

Supporting Information

Magnetic Systems with Mixed Carboxylate and Azide Bridges: Slow Relaxation in Co(II) Metamagnet and Spin Frustration in Mn(II) Compound

*Yan-Qin Wang, Xiu-Mei Zhang, Xiu-Bing Li, Bing-Wu Wang and En-Qing Gao**

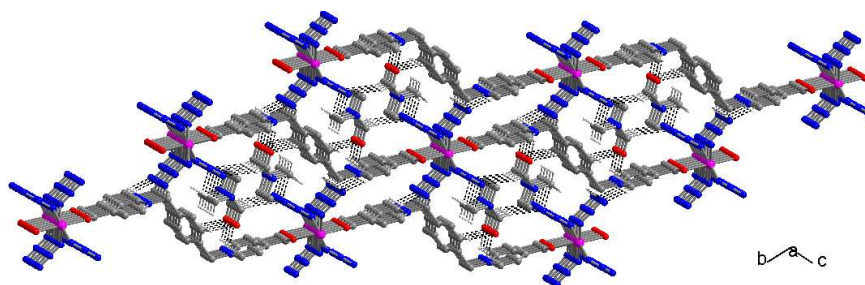


Figure S1. 3D packing of the layers through hydrogen bonding interactions in **1**. The relevant parameters are $N4\cdots H5A = 2.366(3) \text{ \AA}$, $C5-H5A\cdots N4 = 157.46(15)^\circ$; $N4\cdots H7A = 2.517(3) \text{ \AA}$, $C7-H7A\cdots N4 = 42.27(13)^\circ$; $N4\cdots H7B = 2.497(3) \text{ \AA}$, $C7-H7B\cdots N4 = 146.45(14)^\circ$; $N7\cdots H11C = 2.543(5) \text{ \AA}$, $C11-H11C\cdots N7 = 147.71(32)^\circ$; $N7\cdots H13C = 2.564(5) \text{ \AA}$, $C13-H13C\cdots N7 = 139.29(3)^\circ$; $O3\cdots H9A = 2.285(4) \text{ \AA}$, $C9-H9A\cdots O3 = 161.62(3)^\circ$; $O3\cdots H4A = 2.374(4) \text{ \AA}$, $C4-H4A\cdots O3 = 126.31(1)^\circ$.

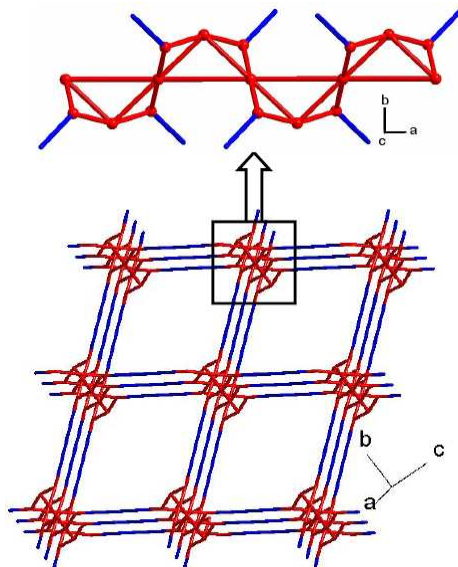


Figure S2. Views of the chain topology (top) and the 3D net topology (bottom) for **2**.

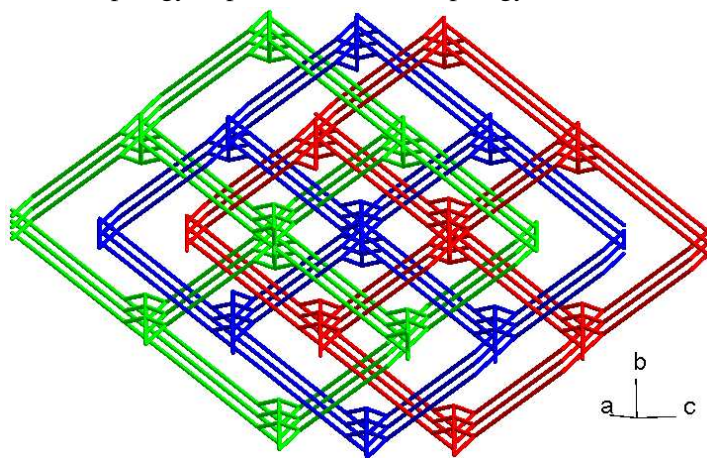


Figure S3. The 3-fold interpenetration of the 3D nets in **2**.

