

Abstract Submitted
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Low-lying excitations of a strongly correlated superconducting state: role of correlation in the ARPES experiments for cuprates SEIJI YUNOKI, SISSA and INFN, via Beirut 4, 34014 Trieste, Italy, ELBIO DAGOTTO, Dept. of Physics and Astronomy, University of Tennessee, Knoxville, and Oak Ridge National Laboratory, Oak Ridge, Tennessee, SANDRO SORELLA, SISSA and INFN, via Beirut 4, 34014 Trieste, Italy — Motivated by recent photoemission experiments on cuprates, the low-lying excitations of a strongly correlated superconducting state are studied numerically. It is observed that along the nodal direction these low-lying one-particle excitations show a linear momentum dependence for a wide range of excitation energies and, thus, they do not present a kink-like structure. The nodal Fermi velocity v_F , as well as other observables, are systematically evaluated directly from the calculated dispersions, and they are found to compare well with experiments. It is argued that the parameter dependence of v_F is quantitatively explained by a simple picture of a renormalized Fermi velocity. The intimate correlation between quasi particle weight and the superconducting ordering is also discussed. [1] S. Yunoki, E. Dagotto, and S. Sorella, preprint (2004).

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