

MAR09-2008-000847

Abstract for an Invited Paper
for the MAR09 Meeting of
the American Physical Society

Stripe order, electron pockets, and Fermi arcs¹

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The recent observation of an electron pocket by quantum oscillation experiments is naturally explained by the presence of magnetic stripe order near 1/8 hole doping in cuprates [1]. A bigger question is how these observations are related to other phenomena in the phase diagram - the pseudogap phase, quantum critical points, and Fermi arcs [2], and the implications this might have for the origin of high temperature superconductivity.

[1] A. J. Millis and M. R. Norman, Antiphase stripe order as the origin of electron pockets observed in 1/8-hole-doped cuprates, Phys. Rev. B 76, 220503 (2007).

[2] M. R. Norman, A. Kanigel, M. Randeria, U. Chatterjee and J. C. Campuzano, Modeling the Fermi arc in underdoped cuprates, Phys. Rev. B 76, 174501 (2007).

¹Work at Argonne National Laboratory was supported by the U.S. DOE, Office of Science, under Contract No. DE-AC02-06CH11357.