

Abstract Submitted
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Resistivity peak in the one-band double-exchange model with cooperative phonons CENGIZ SEN, National High Magnetic Field Laboratory and Department of Physics, Florida State University, Tallahassee, FL, GONZALO ALVAREZ, HORACIO ALIAGA, Oak Ridge National Laboratory, Oak Ridge, TN, ELBIO DAGOTTO, Oak Ridge National Laboratory, Oak Ridge, TN and Department of Physics, University of Tennessee, Knoxville, TN — We present the results of Monte Carlo simulations of a single-band double-exchange model with cooperative phonons, both with and without quenched disorder, at a carrier density $n=0.3$. Both in two and three dimensions, the simulations reveal a peak in the resistivity at T_{Curie} , in agreement with previous studies by other groups. The peak gets destroyed upon the application of an external field, resulting in a large magnetoresistance. The results are in good agreement with experiments involving CMR manganites. Studies at other densities are also presented, and an intuitive picture for the presence of the resistivity peak is discussed.

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