

Abstract Submitted  
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**Combinatorial Study of the Hall-Effect Sign Change in Over-doped  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_{4+\delta}$  Films** JEFFREY CLAYHOLD, Miami University, OSHRI PELLEGG, ANTHONY BOLLINGER, GENNADY LOGVENOV, IVAN BOZOVIC, Brookhaven National Laboratory — We have made a high-resolution study of the sign change of the Hall effect in combinatorially grown samples of over-doped  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_{4+\delta}$ , using our dedicated system for creating and measuring samples with ultrafine stoichiometry resolution. The data are from MBE films grown with a linear stoichiometry gradient and were taken with a characterization system that can measure both the Hall effect and resistivity simultaneously at 31 different locations on the film. Recently improved growth techniques, as well as sample processing, lithography and subsequent handling give both Hall and resistance measurements confirming a linear stoichiometry gradient to better than 1 %. We report on the variation of the Hall coefficient,  $T_c$ , and the resistivity in the region of the Fermi surface topology change.

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