

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Plasma Instabilities in Graphene BEN YU-KUANG HU, The University of Akron, ANTTI-PEKKA JAUHO, Tech. Univ. of Denmark and Helsinki Institute of Technology — We discuss the possibility of the occurrence of plasma instabilities under non-equilibrium conditions in graphene. Specifically, we investigate the stability of the electronic collective modes in graphene with two counter-streaming distributions of carriers by studying the frequency-dependent dielectric function $\epsilon(\mathbf{q}, \omega)$ of the system. We find that the linear electronic dispersion of graphene results in instabilities that are qualitatively different from the standard two-stream instabilities for classical plasmas and parabolic-band systems.

Ben Yu-Kuang Hu
The University of Akron

Date submitted: 21 Nov 2008

Electronic form version 1.4