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**Effect of Long-Range Polar Electron-Phonon Interaction on the Hot Carrier Dynamics of GaAs** CHIN SHEN ONG, University of California, Berkeley, MARCO BERNADI, California Institute of Technology, STEVEN G. LOUIE, University of California, Berkeley — Hot carrier dynamics plays an important role in the functionality of electronic and photovoltaic devices. Recent interest in harvesting the energy of hot electrons before it is lost through thermalization has led to renewed interest in the microscopic details of hot electron energy loss mechanisms. Gallium arsenide (GaAs) is of particular interest because amongst its many advantages, it is a direct-gap semiconductor, has high electron mobility and is a high-performing candidate for electronic and photovoltaic applications. GaAs is a polar material, and long-range polar (Frölich) electron-phonon interaction has non-trivial effects on the carrier dynamics in the material. In this work, we investigate the effect of this interaction on the hot carrier dynamics of GaAs. This work is supported by NSF grant No. DMR15-1508412 and the DOE under Contract No. DE-AC02-05CH11231. Computational resources have been provided by DOE at Lawrence Berkeley National Laboratory's NERSC facility.

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