Abstract Submitted for the MAR07 Meeting of The American Physical Society

c-axis magnetotransport and noise in underdoped $La_{2-x}Sr_xCuO_4^{-1}$ I. RAIČEVIĆ, Dept. of Physics and National High Magnetic Field Laboratory (NHMFL), Florida State Univ. (FSU), J. JAROSZYNSKI, NHMFL, D. POPOVIĆ, NHMFL and Dept. of Physics, FSU, G. JELBERT, C. PANAGOPOULOS, Cavendish Laboratory, Univ. of Cambridge, T. SASAGAWA, GLAM / Dept. of Appl. Phys., Stanford Univ. — We report a study of c-axis magnetotransport and noise on high quality single crystals of $La_{2-x}Sr_xCuO_4$ (x=0.03). The measurements were performed at temperatures $0.110 \le T(K) \le 50$ and fields $0 \le B(T) \le 18$ parallel and perpendicular to the c axis. Our experiments have revealed for the first time a number of glassy features in the charge response at very low T, such as memory effects and history dependence. In the same T range, we have observed positive magnetoresistance (MR), which exhibits hysteretic behavior. The hysteretic effects decrease with increasing T and vanish at ~ 1.5 K. The crossover from positive to negative MR takes place at higher T and B. We have also observed switching fluctuations in the time-dependent resistance at the lowest T, with switching times varying from several minutes to several hours. The possible origins of the observed glassiness will be discussed.

¹Supported by NSF Grant No. DMR-0403491, NHMFL through NSF Cooperative Agreement No.DMR-0084173, and The Royal Society.

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Date submitted: 25 Nov 2006 Electronic form version 1.4