

Heterobimetallic complexes from 0D cluster to 3D network based-on various polycyanometallates and $[\text{Cu}(\text{dmpn})_2]^{2+}$ (dmpn = 2,2-dimethyl-1,3-diaminopropane): synthesis, crystal structures and magnetic properties

Xiaoyun Hao,^{a,†} Jingwen Shi,^{a,†} Yong Dou,^a Tong Cao,^a Zhen Zhou,^a Lu Yang,^a Dacheng Li,^b Qingyun Liu,^c Jianzhuang Jiang^{d,*} and Daopeng Zhang^{a,*}

^aCollege of Chemical Engineering, Shandong University of Technology, Zibo 255049, China

^bCollege of Chemical Engineering, Liaocheng University, Liaocheng 252059, China

^cCollege of Chemical and Environmental Engineering, Shandong University of Science and Technology, Qingdao 266510, PR China.

^dDepartment of Chemistry, University of Science and Technology Beijing, Beijing 100083, China

E-mail: dpzhang73@126.com; jianzhuang@ustb.edu.cn

† These two authors contributed equally.

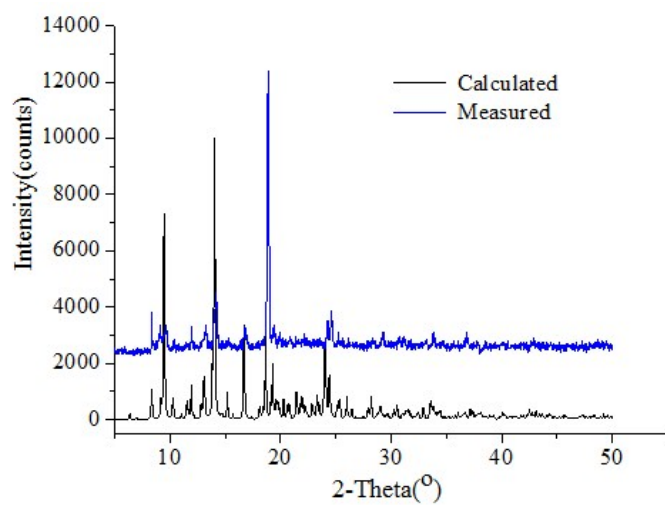


Figure S1. The calculated and measured XRD for the complex 1.

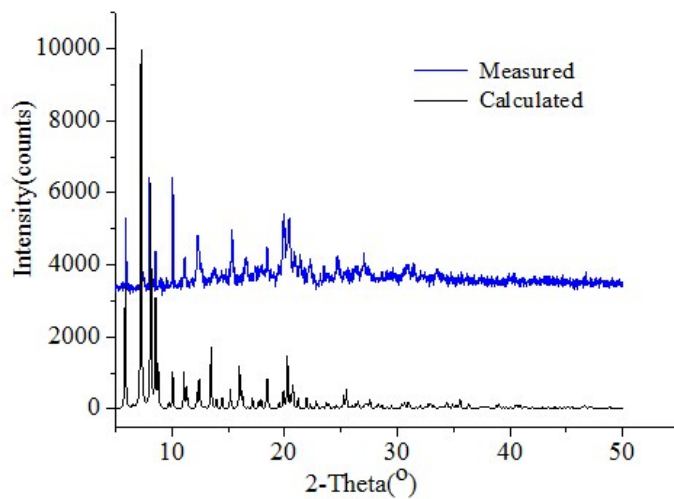


Figure S2. The calculated and measured XRD for the complex 2.

