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Transport measurements of negative refractive behavior in ballistic graphene hetero junctions GIL-HO LEE, GEON-HYOUNG PARK, MIN-SOO KIM, JAE HYEONG LEE, HU-JONG LEE, Pohang University of Science and Technology — We investigated the electronic current refraction at p-n junctions (PNJs) in ballistic monolayer graphene. Given a peculiar band structure of the graphene, the transmission of electrons through a PNJ is predicted to be similar to the optical refraction at the boundary of metamaterials with negative refractive index. In consequence, electrons waves injected at a point in one side of a junction can be refocused into a single point in the other side of the junction, which demonstrates Veselago lensing for the electrons. By adopting high-yield dry-transfer technique, we fabricated fully ballistic graphene devices encapsulated by hexagonal boron nitrides with a local top gate. We will present the signatures of negative refractive transport behavior of electrons in PNJs and also discuss about the electronic current focusing in p-n-p heterojunctions in terms of Veselago lensing.

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