Abstract Submitted
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Electron Energy Dissipation in the Normal State of Optimally Doped BSCCO[1] JONATHAN RAMEAU, Brookhaven National Laboratory, Upton, New York, 11973, USA, SIMON FREUTEL, University Duisburg-Essen, Lotharstrasse 1, 47057 Duisburg, Germany, A.F. KEMPER, Department of Physics, North Carolina State University, M.A. SENTEF, Max Planck Institute for the Structure and Dynamics of Matter, HISKP, University of Bonn, J.K. FREERICKS, Dept. of Physics, Georgetown University, I. AVIGO, M. LIGGES, L. RETTIG, University Duisburg-Essen, Lotharstrasse 1, 47057 Duisburg, Germany, Y. YOSHIDA, H. EISAKI, National Institute of Advanced Industrial Science and Technology Tsukuba, Ibaraki 305-8568, Japan, J. SCHNEELOCH, R.D. ZHONG, G.D. GU, P.D. JOHNSON, Brookhaven National Laboratory, Upton, New York, 11973, USA, U. BOVENSIEPEN, University Duisburg-Essen, Lotharstrasse 1, 47057 Duisburg, Germany — New time-resolved ARPES (trARPES) results for the normal state of optimally doped Bi2212 will be discussed. These measurements reveal three intrinsic timescales for relaxation of hot carriers: an electron-electron timescale τ_{ee} and two electron-phonon timescales, $\tau_{\mathrm{short}}(E)$ and $\tau_{\mathrm{long}}(E)$. While $\tau_{\mathrm{ee}}(E)$, appears to be energy- and pump fluence-independent, $\tau_{\mathrm{short}}(E)$ and $\tau_{\mathrm{long}}(E)$ are found to be energy-dependent, with $\tau_{\mathrm{short}}(E)$ also fluence dependent. Further, a distinct step in $\tau_{\mathrm{short}}(E)$ at $E \sim 75$ meV above the Fermi energy is fount to originate from coupling of hot electrons to an optical phonon mode. The implications of these findings will be addressed.

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