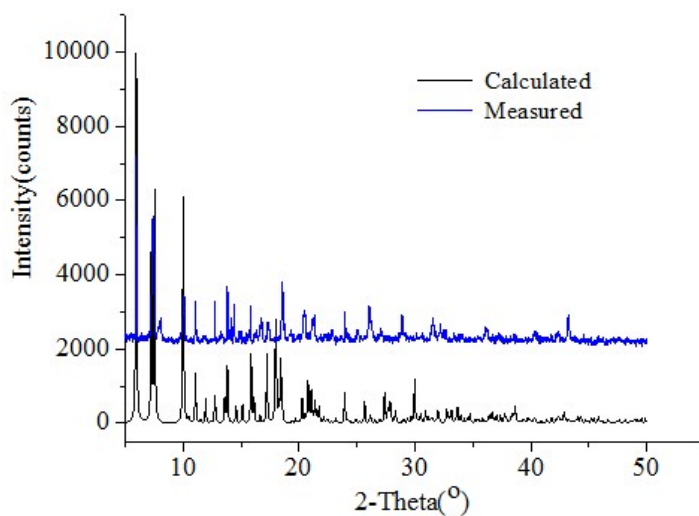


Figure S3. The calculated and measured XRD for the complex 3.

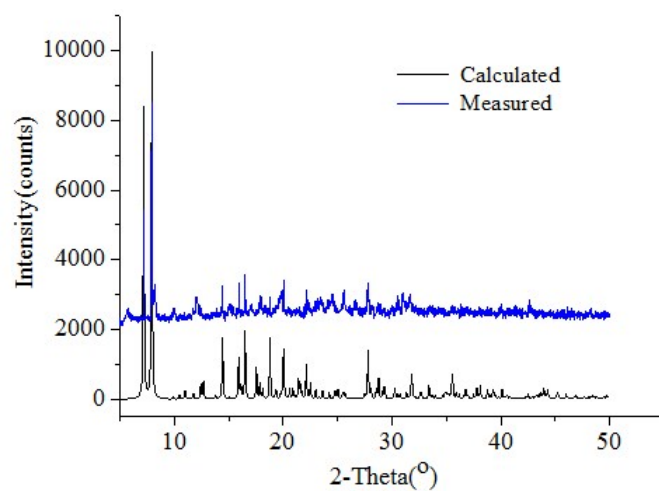


Figure S4. The calculated and measured XRD for the complex 4.

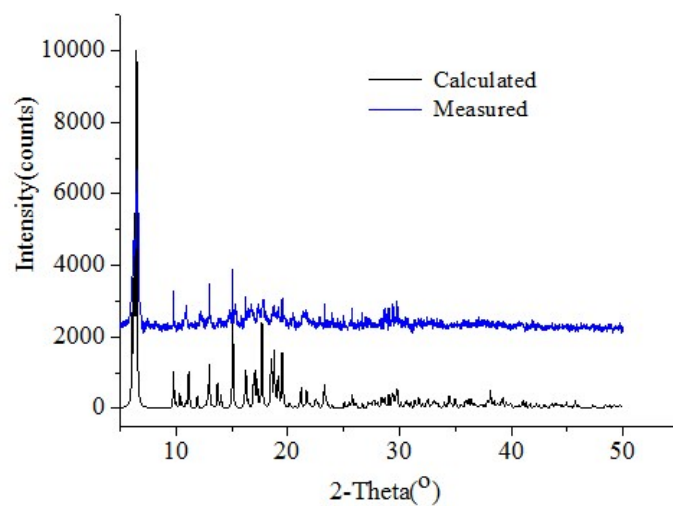


Figure S5. The calculated and measured XRD for the complex 5.

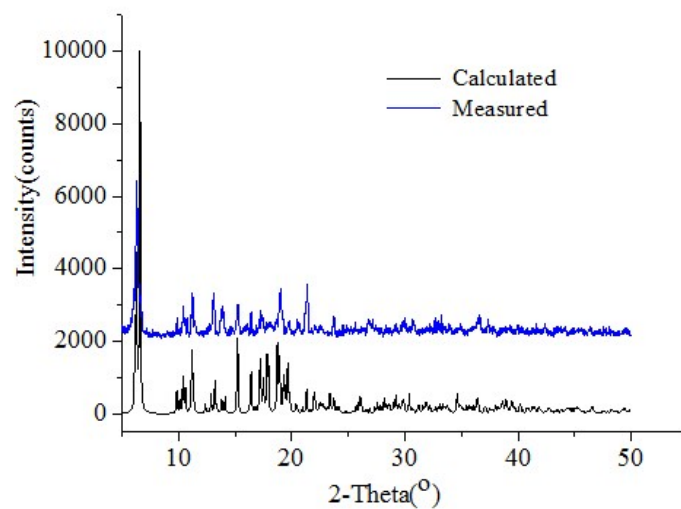


Figure S6. The calculated and measured XRD for the complex 6.

