

Abstract Submitted
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Magnetic Response of Mn(III)F(salen) at Low Temperatures¹ J.-H. PARK, C.C. BEEDLE, NHMFL, O.N. RISSET, M.J. ANDRUS, D.R. TALHAM, Dept. Chem., Univ. Florida, M.K. PEPRAH, E.S. KNOWLES, M.W. MEISEL, Dept. Phys. and NHMFL, Univ. Florida, M. SHIDDIQ, S. HILL, Dept. Phys. and NHMFL, Florida State Univ., A. PODLESNYAK, G. EHLERS, S.E. NAGLER, Quantum Condensed Matter Division, ORNL — Due to a report suggesting Mn(III)F(salen), salen = H₁₄C₁₆N₂O₂, is a $S = 2$ Haldane system with $J/k_B = 50$ K and no long-range order down to 2 K,² we have studied its magnetic response. Torque magnetometry, down to 20 mK and up to 18 T, revealed a feature at 3.8 T when $T < 400$ mK. ESR (~ 200 GHz) studies, using single crystals at 4 K and in 5 T, have not detected any signal. The low-field, high- T susceptibility is unchanged for $P < 1.0$ GPa. Using a randomly-oriented, powder-like, deuterated (12 of 14 H replaced by D) sample, neutron scattering data, acquired with the CNCS at SNS, are not consistent with a uniform system consisting of $S = 2$ Heisenberg antiferromagnetic chains. The INS data show strong, dispersionless excitations, suggesting the possibility of isolated magnetic clusters.

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