

Abstract Submitted
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Optical scattering rate and effective mass throughout the phase diagram of $\text{Bi}_2\text{Sr}_{2-x}\text{La}_x\text{CuO}_6$ R.P.S.M. LOBO, Y.M. DAI, LPEM, ESPCI, CNRS, Paris, France, H.H. WEN, Nanjing University, Nanjing, China, P. CHENG, H.Q. LUO, B. XU, X.G. QIU, Institute of Physics, Chinese Academy of Sciences, Beijing, China — We determined the optical conductivity of $\text{Bi}_2\text{Sr}_{2-x}\text{La}_x\text{CuO}_6$ at dopings covering the phase diagram from the underdoped to the overdoped regimes. The frequency dependent scattering rate shows a pseudogap extending into the overdoped regime. We found that the effective mass enhancement calculated from the optical conductivity is constant throughout the phase diagram. Conversely, the effective optical charge density varies almost linearly with doping. Our results suggest that the low frequency electrodynamics of $\text{Bi}_2\text{Sr}_{2-x}\text{La}_x\text{CuO}_6$ is not strongly affected by the long range Mott transition. [Y.M. Dai *et al.*, Phys. Rev. B **85**, 092504 (2012)].

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