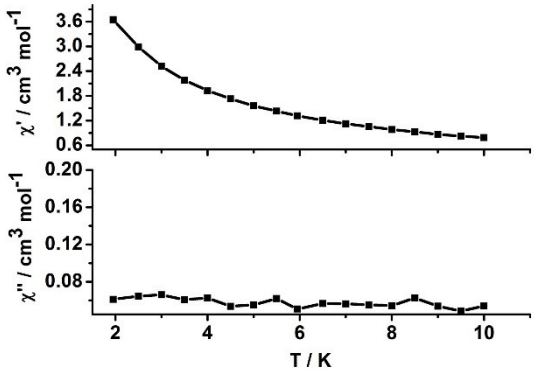

Fig. S8 Temperature-dependent in-phase (χ') and out-of-phase (χ'') ac susceptibilities for complex **1** under zero static field in the frequency of 997 Hz. The solid lines are guides only.

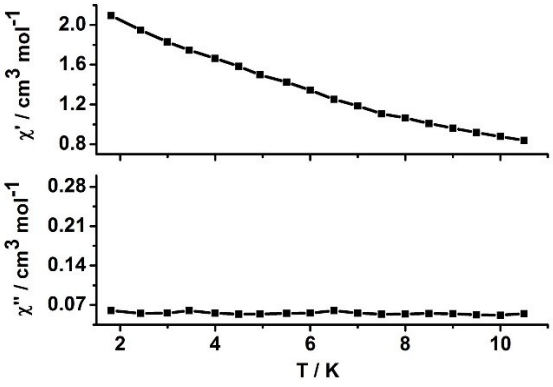

Fig. S9 Temperature-dependent in-phase (χ') and out-of-phase (χ'') ac susceptibilities for complex **2** under zero static field in the frequency of 997 Hz. The solid lines are guides only.

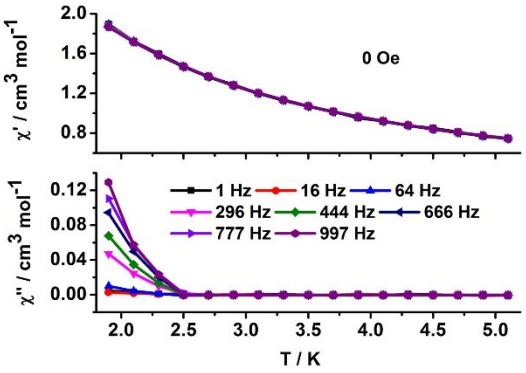

Fig. S10 Temperature-dependent in-phase (χ') and out-of-phase (χ'') ac susceptibilities for complex **3** under zero static field at 1−997 Hz. The solid lines are guides only.

Table S1. Selected bond lengths (Å) and angles (°) for complex **1**.

Fe(1)-N(4)	2.009(3)	Mn(2)-N(13)	2.008(3)
Fe(1)-N(6)	1.997(3)	N(10)-C(39)-Fe(1)	174.9(3)
Fe(1)-N(8)	2.003(3)	C(39)-N(10)-Mn(1)	168.8(3)
Fe(1)-C(39)	1.912(3)	N(1)-Mn(1)-N(2)	89.84(10)
C(39)-N(10)	1.148(4)	N(1)-Mn(1)-N(10)	88.00(10)
Mn(1)-N(1)	2.017(2)	N(2)-Mn(1)-N(10)	86.27(10)
Mn(1)-N(2)	2.016(2)	N(12)-Mn(2)-O(1)	87.78(10)
Mn(1)-N(10)	2.219(3)	N(13)-Mn(2)-O(1)	88.57(10)
Mn(2)-O(1)	2.220(2)	N(12)-Mn(2)-N(13)	89.62(10)
Mn(2)-N(12)	2.019(3)		

Table S2. Selected bond lengths (Å) and angles (°) for complex **2**.

Cr(1)-N(1)	2.043(3)	Mn(2)-N(13)	2.013(3)
Cr(1)-N(3)	2.056(3)	N(7)-C(54)-Cr(1)	174.0(3)
Cr(1)-N(6)	2.056(3)	C(54)-N(7)-Mn(1)	160.5(3)
C(54)-N(7)	1.151(5)	N(10)-Mn(1)-N(11)	89.63(10)
Cr(1)-C(54)	2.066(4)	N(7)-Mn(1)-N(10)	89.93(11)
Mn(1)-N(7)	2.315(3)	N(7)-Mn(1)-N(11)	87.28(11)
Mn(1)-N(10)	2.018(3)	N(12)-Mn(2)-O(1)	87.44(10)
Mn(1)-N(11)	2.005(3)	N(13)-Mn(2)-O(1)	87.53(10)
Mn(2)-O(1)	2.241(2)	N(12)-Mn(2)-N(13)	89.64(11)
Mn(2)-N(12)	2.002(3)		

Table S3. Selected bond lengths (Å) and angles (°) for complex **3**.

Fe(1)-N(10)	1.984(7)	N(17)-C(58)-Fe(1)	176.4(8)
Fe(1)-N(12)	1.980(7)	C(58)-N(17)-Mn(1)	164.4(7)
Fe(1)-N(14)	2.000(7)	N(5)-Mn(1)-N(6)	90.1(2)
Fe(1)-C(58)	1.907(8)	N(6)-Mn(1)-N(7)	89.6(2)
C(58)-N(17)	1.156(9)	N(7)-Mn(1)-N(8)	90.6(2)
Mn(1)-N(5)	2.003(6)	N(5)-Mn(1)-N(8)	89.7(2)
Mn(1)-N(6)	2.019(6)	N(17)-Mn(1)-N(5)	94.2(2)
Mn(1)-N(7)	2.005(6)	N(17)-Mn(1)-N(7)	87.0(2)
Mn(1)-N(8)	2.014(6)	N(3)#1-Mn(1)-N(5)	89.6(2)
Mn(1)-N(17)	2.212(6)	N(3)#1-Mn(1)-N(7)	89.2(2)
Mn(1)-N(3)#1	2.373(6)	N(17)-Mn(1)-N(3)#1	175.2(2)

Symmetry code for **3**: #1 -x, y+1/2, -z+1/2.