

DETAILS OF THE NODAL ELECTRONIC DISPERSION OF $\text{Bi}_{2-x}\text{Pb}_x\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$

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Besides the well known kink in the dispersion and the drop in the width appearing in photoemission spectra of the main band taken in the nodal direction of the Brillouin zone of $\text{Bi}_{2-x}\text{Pb}_x\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ (Bi(Pb)2212) we found an additional kink in the peak height, especially in optimally doped Bi(Pb)2212 ($T_c = 93\text{K}$) which has not been investigated so far. The kink in the peak height allows a more precise determination of the energy of the kink in the dispersion and the drop in the width. An exact knowledge of this energy is essential to discriminate between phononic or magnetic coupling modes, which is strongly under debate. In this context we analyse relevant differences between phononic or magnetic coupling modes and conclude that the kink and the drop of the main band along nodal direction in optimally doped Bi(Pb)2212 is caused by a coupling of the electronic system to a phononic mode.