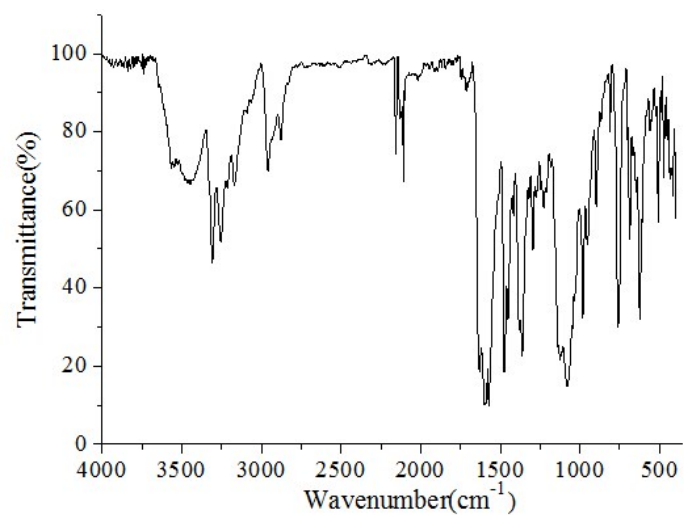


Figure S7. The IR spectra of complex 1.

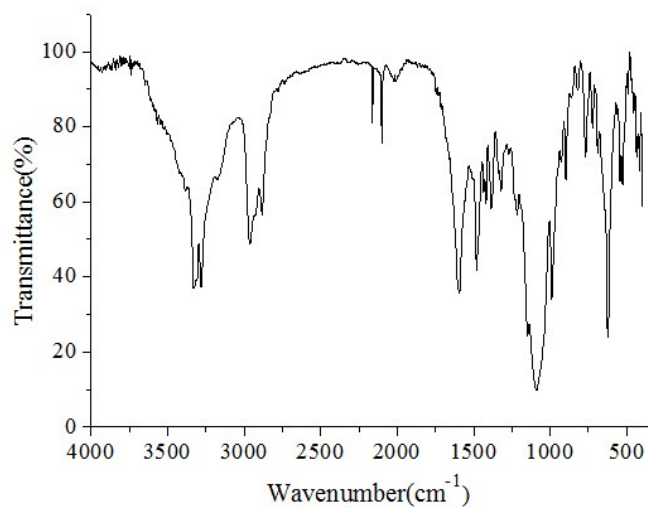


Figure S8. The IR spectra of complex 2.

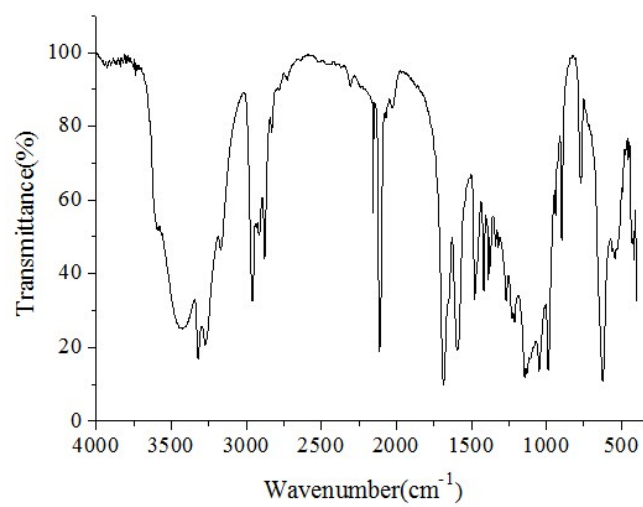


Figure S9. The IR spectra of complex 3.

