

Abstract Submitted
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Nodal electronic scattering rates, T^* , and the phase diagram in hole doped cuprate superconductors DANIEL DESSAU, University of Colorado, Boulder, T.J. REBER, University of Colorado, XIAOQING ZHOU, HAOXIANG LI, JUSTIN WAUGH, STEPHEN PARHAM, YUE CAO, ZHE SUN, QIANG WANG, MICHAEL HERMELE, GERALD ARNOLD, University of Colorado, Boulder, J.S. WEN, ZHIJUN XU, GENDA GU, Brookhaven National Labs, NICK PLUMB, University of Colorado, Boulder, YOSHIYUKI YOSHIDA, HIROSHI EISAKI, AIST Tsukuba — Based upon detailed angle resolved photoemission spectroscopy measurements of a wide range of doping of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$, we present a unified phenomenology for the non-Fermi liquid normal-state interactions (scattering rates) in the nodal direction, which we show are dominated by a single parameter that smoothly varies with doping. When viewed over typical experimental temperature ranges this phenomenology has a curvature change that mimics the T^* “pseudogap” temperature scale observed in transport experiments, including the possible quantum critical point.

Daniel Dessau
University of Colorado, Boulder

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