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**Systematic determination of the superconducting fluctuation regime in the cuprates with torque magnetometry** GUICHUAN YU, University of Minnesota, YUAN LI, RUIHUA HE, Stanford University, XUDONG ZHAO, Jilin University, China, MARTIN GREVEN, University of Minnesota — Among the most important temperature scales in the high- $T_c$  cuprates are those associated with the normal state pseudogap and the superconducting (SC) gap. Early Nernst effect and torque magnetometry measurements appeared to suggest an onset of SC fluctuations well above  $T_c$  in  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  (LSCO). Recently, stripe correlations were found to contribute to the observed large Nernst signal in LSCO, leading to a reinterpretation of the earlier Nernst data. We report a systematically torque magnetometry study of the SC fluctuation regime in the simple model compound  $\text{HgBa}_2\text{CuO}_{4+\delta}$ , which has the highest  $T_c$  (97 K) among all single-layer cuprates, as well as initial results for LSCO. We demonstrate that the SC fluctuation regime is narrow and that it closely tracks  $T_c$ , which implies that the higher temperature scale observed in LSCO does indeed not result from SC fluctuations.

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