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Magnetotransport of $La_{(2-x)}Sr_xCuO_4$ with nearly continuous doping in intense magnetic fields ZACHARY STEGEN, GREG BOEBINGER, Florida State University, JIE WU, IVAN BOZOVIC, Brookhaven National Lab, FEDOR BALAKIREV, ALBERT MIGLIORI, Los Alamos National Lab — Pulsed magnetic fields of up to 57 T were used to measure the Hall resistivity and longitudinal magnetoresistance of $La_{(2-x)}Sr_xCuO_4$ to low temperatures by suppressing the superconducting state. The samples were grown using Combinatorial Molecular Beam Epitaxy (COMBE) where the Sr concentration – and hence carrier doping, p – changes continuously across the sample. Performing 30 simultaneous transport measurements on a single growth allows for unprecedented resolution in doping ($\Delta p \approx 0.0002$). We examine the phase diagram of the resistive state in this hole-doped cuprate by measuring a series of COMBE samples.

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