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HIGH FIELD MAGNETORESISTANCE NEAR OPTIMAL DOPING IN $La_{2-x}Sr_xCuO_4$ JOSE A. GALVIS , PAULA GIRALDO-GALLO, SCOTT RIGGS, ZACHARY STEGEN, National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL, USA, BRAD RAMSHAW, KIMBERLY MODIC, ROSS MCDONALD, National High MagneticField Laboratory, Los Alamos National Laboratory, Los Alamos, NM, USA., IVAN BOZOVIC, Brookhaven National Laboratory, Upton, NY 11973, USA., ARKADY SHEKHTER, GREG BOEBINGER, National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL, USA — An outstanding experimental feature of the metallic behavior of all high-temperature superconductors near optimal doping is the linear-in-temperature resistivity observed over a wide temperature range. Although metallic quantum criticality in these systems has been proposed to be the origin of this anomalous temperature dependence, its manifestation in the magnetotransport, yet to be determined, can become a source of important insight into the physics of these compounds. The experimental challenge is to measure normal state magnetoresistance in a broad range of magnetic fields, always limited by the H_{c2} on the lower side and the available magnetic fields on the higher. Here we report magnetoresistance measurements in thin films of $La_{2-x}Sr_xCuO_4$, for magnetic fields beyond 65T - well above the highest fields used in previous studies of this system. We discuss the signature for quantum criticality based upon the high-field magnetoresistance measurements over a broad temperature range.

Jose Galvis Echeverri
National High Magnetic Field Laboratory

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