

Electronic Supplementary Information

Octacyanotungstate(V)-based square W_2M_2 ($M = Co, Mn$) complexes: synthesis, structure and magnetic properties

Jun Wang, Youg-Lu Xu, Hong-Bo Zhou, Hui-Sheng Wang, Xiao-Jiao Song, You Song*, and Xiao-Zeng You*

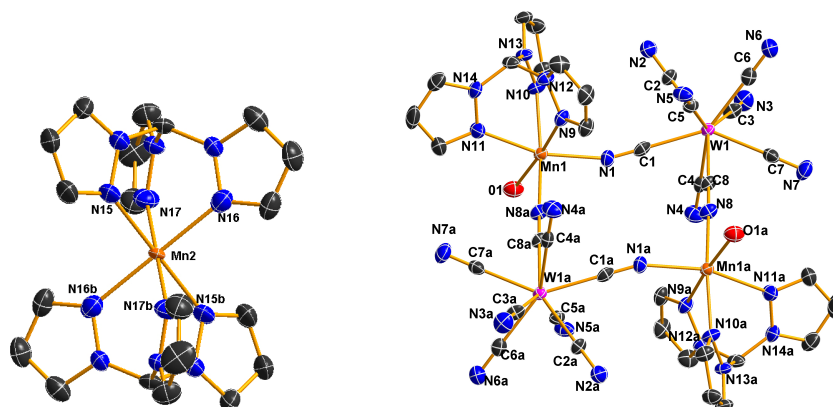


Fig. S1 ORTEP drawing of **2** with displacement ellipsoids of 50% probability level. Hydrogen atoms have been omitted for clarity. Left: mononuclear cation of **2**. Right: the anionic part of **2**

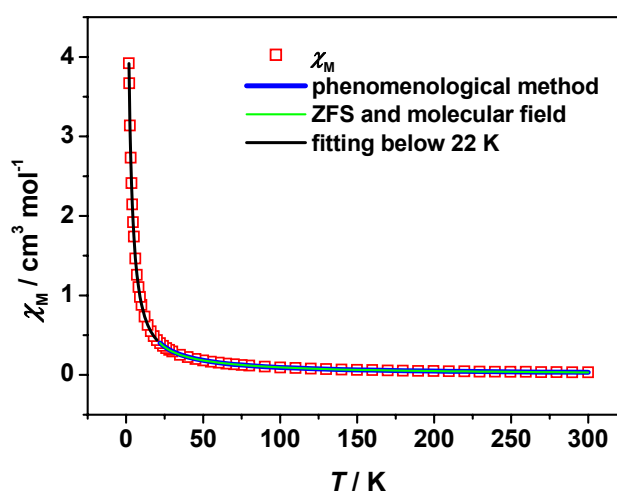


Fig. S2 Temperature dependence of magnetic susceptibility of **1** from 300 to 1.8 K at an applied field of 2 kOe. The blue, green and black lines are corresponded to the fitting result by different treatments as described in the text.

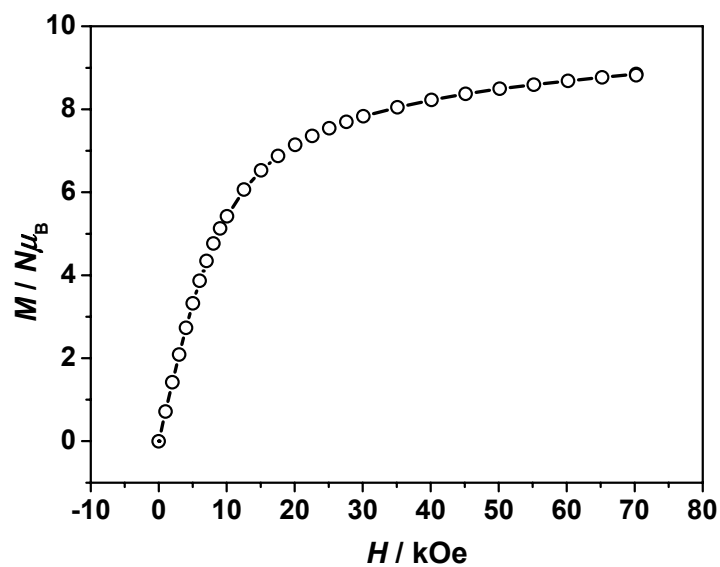


Fig. S3 The plot of magnetization versus applied magnetic field of **1** at 1.8 K.

