Ligand field effect tuned magnetic behaviors of two chain compounds based on Mn^{III}_3O units: from slow magnetic relaxation to metamagnetism†

Yue-Ling Bai,*[a] Xiaoli Bao,[a] Shourong Zhu,[a] Jianhui Fang[a] and Jun Tao*[b]

[a]*Department of Chemistry, College of Sciences, Shanghai University, Shanghai 200444, P. R. China,*

[b]*Department of Chemistry, State Key Laboratory for Physical Chemistry of Solid Surfaces, Xiamen University, Xiamen 361005, People's Republic of China*

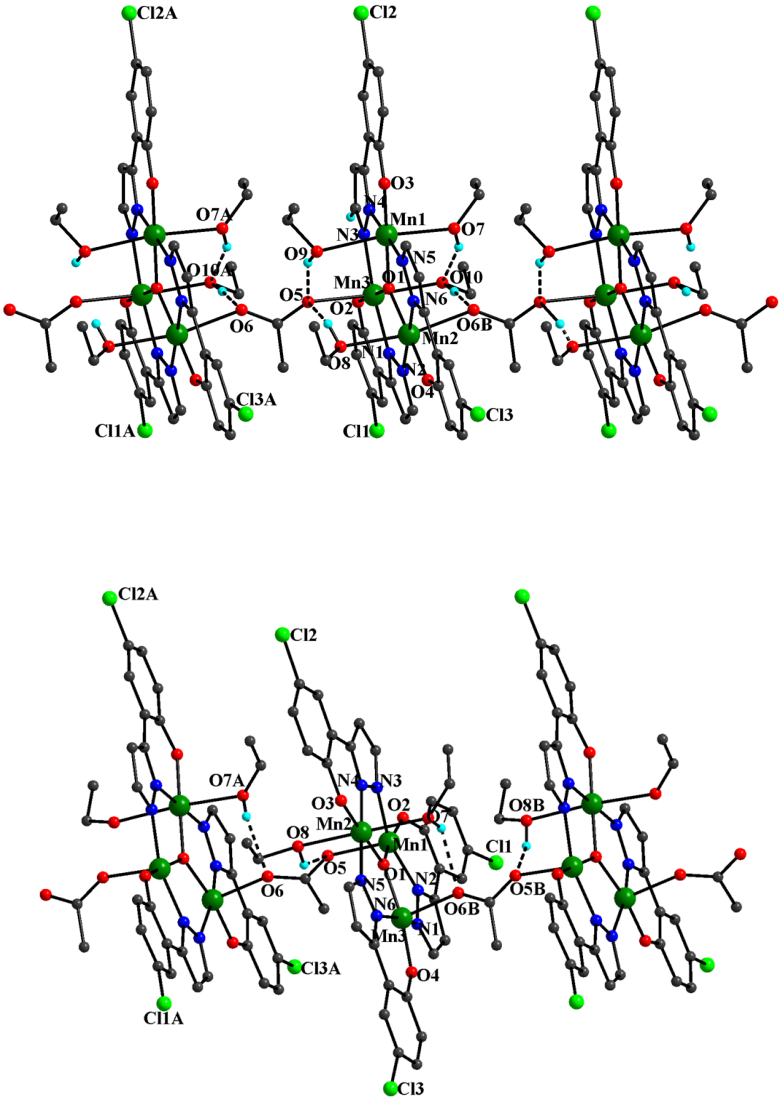

Figure S1. 1D chain structures of **1** (top) and **2** (bottom) with the intrachain hydrogen bonds.

Table S1. Hydrogen-Bond Distances (Å) for Complexes **1** and **2**.

