

Abstract Submitted
for the OSF06 Meeting of
The American Physical Society

Combinatorial Hall Effect System for Oxide Films¹ BRYAN KERNS, DAVID RENCH, MICHAEL SCHROER, TIFFANI CASPER, JEFFREY CLAYHOLD, Miami University, IVAN BOZOVIC, Brookhaven National Laboratory — Combinatorial film growth techniques have made it possible to produce large numbers of high-quality oxide films at one time. Characterizing the samples by traditional methods would be far too slow. Certain measurements, such as the Hall effect, require careful temperature control and lock-in amplifiers to resolve the small signal. We have just built a complete system for measuring the Hall effect in 32 samples simultaneously. The system consists of our home-built, 32-channel lock-in amplifier system, a gas-flow cryostat with a pogo-pin array, a 1 Tesla electromagnet, computerized data acquisition and temperature control, and a specially-built multiplexer to reconfigure the sample leads to allow resistivity measurements. Test show that the system show a good voltage resolution of 15 nV with typical signals of 1 μ V. We hope to show data from a series of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ samples.

¹Supported by Brookhaven National Laboratory and the Department of Energy

Jeffrey Clayhold
Miami University

Date submitted: 22 Sep 2006

Electronic form version 1.4