

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Elementary Excitations of the 2-leg Hubbard Ladder and Related Models near 1/2-filling YE-HUA LIU, T. MAURICE RICE, ETH - Hoenggerberg
— We study the single-particle, two-particle and spin-flip excitations in a 2-leg Hubbard ladder near 1/2-filling with various interaction strengths, using the high-performance DMRG program from the ALPS library. In addition to the Hubbard model, we explore the effect of additional interaction terms, e.g. density-density, spin-spin interactions, on the various correlations. The final Hamiltonian can be used as a low-energy effective model for particular regions in momentum space of the 2-dimensional Hubbard model. The variation of the excitation spectrum, as a function of the relative strength of the various terms, provides simple insights into the physics of the pseudogap phase in cuprates.

Ye-Hua Liu
ETH - Hoenggerberg

Date submitted: 11 Nov 2016

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