

Abstract Submitted
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Fermi-arcs from angular fluctuations of a multi-component order parameter DEBANJAN CHOWDHURY, SUBIR SACHDEV, Department of Physics, Harvard University — Angle resolved photoemission experiments on the underdoped cuprates have seen evidence for highly unusual gapless Fermi-arcs. They appear as disconnected surfaces above the superconducting transition temperature and below an onset temperature scale, which is the onset of the pseudogap as has been seen in a large number of probes. Over the past few years a lot of insight has been gained into the nature of the mysterious pseudogap state with the discovery of a fluctuating charge-ordered state with a finite correlation length. It has recently been suggested [1] that the pseudogap regime is described by the angular fluctuations of a multi-component order parameter. In this work, we study the effect of these fluctuations on the spectral function of the underlying fermions and show that the arcs occur naturally in the presence of fluctuating charge-order and superconducting correlations. We analyze the relative importance of these fluctuations as a function of temperature and make connections with recent photoemission experiments. [1] L. Hayward, D. Hawthorn, R. Melko and S. Sachdev, arXiv:1309.6639.

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