## Abstract Submitted for the MAR13 Meeting of The American Physical Society

Determinant Quantum Monte Carlo Study of the Enhancement of d-wave Pairing by Charge Inhomogeneity RUBEM MONDAINI, Instituto de Fisica, Universidade Federal do Rio de Janeiro Cx.P. 68.528, 21941-972 Rio de Janeiro RJ, Brazil, TAO YING, Department of Physics, Harbin Institute of Technology, Harbin 150001, China, THEREZA PAIVA, Instituto de Fisica, Universidade Federal do Rio de Janeiro Cx.P. 68.528, 21941-972 Rio de Janeiro RJ, Brazil, RICHARD T. SCALETTAR, Physics Department, University of California, Davis, California 95616, USA — Striped phases, in which spin, charge, and pairing correlations vary inhomogeneously in the CuO<sub>2</sub> planes, are a known experimental feature of cuprate superconductors, and are also found in a variety of numerical treatments of the two dimensional Hubbard Hamiltonian. In this paper we use determinant Quantum Monte Carlo to show that if a stripe density pattern is imposed on the model, the d-wave pairing vertex is significantly enhanced. We attribute this enhancement to an increase in antiferromagnetic order which is caused by the appearance of more nearly half-filled regions when the doped holes are confined to the stripes. We also observe an enhanced d-wave pair correlation inside stripes reaching its maximum value when the  $\pi$ -phase shift in the magnetic order takes place.

Reference: Rubem Mondaini and Tao Ying and Thereza Paiva and Richard T. Scalettar, Phys. Rev. B 86, 184506 (2012).

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