Abstract Submitted
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^{135,137}Ba NMR study of condensed phase and critical behavior in S=1 spin dimer system $Ba_3Mn_2O_8$[1] STEVE SUH, W.G. CLARK, S.E. BROWN, UCLA, E.C. SAMULON, I.R. FISHER, Stanford, C.D. BATISTA, LANL, A.P. REYES, P. KUHNS, L.L. LUMATA, J.S. BROOKS, NHMFL — $Ba_3Mn_2O_8$ is a trigonal S =1 spin dimer system, in which we have used ^{135,137}Ba NMR spectroscopy and relaxation to study the static and dynamic properties of the field-induced phases and phase transitions to temperatures as low as 20mK, and with emphasis on magnetic fields up to 12T. Specifically, we report on the nature and variation of the order parameter in the condensed phases as well as the form of the spin lattice relaxation in the condensed phases, and compare to behavior anticipated for BEC and 3DXY universality classes. The temperature dependence of magnetization and the relaxation rate at the quantum critical point at H_c ∼9T is also reported. For the case of the magnetization, a 3D to 2D crossover is evident, and shown consistent with calculations based on the magnon dispersion relations (M.B. Stone et. al, PRL 100, 237201 (2008)).

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