

Abstract Submitted
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Effect of disorder on transport in a graphene p-n junction¹ B. I. SHKLOVSKII, UMN, M. M. FOGLER, UCSD, L. I. GLAZMAN, D. S. NOVIKOV, Yale — We evaluate the resistance of a gate-tunable graphene p - n junction, in which the gradient of the carrier density is controlled by the gate voltage. Depending on this gradient and on the density of charged impurities, the junction resistance is dominated by either diffusive or ballistic contribution. We find the conditions for observing ballistic transport and show that in recent experiments they were satisfied at best marginally. We make suggestions how the disorder effects can be reduced.

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