Abstract Submitted
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Microscopic investigation of the dopant oxygen distribution using ^{199}Hg NMR in the high temperature superconductor $HgBa_2CuO_{4+\delta}$[1] YIZHOU XIN, A.M. MOUNCE[2], JEONGSEOP LEE, SANGWON OH, W.P. HALPERIN, Northwestern University, A.P. REYES, P.L. KUHNS, National High Magnetic Field Laboratory, Tallahassee, M.K. CHAN, C. DORROW, L. JI, D. XIA[3], X. ZHAO[4], M. GREVEN, University of Minnesota, Minneapolis — In the high temperature superconductor $HgBa_2CuO_{4+\delta}$, it has been determined that the dopant oxygen O_δ resides in the Hg-plane [1]. The systematic development of the ^{199}Hg NMR spectrum as a function of O_δ content is presented. For high O_δ, 4 different resonance peaks are observed. Three of the peaks follow a binomial distribution and correspond to 0, 1, and 2 O_δ nearest neighbors. The fourth peak persists down to low doping and may be indicative of a Hg vacancy nearest neighbor. This work was supported by the DOE BES under grants No. DE-FG02-05ER46248 and No. DE-SC0006858 and the NHMFL through the NSF and State of Florida.

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