

Abstract Submitted  
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**Elastic forward scattering in superconducting cuprates** LINGYIN ZHU, Department of Physics, University of Florida, T. DAHM, Inst. für Theoretische Physik, Universität Tübingen, PETER HIRSCHFELD, Department of Physics, University of Florida, DOUGLAS SCALAPINO, Department of Physics, University of California, Santa Barbara — We investigate the effect of elastic forward scattering on the ARPES spectrum of cuprates superconductors. The single particle elastic scattering rate at the antinodal point is shown to be suppressed upon the opening of the gap due to the cancellation between the normal and anomalous scattering processes, but is much larger at the nodal point. We further point out that the spectra for  $\mathbf{k}$  points away from the Fermi level possess a dispersing quasiparticle peak and a rounded square root-like peak at the local gap edge ( $\omega = \Delta_k$ ). While both of these features evolve with the concentrations and effective ranges of defects, the latter provides a possible direct measure of the superconducting order parameter away from the Fermi surface, and may thus be used to determine the range of the pair interaction.

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