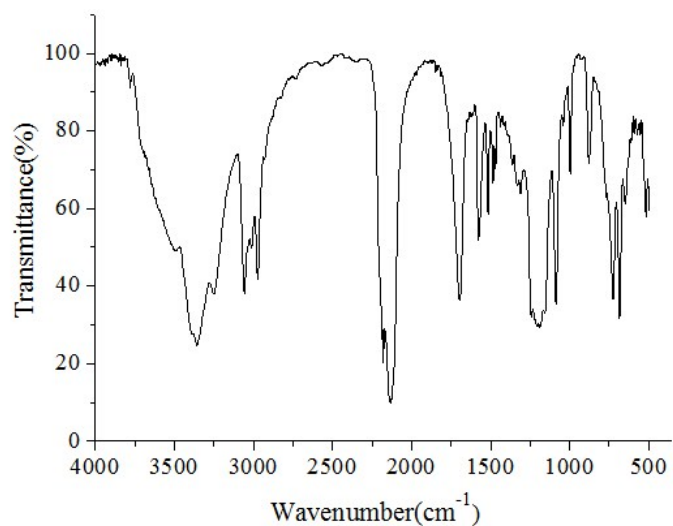


Figure S10. The IR spectra of complex 4.

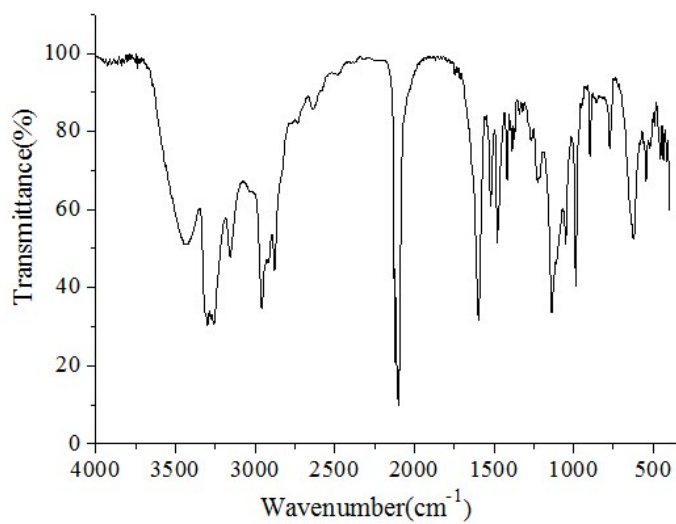


Figure S11. The IR spectra of complex 5.

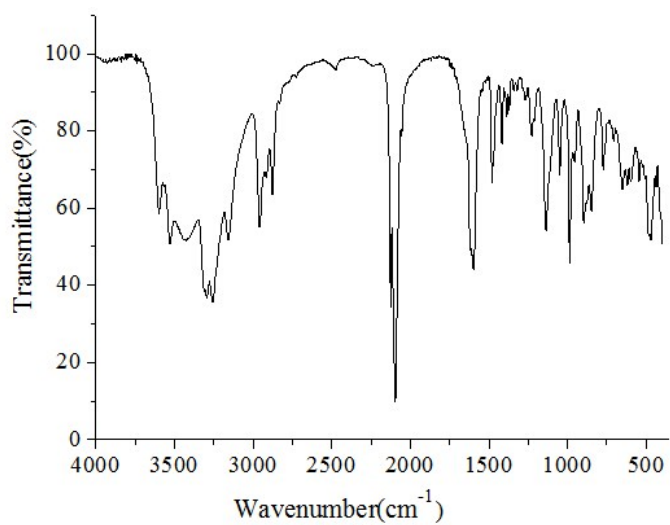


Figure S12. The IR spectra of complex 6.

