

Abstract Submitted
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Graphene Terahertz Photodetector¹ XINGHAN CAI, GREG JENKINS, ANDREI SUSHKOV, JUN YAN, H.D. DREW, MICHAEL S. FUHRER, Center for Nanophysics and Advanced Materials, University of Maryland, College Park — A graphene photodetector device is fabricated using mechanically exfoliated single layer graphene on SiO₂/Si substrate contacted by two dissimilar metal electrodes (chromium and gold) using standard electron beam lithography. The graphene is etched into a strip shape with specific width and coupled to a bow tie antenna structure to improve coupling to long-wavelength radiation and enhance the electric field in the center of the device. We have observed the response of the graphene photodetector to optical (632.8nm) and infrared laser (118 μ m) radiation as a function of gate voltage and device width. Experimental results and comparison to a model of graphene plasmon-enhanced photodetection will be discussed.

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