

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**The local magnetic field response of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  on the overdoped side of the phase diagram as revealed by  $\mu\text{SR}$**  G.J. MACDOUGALL, Oak Ridge National Labs, A.A. ACZEL, S.-J. KIM, J.A. RODRIGUEZ, C.R. WIEBE, G.M. LUKE, Department of Physics and Astronomy, McMaster University, T. ITO, P.L. RUSSO, A.T. SAVICI, Y.J. UEMURA, Department of Physics, Columbia University, H. KIM, S. WAKIMOTO, R.J. BIRGENEAU, Department of Physics, University of Toronto — There is now a large body of evidence from local probes which point to intrinsic heterogeneity in the cuprates. One example is the recent reports of an inhomogeneous magnetic field response in the underdoped materials, as revealed by muon spin rotation experiments. In an effort to explore this field response, we have measured the  $\mu\text{SR}$  spectra of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  in a number of applied magnetic fields and with  $x$  ranging from the underdoped to heavily overdoped materials. I will summarize these efforts, and present the resultant data in the context of existing literature. Possible interpretations and directions for future research will be discussed.

G.J. MacDougall  
Oak Ridge National Labs

Date submitted: 21 Nov 2008

Electronic form version 1.4