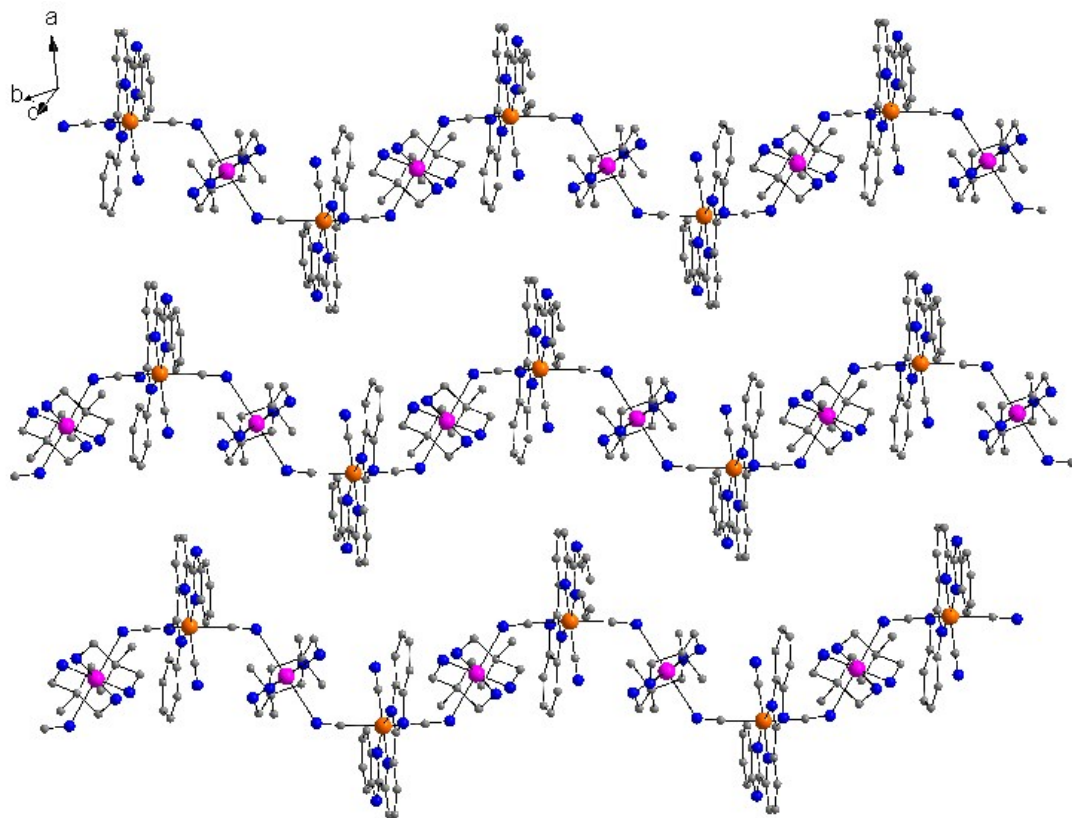


Figure S13. The cell packing diagram of the complex 2 along *c* axial.

