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Detail Properties of Band Renormalization Effect of the $\text{Bi}_2\text{Sr}_2\text{Ca}_1\text{Cu}_2\text{O}_{8+\delta}$ ¹ WEI-SHENG LEE, WORAWAT MEEVESANA, DONGHUI LU, Stanford University, STEVE JOHNSTON, TOMAS DEVEREAUX, University of Waterloo, Canada, HIROSHI EISAKI, Low-Temperature Physics Group, AIST, Tsukuba, Japan, ZHI-XUN SHEN, Stanford University — Since the observation of a kink in the nodal dispersion and the peak-dip-hump structure at antinodal region, the band renormalization effects in High-Tc superconducting cuprates have drawn lots of attention in the field of High-Tc superconductivity. Despite of the consensus that these renormalization structures are induced by coupling to some bosonic mode(s), data with much improved quality are needed to clarify the origin of the mode and gain further insight into its relation to the High-Tc superconductivity. In this work, detailed temperature and doping dependence of the band renormalization effect in Bi2212 system are studied via ARPES spectra with improved data quality. Our data suggest that there are multiple bosonic modes coupled to the electrons exhibiting a rich superconductivity and doping induced phenomena. Simulations based on electron-phonon interaction will also be discussed in comparison to our data.

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