

Abstract Submitted  
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**Ultrafast dynamics of highly-excited Dirac fermions in monolayer graphene**<sup>1</sup> JUNHUA ZHANG, JÖRG SCHMALIAN, TIANQI LI, JIGANG WANG, Ames Laboratory and Department of Physics and Astronomy, Iowa State University — One of the striking optical properties of single-layer graphene is the universal absorbance in the near-infrared-to-visible spectral range due to the Dirac spectrum of the low-energy electronic structure. High-fluence laser pump can produce superdense Dirac-fermionic excitations at the order of 10 femtoseconds so to reach the non-linear saturation of absorption. We construct a simple model for the transient state of the photo-excited graphene to explore the non-linear saturation of photoexcitations and the transport property of carries. The comparison of our model calculations with the experimental results shows good agreements.

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