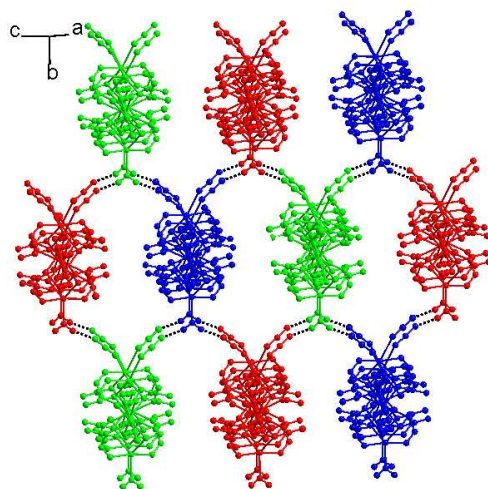


Figure S4. The O-H...N hydrogen bonds between the Δ -chains in **2**. The color is used to distinguish the chains from different 3D frameworks .

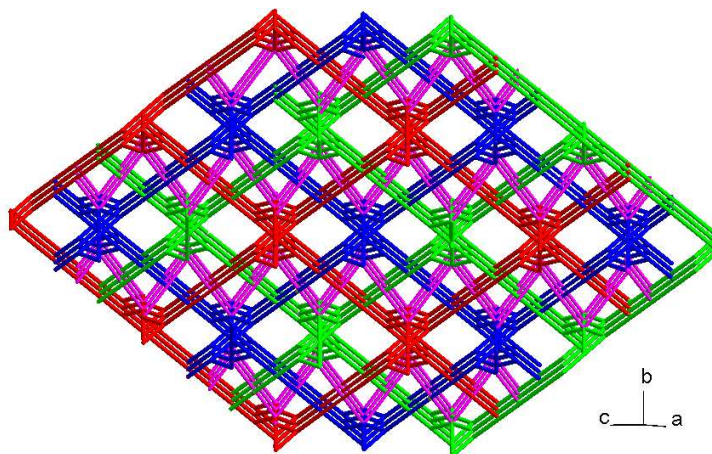


Figure S5. The 3,6,6-connected 3D network of **2** with hydrogen bonding involved. The red, blue and green parts correspond to the three interpenetrated coordination frameworks as shown in Figure S3, and the purple connections represent the O-H...N hydrogen bonds between the frameworks

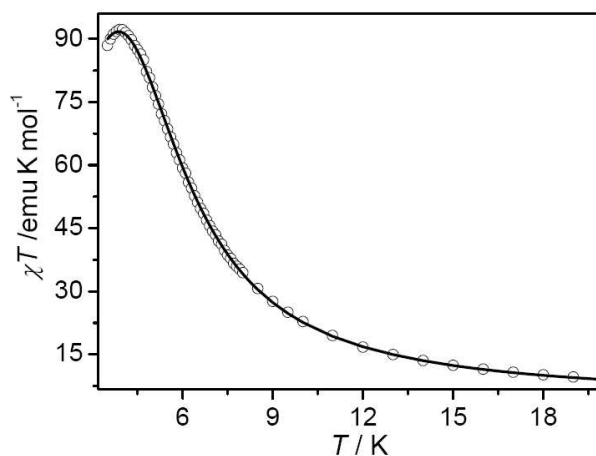


Figure S6. Fit of the ac χT data to infinite Ising chains with interchain interactions [eqns. (2) and (3) in the text]. The data used are measured under zero dc field, with a driving ac field of 3.5 Oe at a frequency of 1 Hz. The solid line represents the best fit.

