Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Electron-phonon coupling of La2-2xSr1+2xMn2O7 revealed by ARPES Z. SUN, University of Colorado, Boulder, CO 80309, Y.-D. CHUANG, Lawrence Berkeley National Lab, Berkeley, CA 94720, J.F. DOUGLAS, University of Colorado, Boulder, CO 80309, A.V. FEDOROV, Lawrence Berkeley National Lab, Berkeley, CA 94720, H. ZHENG, J.F. MITCHELL, Argonne National Laboratory, Argonne, IL 60439, T. KIMURA, Y. TOKURA, University of Tokyo, Tokyo, Japan, D.S. DESSAU, University of Colorado, Boulder, CO, 80309 — Angle-resolved photoemission experiments were performed on Bi-layer manganite $La_{2-2x}Sr_{1+2x}Mn_2O_7$ in the doping regions where strong CMR effects are observed. The low temperature electronic band structure near the (pi, 0) point shows a clear kink structure with an energy scale near 65 meV. We attribute this kink structure to electrons coupling to the LO bond-stretching phonons with a coupling constant ~ 1. Moving along the straight nested segments of Fermi surface near the zone boundary, we didn't find any change of the kink energy or coupling strength. This indicates the nested Fermi surface is strongly correlated to electron-phonon coupling, which should play an important role in the rich physics of manganites.

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Date submitted: 01 Dec 2004 Electronic form version 1.4