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**Photoconductive response study on a dual-gated bilayer graphene**

M.-H. KIM, J. YAN, G.S. JENKINS, A.B. SUSHKOV, D.C. SCHMADEL, M.S. FUHRER, J. MELNGAILIS, H.D. DREW, Department of Physics, University of Maryland, College Park — A continuously tunable bandgap as high as 100 meV is produced in a gated bilayer graphene (BLG) by applying an electric field perpendicular to the layers (J. Yan, Nano Lett. 2010). The bandgap and the Fermi energy of BLG are tuned by top and bottom gate potentials. We measure the infrared photoconductive response from the dual-gated BLG from far infrared  $30\text{ cm}^{-1}$  to mid-infrared  $5000\text{ cm}^{-1}$  by broadband spectroscopy and with a  $\text{CO}_2$  laser near  $10.6\text{ }\mu\text{m}$ . We report the photoresponse and the measured band gap as a function of an applied electric field perpendicular to the BLG layers. This work is supported by IARPA grant #W911NF1010443.

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