

Abstract Submitted
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Susceptibility of single molecule magnet Mn_{12} -acetate single crystals as a function of temperature and transverse field¹ PRADEEP SUBEDI, New York University, BO WEN, LIN BO, MYRIAM SARACHIK, City College of New York, CUNY, YOSI YESHURUN, Bar-Ilan University, Israel, ANDREW KENT, New York University, CHRISTOS LAMPROPOULOS, GEORGE CHRISTOU, University of Florida - Gainesville — The longitudinal susceptibility of Mn_{12} -acetate single crystals has been measured in a magnetic field applied transverse to the Ising axis using micro-Hall effect magnetometry in a He^3 cryostat with a 3D vector superconducting magnet. We have investigated the blocking temperature as a function of longitudinal-field-sweep-rate and as a function of the magnitude of the transverse field. We find that the transverse field accelerates the relaxation to equilibrium and lowers the blocking temperature, as expected based on the Mn_{12} -ac spin-Hamiltonian and a classical model of single domain uniaxial nanomagnets. The susceptibility is found to obey a Curie-Weiss law, indicating a low temperature transition to a ferromagnetic phase due to dipolar interactions. We discuss these experiments as well as experiments in which an array of Hall-bars is used to spatially resolve the longitudinal susceptibility above the blocking temperature.

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Pradeep Subedi
New York University

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