

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Spectroscopic imaging STM study of $\text{Bi}_2\text{Sr}_{2-x}\text{Ln}_x\text{CuO}_{6+\delta}$ JHINHWAN LEE, K. FUJITA, LASSP, Cornell University, K. MCELROY, University of Colorado, Boulder, JINHO LEE, LASSP, Cornell University, J.W. ALLDREDGE, M. WANG, Cornell University, S. ILLANI, LASSP, Cornell University, H. EISAKI, Advanced Industrial Science and Technology, S. UCHIDA, University of Tokyo, J.C. DAVIS, LASSP, Cornell University — We will present the spectroscopic imaging STM data of near optimally doped, Ln-substituted Bi2201. The Ln (Lanthanide) atoms substituting the Sr atoms are known to cause out-of- CuO_2 -plane lattice disorder and large variation of T_c ($T_c(\text{La})\sim 34\text{K}$, $T_c(\text{Gd})\sim 13\text{K}$). We will demonstrate how the coherence peaks, the gap maps, the quasi-particle interference, and the checkerboard electronic structures are affected by lattice disorder and varied T_c in these materials. We will also show, for Gd-Bi2201, how the above atomic scale spectroscopic features change at temperatures below and above T_c .

Jhinhwan Lee
LASSP, Cornell University

Date submitted: 20 Nov 2006

Electronic form version 1.4