

Abstract Submitted  
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**Theoretical modeling of the terahertz response of ultrafast photoexcited charge carriers in graphene**<sup>1</sup> AVINASH RUSTAGI, CHRISTOPHER J. STANTON, Univ of Florida - Gainesville — We have formulated a semi-classical model to capture the terahertz response of photoexcited charge carriers in graphene. The model involves the time evolution of the initial carrier distribution function excited by a femtosecond laser pulse by solving the Boltzmann equation within the relaxation time approximation in presence of an in-plane DC electric field. We solve for the time dependent average velocity using the distribution function obtained from the Boltzmann equation. The time derivative of this average velocity is proportional to the terahertz signal measured in experiments. We also consider the contribution of virtual carriers to the terahertz signal. This model can also be applied to systems with a gapped graphene-like dispersion.

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