

Abstract Submitted  
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**Superconducting fluctuations and Fermi surface reconstruction in underdoped cuprates**<sup>1</sup> SHIZHONG ZHANG, Dept. of Physics, The University of Hong Kong, SUMILAN BANERJEE, MOHIT RANDERIA, Dept. of Physics, The Ohio State University — Recent observation of quantum oscillations in underdoped Hg1201 has indicated that the small Fermi surface (FS) is an intrinsic property of the Copper-oxide plane [1]. The emergence of small FS requires significant FS reconstruction in a magnetic field  $H$ . Experiments have found signatures of both uni- and bi-directional charge orders that can lead to such FS reconstruction. For the bi-directional charge order, however, a large, and possibly unrealistic, value of charge ordering potential is necessary to compare favourably with experiments. We show that by taking into account static superconducting (SC) fluctuations the required charge ordering potential can be dramatically reduced, while reconciling the observed  $\sqrt{H}$  dependence of the specific heat. We comment on why dissipation leads to static, as opposed to dynamical, SC fluctuations [2] at low-temperature and high field. [1] N. Barisic et al., Nature Physics, doi:10.1038/nphys2792 (2013). [2] S. Banerjee, S. Zhang and M. Randeria, Nature Comm. 4, 1700 (2013).

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Shizhong Zhang  
Dept. of Physics, The University of Hong Kong

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