

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Mechanisms for Superconductivity in Cuprates compared with results from the Generalized MacMillan-Rowell Analysis of High Resolution Laser- ARPES CHANDRA VARMA, University of California, Riverside, CA., HAN-YONG CHOI, Korea Institute for Advanced Study, Seoul 130-722, Korea., WENTAO ZHANG, XINGJIANG ZHOU, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China. — The spectra of fluctuations and their coupling to fermions has been deduced from extensive high resolution laser ARPES in several BISCCO samples and quantitatively analyzed. We ask the question whether some of the theories for superconductivity in Cuprates are consistent or inconsistent with the frequency and the momentum dependence of the deductions. We find that any fluctuation spectra, for example that of Antiferromagnetic Fluctuations, whose frequency dependence depends significantly on momentum dependence are excluded. We consider the quantum-critical spectra of the loop-current order observed in under-doped cuprates and its coupling to fermions and find it consistent with the data.

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Date submitted: 10 Nov 2011

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