

Abstract Submitted
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**Torque magnetization study of superconducting fluctuations
in single-layer cuprates: new implications for the phase diagram¹**

GUICHUAN YU, R. FRINK, University of Minnesota, D.-D. XIA, X. ZHAO, Jilin University, China, N. BARIŠIĆ, CEA-DSM-IRAMIS, France, R.-H. HE, Boston College, N. KANEKO, AIST, Japan, T. SASAGAWA, Tokyo Institute of Technology, Japan, Y. LI, Peking University, China, A. SHEKHTER, Los Alamos National Laboratory, M. GREVEN, University of Minnesota — We have studied the superconducting fluctuations above the transition temperature by angle-dependent torque magnetization in single-layer $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ (LSCO), $\text{Bi}_2(\text{Sr},\text{La})_2\text{CuO}_{6+\delta}$ (Bi2201), and $\text{HgBa}_2\text{CuO}_{4+\delta}$ (Hg1201). The latter is a more ideal compound, with a maximum T_c of 97 K, more than twice the values for LSCO and Bi2201. In all three cases, the diamagnetic signal above T_c vanishes in an unusual exponential fashion, and at a rate that is universal, despite the dramatic differences in T_c [G. Yu *et al.*, arXiv:1210.6942v1]. These observations suggest that anomalies observed at much higher temperatures in both LSCO and Bi2201 are not associated with superconducting fluctuations.

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