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Understanding the Unusual Magnetic-Susceptibility Anisotropies of La_2CuO_4

Lara Benfatto¹, Marcello B. Silva Neto², Vladimir Juricic², Cristiane Morais Smith²

¹ *SMC-INFM and Department of Physics, University of Rome "La Sapienza",
Piazzale Aldo Moro 5, 00185, Rome, Italy*

² *Institute for Theoretical Physics, University of Utrecht, P.O. Box 80.195, 3508
TD, Utrecht, The Netherlands*

Between the several anomalous properties of cuprates superconductors, the attention has been put recently on the magnetic properties of the undoped compounds. In particular, L. N. Lavrov *et al.*, Phys. Rev. Lett. **87**, 017007 (2001), reported *unusual* magnetic anisotropies in the low-field susceptibility of La_2CuO_4 . Here the magnetic and thermodynamic properties of La_2CuO_4 are studied within a long-wavelength non-linear sigma model effective theory for the quantum Heisenberg antiferromagnet that incorporates both the Dzyaloshinskii-Moriya and pseudo-dipolar anisotropy terms. We provide a simple and clear explanation for all the recently reported anomalies, and we demonstrate explicitly why La_2CuO_4 can not be classified as an ordinary easy-axis antiferromagnet.

- [1] M. B. Silva Neto, L. Benfatto, V. Juricic, and C. Morais Smith, cond-mat/0502588.
[2] M. B. Silva Neto and L. Benfatto, cond-mat/0507103, to appear in Phys. Rev. B (R) (2005).

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