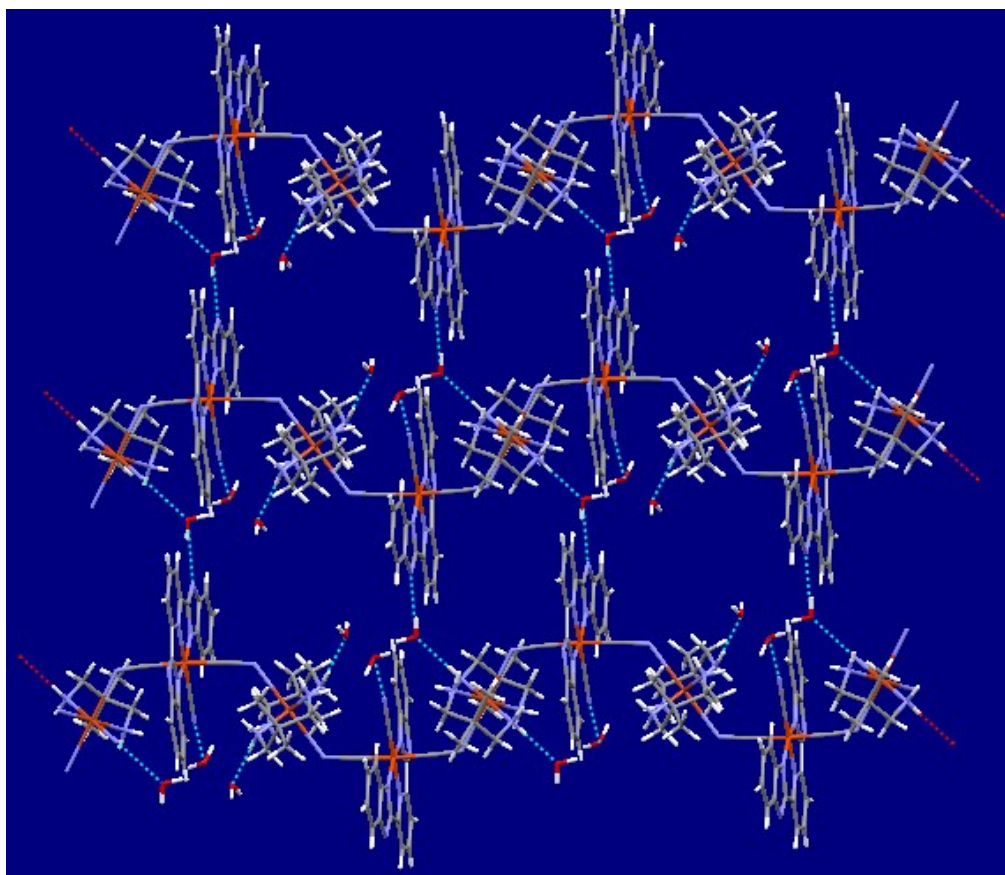


Figure S14. 1D chain-based 2D supramolecular structure for complex 2 constructed by intermolecular H-bond interactions.

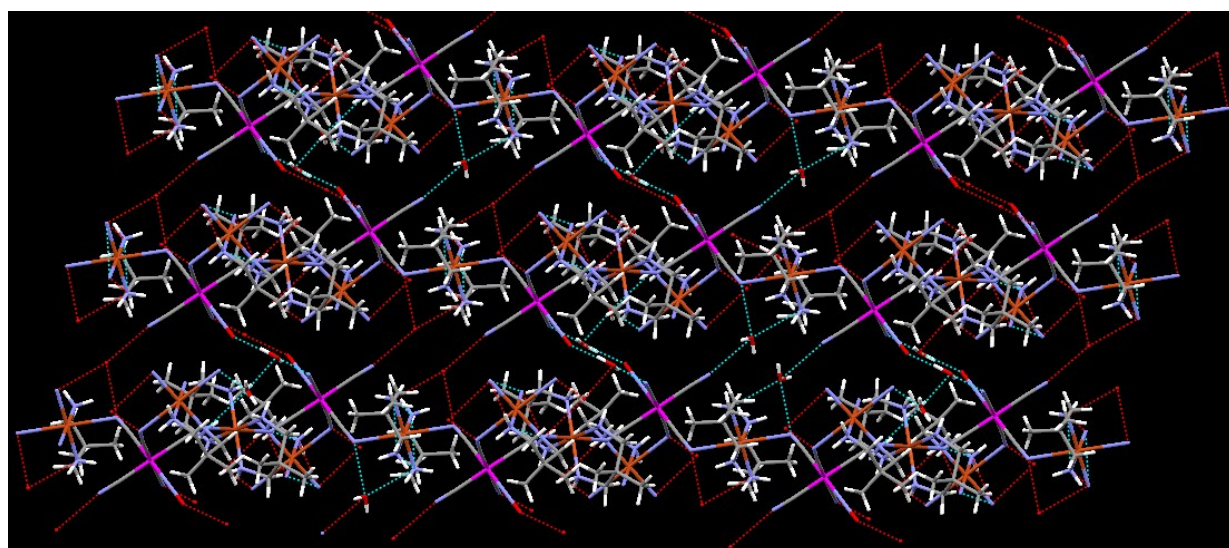


Figure S15. The H-bond constructed three-dimensional network for complex 3.

