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Evidence of Glauber Dynamics in a Metamagnetically Ordered Nanowire ANDREY PROSVIRIN, HANHUA ZHAO, KIM DUNBAR, Department of Chemistry, Texas A&M University, THE DUNBAR RESEARCH GROUP TEAM — In this work, we describe an unusual type of nanowire obtained from a decomposition of Mn_{12}-Ac. The structure of $\{[Mn(OH)(CH_3CO_2)_2]CH_3CO_2HH_2O\}_\infty$, consists of neutral 1-D chains based on the six coordinate Mn(III) centers [1]. AC magnetic susceptibility measurements reveal to the appearance of an out-of-phase signal, $\chi"_m$ in the range of 1.8-2.6 K. The signal is clearly frequency dependent, which is an indication of a slow relaxation process. The magnitude of the $\chi"_m$ signal is approximately one-third that of χ'_m, as is generally observed for such systems. The frequency dependence of the position of the peak in $\chi"_m$ follows an Arrhenius law with an activation energy $\Delta E/k_B = 27.1$ cm^{-1} and $\tau_0 = 1.2\ 10^{-10}$ s. The Cole-Cole plot shows the expected semicircle shape for a single relaxation process, confirming single-chain magnet behavior. The compound constitutes a new member of the single chain magnet family, being an homometallic antiferromagnetic chain [2]. Since antiferromagnetic exchange interactions are typically much stronger than those of the ferromagnetic type, higher blocking temperatures can be expected in such examples of single chain magnet, with the only requirement being the presence of spin canting. [1] D. J. Price, S. R. Batten, B. Moubaraki, K. S. Murray Polyhedron 22, 2003, 2161 [2] Z.-M. Sun, A. V. Prosvirin, H. Zhao, J.-G. Mao, K. R. Dunbar, J. Appl. Phys. 2005, 97 (10, Pt. 2), 10B305/1

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