Abstract Submitted
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d-wave superconductivity from correlated hopping interactions determined by angle-resolved photoemission spectroscopy[1] CHUMIN WANG, CESAR G. GALVAN, Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico, LUIS A. PEREZ, Instituto de Fisica, Universidad Nacional Autonoma de Mexico — Starting from a generalized Hubbard model, in which correlated-hopping interactions are considered in addition to the on-site repulsive Coulomb one, we solve numerically two coupled integral equations [1] within the Bardeen-Cooper-Schrieffer formalism, in order to quantify the doping effects on the critical temperature (T_c), d-wave superconducting gap, and the electronic specific heat. Within the mean-field approximation, we have determined the single and correlated electron hopping parameters for $La_{2-x}Sr_xCuO_4$ compound by using angle-resolved photoemission spectroscopy (ARPES) data [2]. The resulting parametrized Hubbard model is able to explain the experimental T_c variation as a function of the doping level (x). In addition, the observed power-law behavior of the superconducting specific heat is reproduced by this correlated-hopping Hubbard model without adjustable parameters. [1] L.A. Pérez, J.S. Millán, C. Wang, *Int. J. Mod. Phys. B* **24**, 5229-5239 (2010). [2] T. Yoshida, *et al.*, *Phys. Rev. B* **74,** 224510 (2006).

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