

Abstract Submitted
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Existence of a New Phase in the Intermediate J_{AF} -coupling Regime of the Two-Orbital Model for Manganites¹ CENGIZ SEN, SHUHUA LIANG, ELBIO DAGOTTO, University of Tennessee, Knoxville, TN, and Oak Ridge National Lab, Oak Ridge, TN — We report the existence of a new exotic state in the two-orbital model for manganites in the intermediate J_{AF} coupling regime, analyzed using the standard Monte Carlo technique based on the exact diagonalization of the electronic sector. At density $x = 1/4$, this state shows diagonal ferromagnetic (FM) chains with uniform charge order (CO), stacked in between CE-like zig-zag patterns of spin with less populated staggered CO. The new state exists in a narrow range between the well-known FM metallic and C_xE_{1-x} insulating states, and provide a realization in the clean limit of the nanoscale phase separation scenario of CMR manganites. The existence of many other competing exotic states in this range of couplings will also be discussed.

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