

Abstract Submitted
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Mid-gap States and Upper Hubbard Band in Bi-2201 Cuprate Superconductor HUAN-KUANG WU, TING-KUO LEE, Institute of Physics, Academia Sinica — A recent Scanning Tunneling Spectra (STS) measurement on underdoped Bi-2201 by Yayu Wang and collaborators, discovered mid-gap states between Oxygen band and upper Hubbard band (UHB) of Cu. There is a strong interplay between the spectral weights and energies of the UHB and these mid-gap states. We performed a variational calculation of the Hubbard model by constructing explicitly the mid-gap states and UHB states. The doping dependence of the energies and spectral weight transfer between UHB and the mid-gap state explains well the results of STS experiment.

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