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Particle-hole asymmetric components of QPI in the pseudogap phase of underdoped Bi-2212 C.K. KIM, Cornell, BNL, JHINHWAN LEE, KAIST, Cornell, K. FUJITA, Cornell, H. EISAKI, AIST, S. UCHIDA, Tokyo U, J.C. DAVIS, Cornell, BNL, St. Andrews, JINHO LEE, BNL — QPI visualized by SI-STM became an extremely useful tool in the study of complex electronic matter. Particle-hole(p-h) symmetric QPI observed in the superconducting cuprates revealed many interesting phenomena including the disappearance of the QPI signal around the reduced zone boundary[1], and the persisting QPI signal above the T_c[2]. Recently, the most dominating band of $Sr_3Ru_2O_7$ was identified above the metamagnetic nematic phase transition temperature by analyzing p-h asymmetric QPI [3]. Also p-h asymmetric QPI in the parent compound of the ferropnictide superconductor revealed a nematic like electronic structure[4]. Within the same rationale, it is of great interest to find the QPI signature of the band before the superconducting gap opens in the cuprates. Here we explore QPI with particle-hole asymmetric dispersion in the pseudogap phase of underdoped $Bi_2Sr_2CaCu_2O_8$; it appears to disperse continuously through E_F. Our measured value of the v_F of this dispersion is 0.2×10^6m/s which compares well with the reported value 1.7eVÅ from ARPES. We will discuss the possible origin of this QPI by examining its symmetry and dispersion near the zone boundary using theoretical models and currently available experimental data from other probes. [1] Y. Kohsaka et al., Nature(2008) [2] Jhinhwan Lee et al., Science(2009) [3] Jinho Lee et al., Nature Physics(2009) [4] T.-M. Chuang et al., Science(2010)

C. K. Kim
BNL

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