

Abstract Submitted  
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**Oxygen staging in phase separated  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_{4+y}$**  HASHINI MOHOTTALA, University of Hartford, 200 Bloomfield Avenue, LINDA UDBY, e-Science and Nanoscience Centres, Niels Bohr Institute, Universitetsparken 5, 2100, SAMUEL EMERY, B.O. WELLS, J. I. BUDNICK, University of Connecticut, 2152, Hillside road, Storrs CT-06269, CHRISTOF NIEDERMAYER, Laboratory for Neutron Scattering, ETHZ & PSI, CH-5232 Villigen PSI, Switzerland, KIM LEFMANN, e-Science and Nanoscience Centres, Niels Bohr Institute, Universitetsparken 5, 2100, N.H. ANDERSON, Materials Research Division, Risø DTU, Frederiksborgvej 399, 4000 Roskilde, Denmark, F.C. CHOU, Center for Condensed Matter Sciences, National Taiwan University, Taipei 10617, Taiwan — We studied oxygen staging in a series of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  (LSCO) samples using neutron scattering. The samples were oxidized using electrochemistry. Electronic phase separation was previously reported in the oxygen rich LSCO system with two stable phases identified as optimally doped superconducting phase and a magnetic phase (1/8th like) with the same ordering temperatures at 40 K [1]. Our present studies show staging in this system. Although staging was observed and extensively studied in the samples with no Sr [2], it has not been reported or systematically studied in the systems with both Sr and oxygen. We do find staging in the oxygenated LSCO system, but the staging peaks evolve as Sr concentration increases and excess oxygen concentration decreases. [1] H Mohottala et al. Nature Materials **5**, 377 - 382 (2006), [2] B.O. Wells et al., Z. Phys. B 100, 535 (1996).

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