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Anomalous tunneling of dressed Dirac electrons through potential barrier¹ ANDRII IUROV, Graduate Center, CUNY; Hunter College, CUNY, OLEKSIY ROSLYAK, GODFREY GUMBS, Hunter College, CUNY — It has been shown that when a potential barrier is placed on a layer of graphene, electrons incident on the barrier head-on can be transmitted without any reflection, regardless of how high the barrier is made to become. This anomalous scattering has also been investigated in the case of bilayer graphene. The energy gap between the valence and conduction bands for bilayer graphene leads to perfect reflection for head-on collisions for all barrier heights. We report on results for reflection and transmission coefficients for dressed Dirac electrons when circularly polarized light is applied to graphene and an energy gap in the energy bands is opened up. Since this gap depends on the frequency and intensity, we investigate how the electron and hole scattering off a fixed barrier is modified by varying the energy gap produced by light. We also present results for the transmission for the perpendicular incidence. Both numerical and analytical results are obtained.

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