1				**2**	
O7–H···O10	3.174(9)	O10–H···O6	2.923(7)	O7–H···O6	2.790(5)
O8–H···O5	3.095(8)	O9–H···O5	2.728(7)	O8–H···O5	2.830(5)

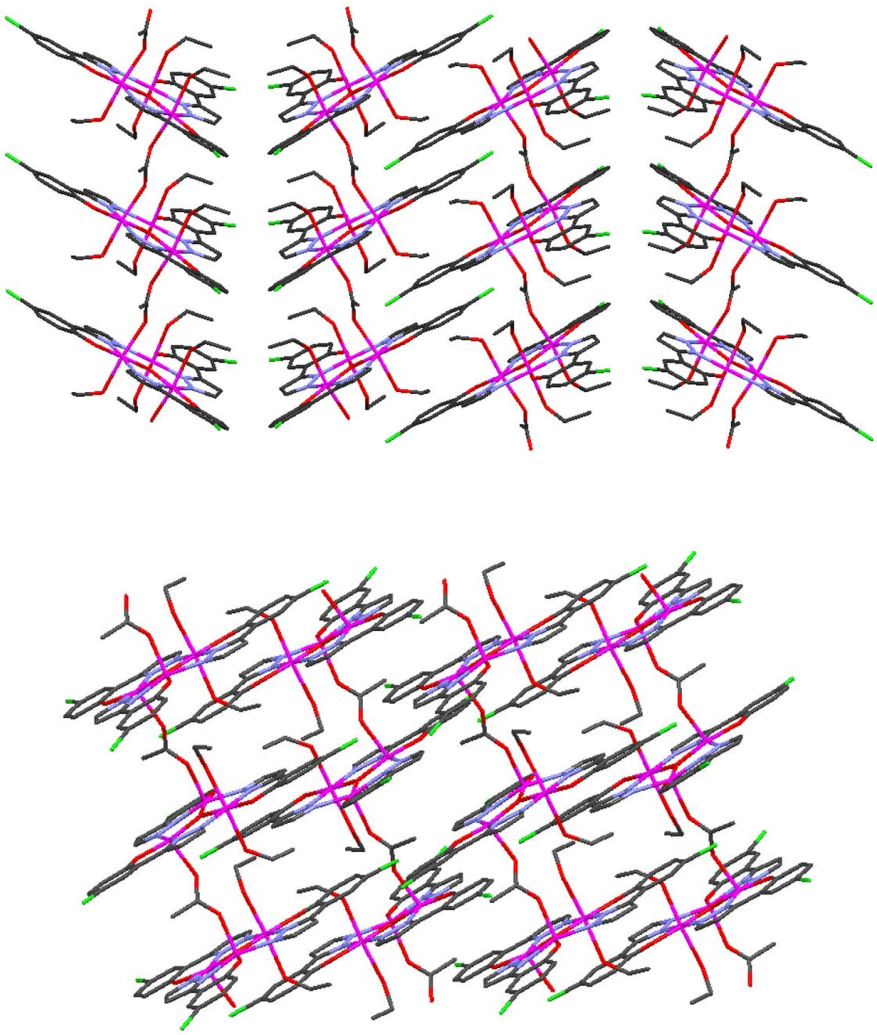

Figure S2. Two-dimensional stacking modes of **1** (top) and **2** (bottom).

