Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

High Field Hall Effect and Resistivity in High-T_c $\mathbf{La_{2-x}Sr_xCuO_4}$[1]

FEDOR BALAKIREV, JONATHAN BETTS, ALBERT MIGLIORI, National High Magnetic Field Laboratory, Los Alamos National Laboratory, Los Alamos, NM 87545, USA, ICHIRO TSUKADA, YOICHI ANDO, Central Research Institute of Electric Power Industry, Komae, Tokyo 201-8511, Japan, GREGORY BOEBINGER, National High Magnetic Field Laboratory, Tallahassee, FL 32310 — Hall effect and resistivity measurements were performed in a set of $La_{2-x}Sr_xCuO_4$ thin film samples in magnetic field up to 60T. The Sr doping, x, was varied between 0.08 and 0.22. The resistivity and Hall voltage were measured simultaneously using digital lockin technique developed at NHMFL. We find a pronounced minimum in the doping dependence of the Hall coefficient, suggesting a common phenomenon which is generic for high temperature superconductors. This Hall effect anomaly is most readily associated with a phase transition near optimal doping where superconductivity is most robust.

[1]The work at the National High Magnetic Field Laboratory was supported by the National Science Foundation and the DOE Office of Science

Fedor Balakirev
National High Magnetic Field Laboratory,
Los Alamos National Laboratory, Los Alamos, NM 87545, USA

Date submitted: 24 Nov 2006 Electronic form version 1.4