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Elastic Moduli of detwinned orthorhombic optimally doped LSCO ($\mathbf{La_{2-0.16}Sr_{0.16}CuO_4}$) VICTOR FANELLI, JONATHAN BETTS, ALBERT MIGLIORI, YOKO SUZUKI, Los Alamos National Laboratory, JIAQIANG YAN, Ames Laboratory — Accurate elastic modulus characterization of the superconducting phase transition (SC) in $La_{2-0.16}Sr_{0.16}CuO_4$ is difficult because the discontinuities in moduli are much smaller than fluctuations from twin boundary motion. Thus detwinning is required for a useful measurement and was achieved using mechanical stress along the tetragonal [110] direction (or equivalently, along the orthorhombic [100] direction) below the orthorhombic phase transition that is well below ambient temperature. Using resonant ultrasound spectroscopy (RUS) on the detwinned monocrystal, the discontinuities and moduli around the SC transition were measured.

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