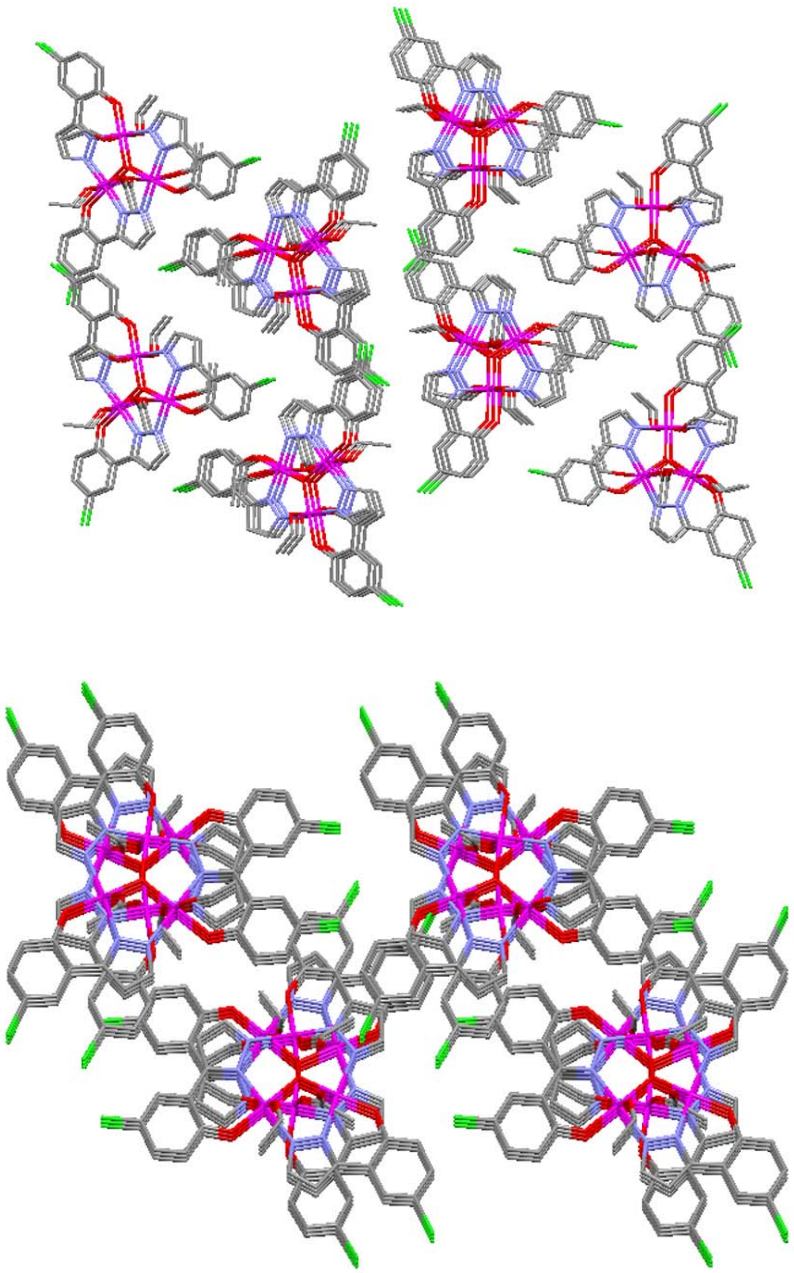

Figure S3. Three-dimensional supramolecular structures viewed down the *a* axis of **1** (top) and down the *c* axis of **2**, which showing Mn···Cl short contacts and π-π weak interactions between the adjacent chains (bottom).

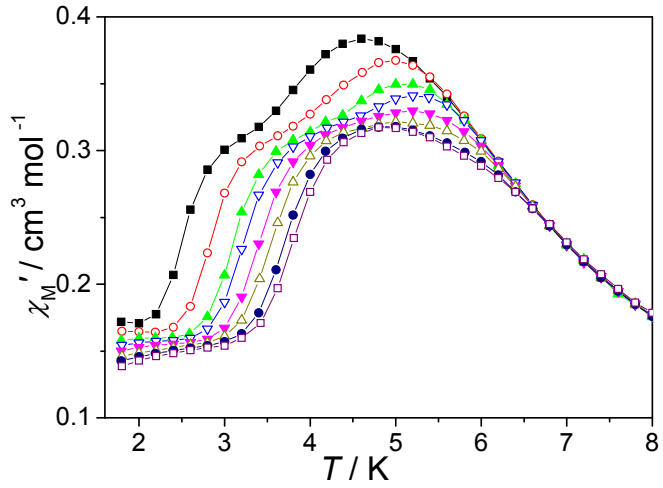

Figure S4. Temperature dependence of χ_M'' for **1** at zero dc field and a ac field of 3 Oe.

