

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

A case for superconducting stripes in cuprates IVAR MARTIN, Theoretical Division, LANL, CHRISTOS PANAGOPOULOS, Nanyang Technological University (Singapore) and Department of Physics, University of Crete and FORTH (Greece) — Existence of charge-spin stripe states has been demonstrated in several families of cuprate superconductors; however, their relationship to superconductivity has remained enigmatic. The evidence of stripes, which is particularly clear in the underdoped regime, appears to go hand in hand with the anomalously broad superconducting fluctuation regime above T_c , as evidenced by the Nernst, diamagnetism, and ac-conductivity measurements. We therefore examine a phenomenological model of strongly inhomogeneous -striped - superconductor. We estimate the magnitude of the Nernst and the diamagnetic responses, and determine the trends as a function of doping and temperature. Our estimates are qualitatively consistent with the experimental results in the anomalous fluctuation regime, lending support to the view that spin-charge stripes can well coexist, or possibly promote, superconductivity.

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Date submitted: 17 Dec 2009

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