

Abstract Submitted
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Magnetic Phase Diagram of $(\text{NaMn}_3)\text{Mn}_4\text{O}_{12}$ A. PRODI, F. BOLZONI, F. LICCI, E. GILIOLI, IMEM-CNR, M. MAREZIO, CRETA-CNRS, M. AFFRONTI, U. Modena e Reggio Emilia, A. GAUZZI, U. PM Curie — The double perovskite $(\text{NaMn}_3)\text{Mn}_4\text{O}_{12}$ represents a model system to explore ordering phenomena usually sought after in half-doped manganites thanks to its unique crystal structure characterized by the absence of quenched disorder. We present here magnetization, transport and specific heat measurements performed under magnetic field aimed at characterizing the two distinct paramagnetic and two antiferromagnetic phases observed in $(\text{NaMn}_3)\text{Mn}_4\text{O}_{12}$ upon cooling. In particular, we investigated the change of paramagnetic regime associated with the structural phase transition at 176 K, the stability of the resulting charge ordered state as well as the peculiar magnetic response of the CE spin structure which orders below 125 K. Analysis of the corresponding specific heat anomalies confirms the nature of the transitions while at low temperatures specific heat data evidences a large Sommerfeld coefficient, unexpected for the insulating state, and reveals the presence of extra entropy with origin in nonmagnetic excitations.

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