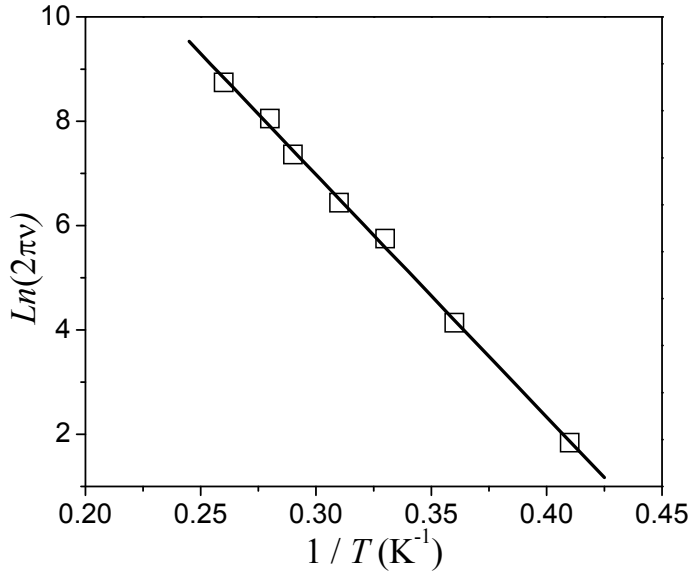

Figure S5. Arrhenius plot using AC data. The line is the fit of the thermally activated region to the Arrhenius equation.

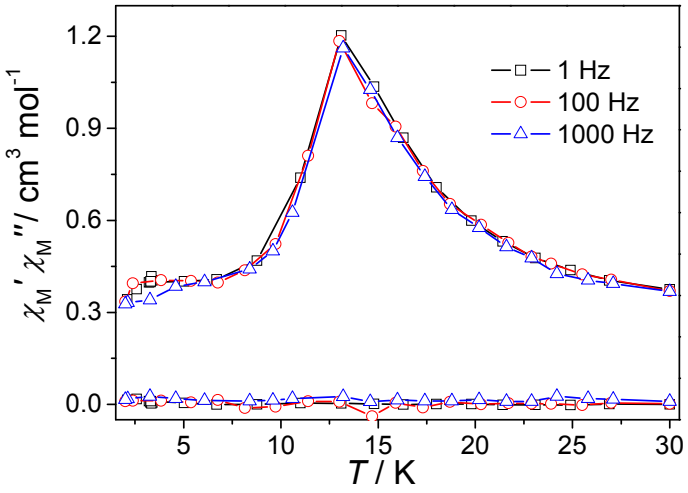

Figure S6. Temperature-dependent χ_M' and χ_M'' in the frequency range of 1-1000 Hz for **2**.

