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Decoupling of superconducting planes of $La_{1.905}Ba_{0.095}CuO_4$ in a transverse magnetic field[1] JOHN TRANQUADA, Brookhaven National Lab, Z. STEGEN, G.S. BOEBINGER, National High Magnetic Field Lab, SU JUNG HAN, JIE WU, ZHIJUN XU, GENDA GU, QIANG LI, Brookhaven National Lab — We have measured the resistivity parallel and perpendicular to the CuO_2 planes in single crystals of $La_{1.905}Ba_{0.095}CuO_4$ for magnetic fields up to 35 T applied along the *c*-axis. Below the zero-field superconducting transition temperature of 32 K, we observe that, above a threshold field, the *c*-axis resistivity grows with field, eventually reaching a maximum and then decreasing. At the resistivity maximum, interlayer pair tunneling becomes insignificant. Under the same field and temperature conditions, the in-plane resistivity remains quite low, reflecting robust superconductivity. We identify a regime in which the superconducting planes are effectively decoupled. At 20 K, a field much greater than 35 T would be required to destroy the in-plane pairing, despite the fact that the field also induces both charge and spin stripe order (J.S. Wen *et al.*, arXiv:1009.0031).

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