Abstract Submitted
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Temperature Evolution of the Electronic States & Multiple Gap Features in $Bi_2Sr_{2-y}La_yCuO_6$.[1] AAKASH PUSHP, ABHAY PASUPATHY, KENJIRO K. GOMES, COLIN PARKER, Department of Physics, Princeton University, SHIMPEI ONO, CRIEPI, Japan, YOICHI ANDO, ISIR, Osaka University, ALI YAZDANI, Department of Physics, Princeton University — Like $Bi_2Sr_2CaCu_2O_{8+x}$, $Bi_2Sr_{2-y}La_yCuO_6$samples show inhomogeneous gaps in the DOS at low temperature. We present atomic resolution STM spectroscopy measurements of the evolution of the DOS with temperature for optimal (y=0.4) and overdoped (y<0.4) samples and compare these measurements to $Bi_2Sr_2CaCu_2O_{8+x}$. In $Bi_2Sr_2CaCu_2O_{8+x}$, the low temperature (T<Tc) spectra of overdoped samples are all characterized by a single d-wave gap with sharp coherence peaks. In contrast, $Bi_2Sr_{2-y}La_yCuO_6$shows a variety of spectra at low temperature ranging from those without gaps to ones with multiple gap features [1]. By measuring the temperature evolution of these gap features at given lattice sites for various doping levels, we estimate the local temperature at which pairing develops in these samples. [1] Boyer et al., Nat Phys 3, 802 (2007)

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