

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Dimensional crossover in the electronic structure of  $(\text{Bi,Pb})_2(\text{Sr,L a})_2\text{CuO}_{6+\delta}$**  T. KONDO, T. TAKEUCHI, EcoTopia Science Institute, Nagoya Univ., Japan, H. YANG, H. DING, Dept. of Physics, Boston College, A. KAMINSKI, Dept. of Physics and Astronomy, Ames Lab., J.C. CAMPUZANO, Materials Sciences Division, Argonne National Lab. — The hole-concentration ( $p$ ) dependence of the 3D energy- momentum ( $\varepsilon - \mathbf{k}$ ) dispersion in Bi2201 was investigated by ARPES. We observe a significant  $\varepsilon - k_z$  dispersion ( $\sim 10$  meV wide) around  $(\pi, 0)$  in a heavily overdoped sample ( $T_c \leq 0.5$  K). This  $\varepsilon - k_z$  dispersion shrinks with decreasing  $p$ , and is not observed in lightly overdoped and optimally doped samples ( $T_c = 21$  K and 35 K, respectively) indicating a crossover from a 3D to 2D electronic structure.

Takeshi Kondo  
EcoTopia Science Institute, Nagoya Univ., Japan

Date submitted: 24 Nov 2005

Electronic form version 1.4