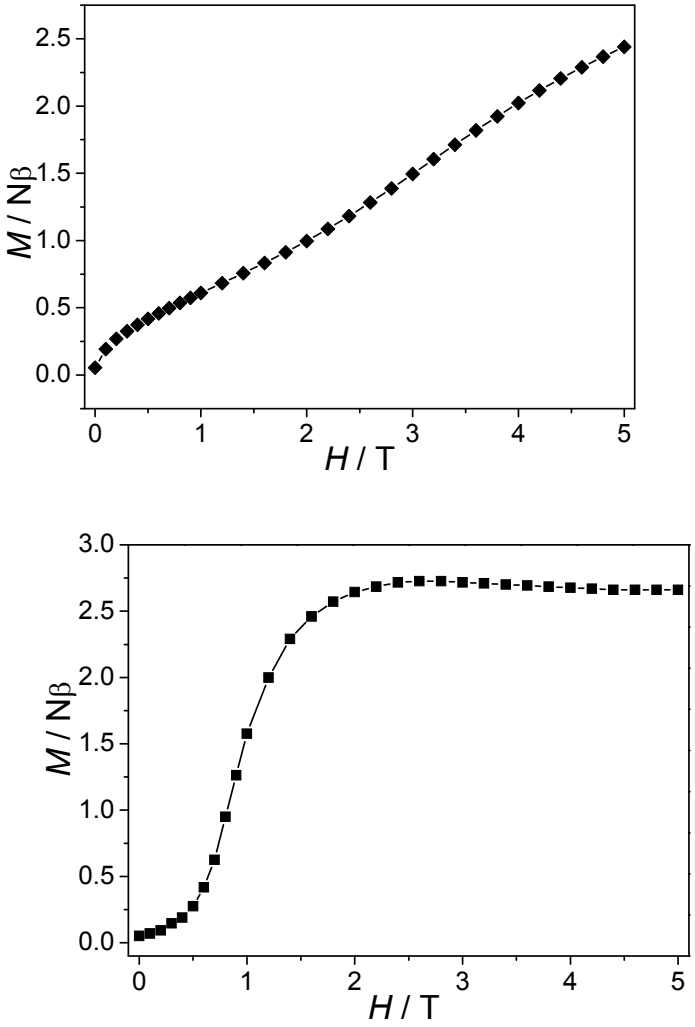

Figure S7. Field-dependent magnetization of **1** (top) and **2** (bottom).

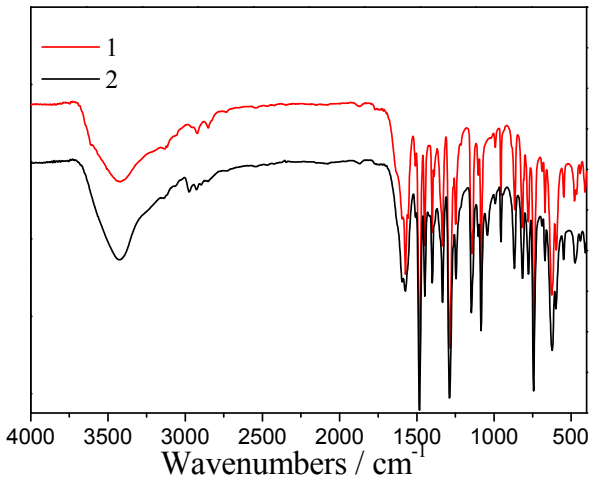

Figure S8. Infrared spectra of complexes **1**and **2**.

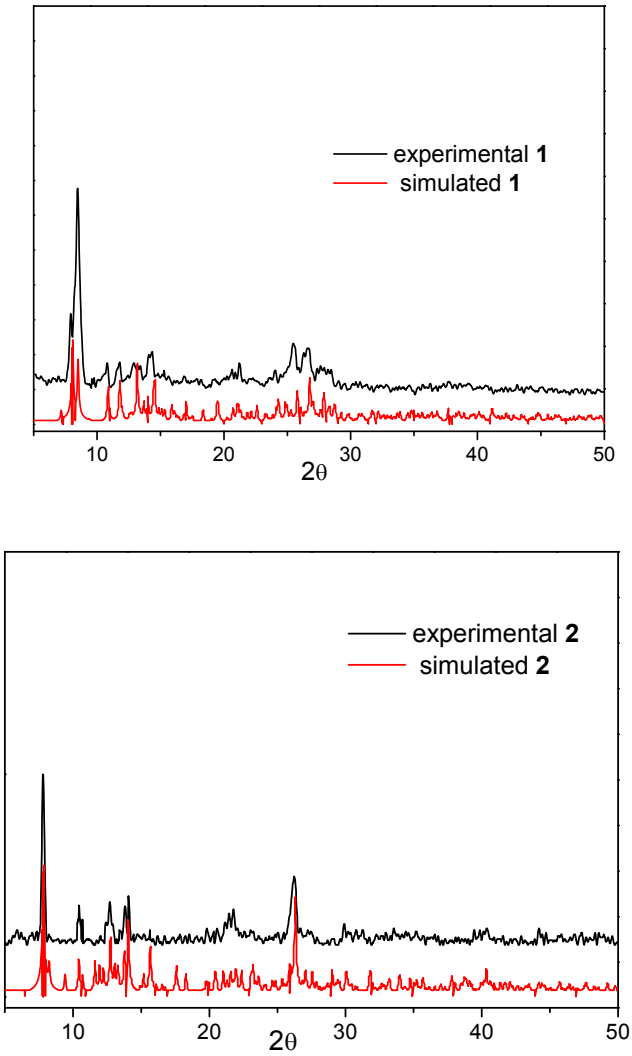

Figure S8. The XRPD diffraction patterns of complexes **1**and **2**.