

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Single-particle dispersion in tetragonal CuO¹ CLEMENS ADOLPHS, Univ of British Columbia, MONA BERCIU, Univ of British Columbia, Quantum Matter Institute — We study the single-hole dispersion in a layer of tetragonal CuO using a variational approach in which fluctuations between the copper spins are neglected. This approach has recently been applied to the single-particle dispersion in a CuO₂ layer, where it successfully reproduces the experimentally observed dispersion. Since the CuO lattice can be viewed as two interspersed CuO₂ lattices with weak intra-layer coupling, we expect this approach to be valid for CuO as well. The intra-layer coupling leads to an interesting spectral feature at $k = (\pi/2, \pi/2)$, where it turns the minimum found in the CuO₂ dispersion into a saddle point. This is a result of the intra-layer coupling lifting the degeneracy between quasiparticles occupying different sublattices.

¹Financial support from NSERC and the UBC Four Year Doctoral Fellowship program are acknowledged

Clemens Adolphs
Univ of British Columbia

Date submitted: 14 Nov 2014

Electronic form version 1.4