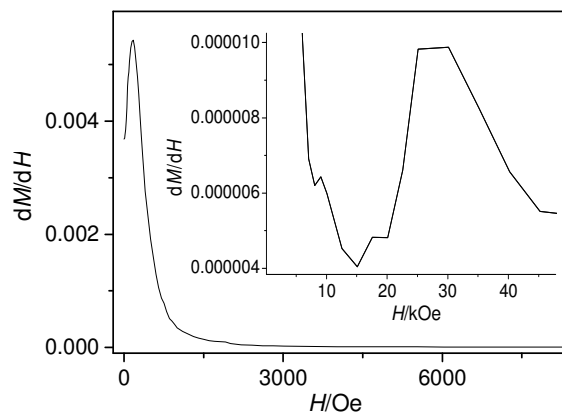


Figure S7. The dM/dH versus T plots at low fields and high fields (inset).

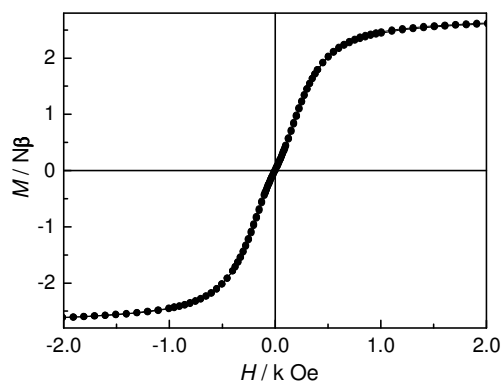


Figure S8. Isothermal magnetization of **1** at 2 K.

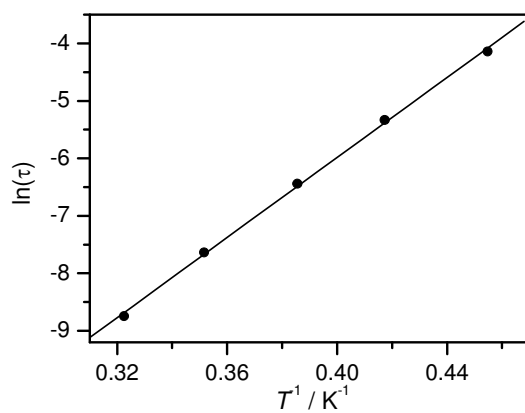


Figure S9. The $\ln(\tau)$ versus $1/T$ plot, the solid line representing the fit to the Arrhenius law.

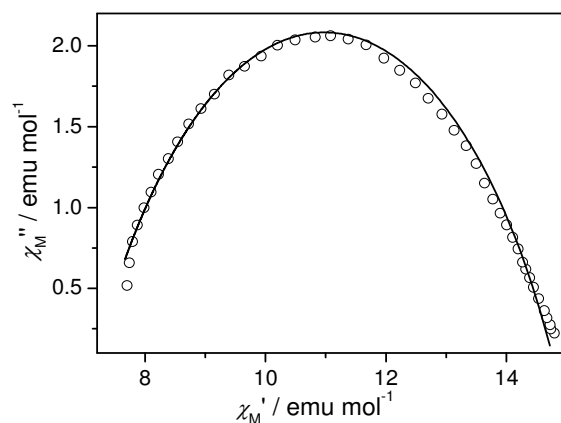


Figure S10. Cole-Cole diagrams in the frequency range 0.1-1000 Hz with $H_{dc} = 0$, $H_{ac} = 3$ Oe for **1**.

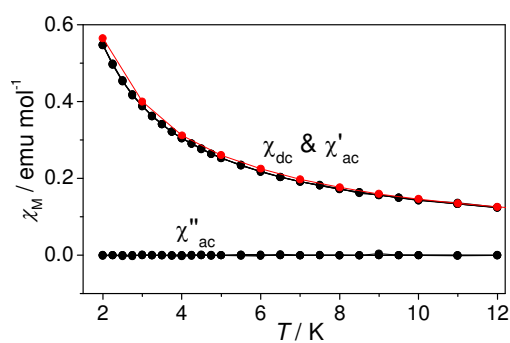


Figure S11. χ_{dc} vs T plot (red) with $H_{dc} = 1000$ Oe, and χ_{ac}' and χ'' vs T plots (black) in zero dc field for **2** with $H_{ac} = 3.0$ Oe at frequencies 1, 10, 100, 1000 Hz.