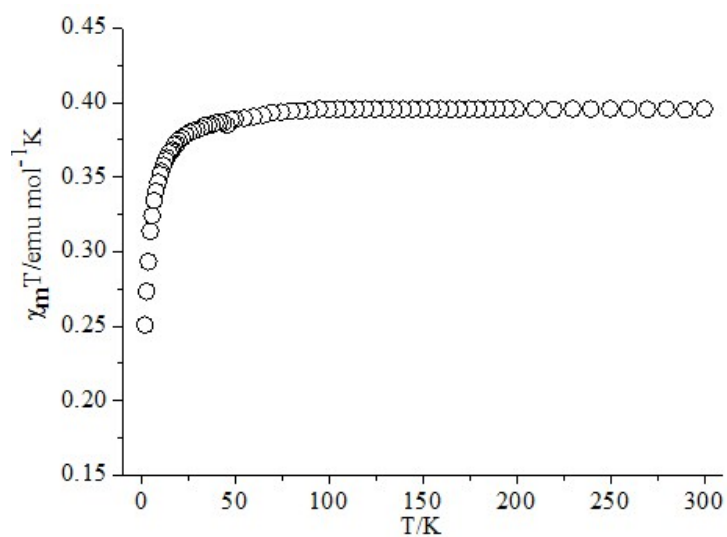


Figure S16. Temperature dependence of $\chi_m T$ for complex 4.

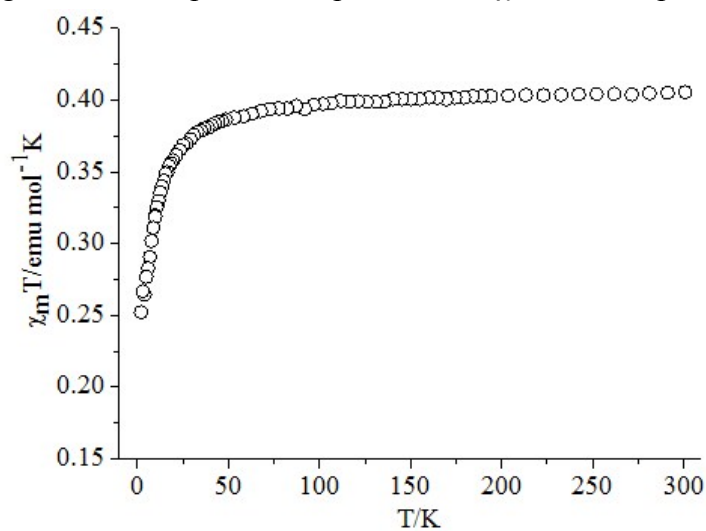


Figure S17. Temperature dependence of $\chi_m T$ for complex 5.

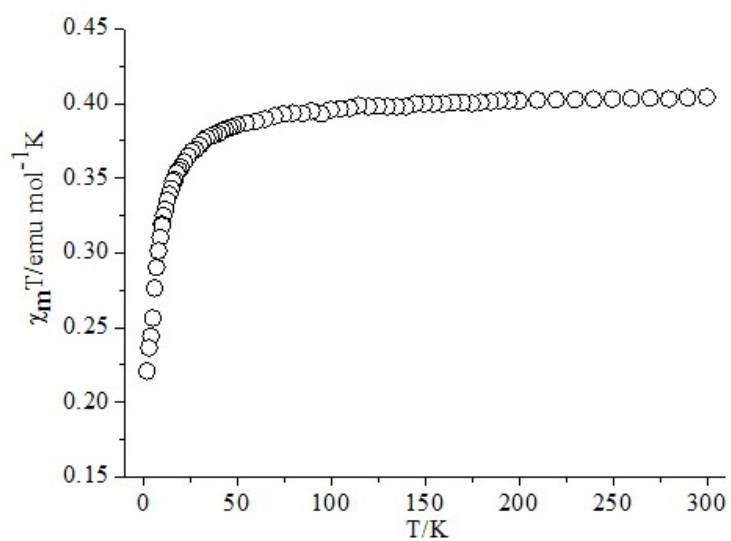


Figure S18. Temperature dependence of $\chi_m T$ for complex 6.