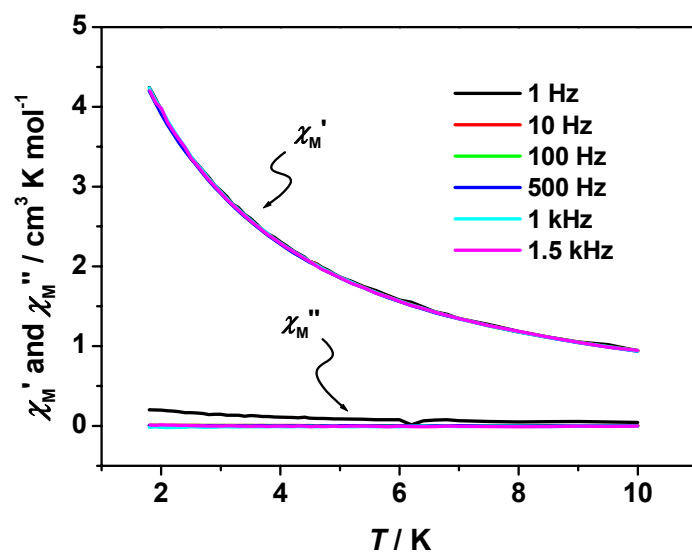


Fig. S4 Plots of the variable-temperature ac susceptibility of **1** at an ac field of 1 Oe and zero dc field.

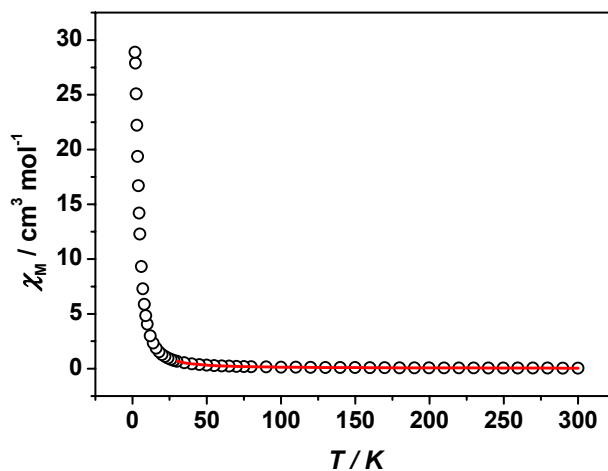


Fig. S5 Temperature dependence of magnetic susceptibility of **2** from 300 to 1.8 K at an applied field of 2 kOe. The red line shows the fitting result as described in the text.

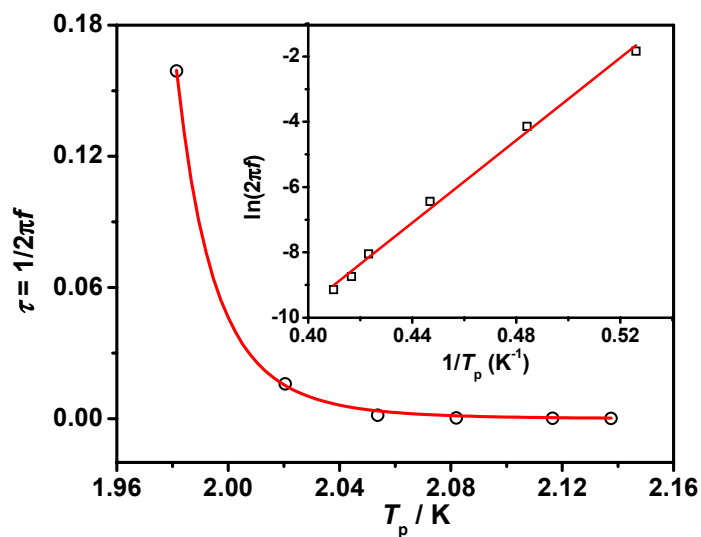


Fig. S6 Frequency dependence of ac χ_M'' for **2** was fitted by the conventional critical scaling law of the spin dynamics as described by $\tau = \tau_0((T_p - T_f)/T_f)^{-z\nu}$. The red solid line is from fitting results. The inset shows Plots of $\ln(2\pi\nu)$ versus reciprocal temperature for **2**.

