

Abstract Submitted
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Microscopic Spectral Model of High Temperature Superconductors J.C. PHILLIPS, Dept. of Physics and Astronomy, Rutgers University — The self-organized dopant percolative filamentary model [1], entirely orbital in character (no spins), explains the evolution with doping of Fermi arcs observed by ARPES, including the abrupt transitions in quasiparticle strength observed near optimal doping in cuprate high temperature superconductors [2]. Similarly abrupt transitions are also observed [3] in time-resolved picosecond relaxation spectroscopy at 1.5 eV, and these are explained as well, using no new assumptions and no adjustable parameters. The anomalous “precursive” temperature-dependent strains observed by EXAFS [4] are associated with relaxation of filamentary ends.

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