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Title: Novel Field Theory Approach to 2-leg Ladders: New Results for the Spectrum and Correlation Functions

An effective low energy field theory is developed for a system of two chains with generic intrachain interactions coupled by direct tunneling and interactions. Individual chains are considered as Luttinger liquids with arbitrary ratio of spin v_s and charge v_c velocities. The novelty of the approach lies in the judicious choice of the basis for the decoupled chains. Such choice greatly simplifies the form of the interaction and allows one to separate high and low energy degrees of freedom. In a direct analogy to the bulk cuprates the resulting effective field theory distinguishes three qualitatively different regimes: (i) small doping ($v_c \ll v_s$), (ii) optimal doping ($v_s \approx v_c$) and (iii) large doping ($v_s \ll v_c$). I discuss the excitation spectrum and derive expressions for the electron spectral function which turns out to be highly incoherent. The degree of incoherence increases when one considers an array of ladders (stripe phase).