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Asymmetric scattering of Dirac like electrons and holes[1] JANICE WYNN GUIKEMA, ATIKUR RAHMAN, NINA MARKOVIC, Johns Hopkins University — We have studied magnetotransport and noise characteristics of dual-gated graphene p-n junction devices. The observed noise amplitude decreases rapidly with increasing temperature and its origin is related to the time-dependent quantum interference corrections. By comparing the results from the series and parallel p-n junctions, we show that the noise amplitude depends on the gate voltage and that the origin of the noise is not related to the fluctuation of resistance at the p-n junction interface. From the temperature and gate voltage dependence of resistance and noise characteristics, we show that the contribution from both short-range and long-range impurity determines the noise behavior and that the electrons and holes are asymmetrically scattered by the impurities.

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