

Charge Ordering Due to Antiferromagnetic Correlation in Quarter-Filled Manganites

WANG Hai-Long,¹ TIAN Guang-Shan,¹ and LIN Hai-Qing^{1,2}

¹ School of Physics, Peking University, Beijing 100871, China

² Department of Physics, Chinese University of Hong Kong, Shatin, N.T., Hong Kong, China
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Abstract: In the present paper, we study the zero-temperature phase diagram of the doped perovskite manganites at filling $x=0.5$ by the real-space Hartree-Fock approximation method. Our purpose is to resolve a controversial issue arising recently on the origin of the charge ordered phases in these systems. We find that the antiferromagnetic superexchange interaction between the localized spins plays the central role in producing the concerned phases. Our results confirm some speculations on this issue.

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Key words: manganites, charge ordered phases, antiferromagnetic correlation

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