

Abstract Submitted
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A Terahertz Conductivity Study of Pseudogap Phase in Underdoped LSCO.¹ LUCAS BILBRO, JHU Dept. of Physics and Astronomy; JHU Institute for Quantum Matter, IVAN BOZOVIC, Brookhaven National Laboratory, N. PETER ARMITAGE, JHU Dept. of Physics & Astronomy; JHU Institute for Quantum Matter — Using Terahertz Time Domain Spectroscopy (TTDS), we investigate the pseudogap phase of the high-temperature cuprate superconductors. We measure the frequency and temperature dependence of the complex conductivity for a number of underdoped thin films of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at frequencies well below the superconducting gap. A number of issues are investigated, including evidence for a non-zero finite frequency superfluid stiffness in regions outside the superconducting phase boundary. We discuss the extent of the fluctuation regime and the impact of these fluctuations on the physics of the pseudogap.

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