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Imaging of Polarization-dependent Photocurrent in Graphene Photodevices MINJUNG KIM, DUHEE YOON, Department of Physics, Sogang University, Seoul 121-742, Korea, HO ANG YOON, SANG WOOK LEE, Division of Quantum Phases and Devices, School of physics, Konkuk University, Seoul 143-701, Korea, HYEONSIK CHEONG, Department of Physics, Sogang University, Seoul 121-742, Korea — Recently, a metal-graphene-metal photodetector for high-speed optical communications was reported. In addition, a graphene-based photodetector was reported to be able to absorb broadband light owing to the unique band structure of graphene [Mueller et al., Nature Photonics 4, 297 (2010)]. We investigated the polarization dependence of the photocurrent generated in metal-graphene-metal junctions. The graphene photodevice was fabricated by depositing Pd/Au and Ti/Au electrodes on single-layer graphene samples. When the polarization of incident laser beam is rotated with respect to the metal-graphene-metal junction, the photocurrent is significantly modulated. In addition, we measured the exact positions where the photocurrent is generated by measuring the photocurrent and Raman images of the graphene photodevices simultaneously.

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