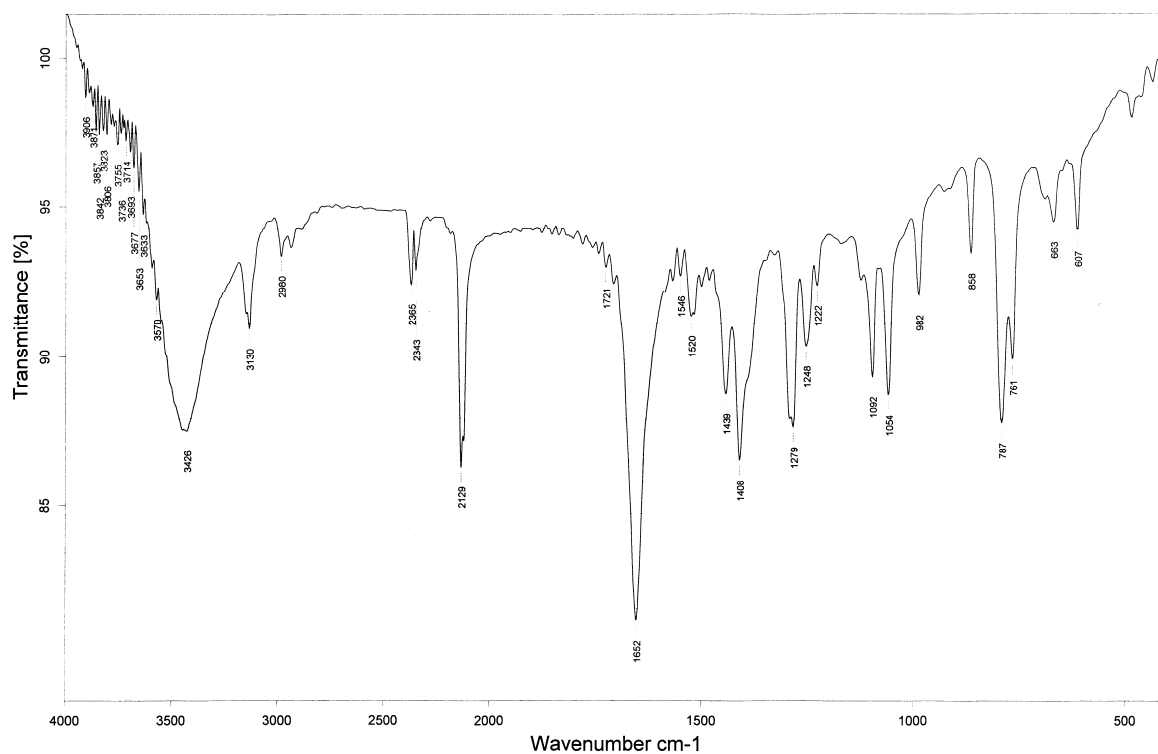


Fig. S7 IR spectra of complex 1.

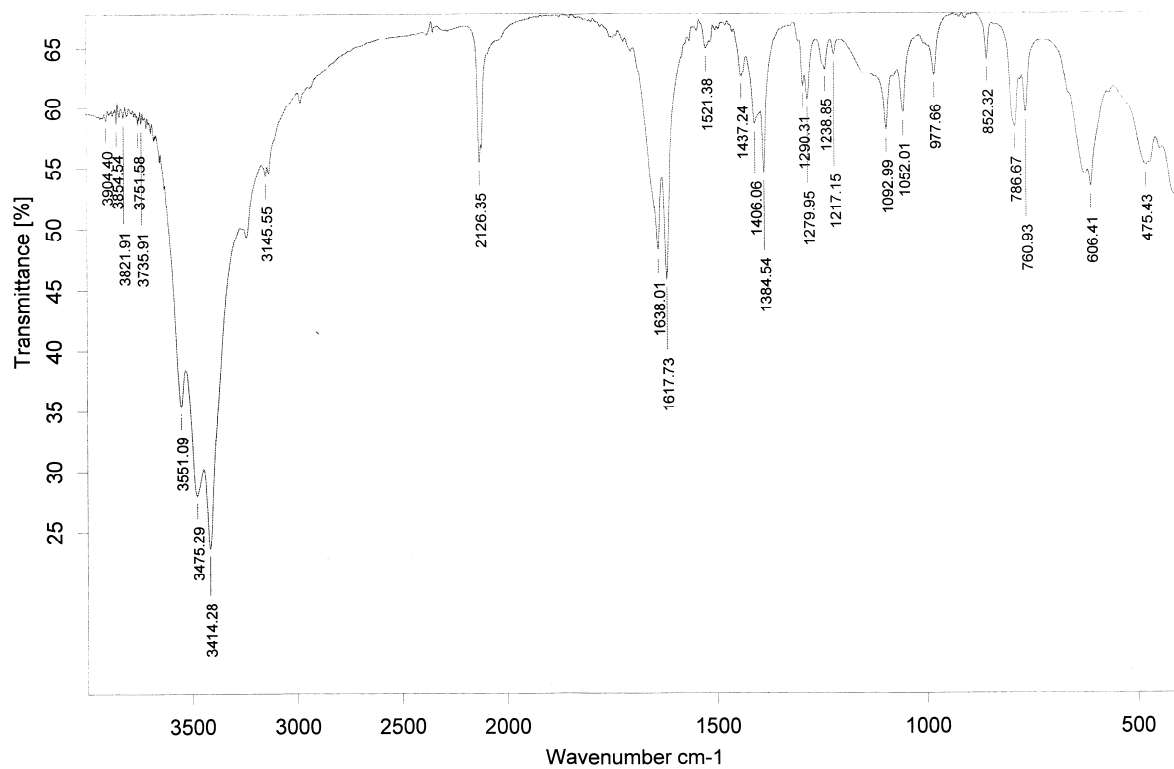


Fig. S8 IR spectra of complex 2.