Acoustoelectric effect in Graphene

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Abstract

The acoustoelectric effect AE in Graphene with degenerate energy dispersion is theoretically studied for hypersound in the regime $ql >> 1$. At low temperatures ($k_\beta T << 1$), the non-linear dependence of Acoustoelectric current j/j_0 on the frequency ω_q and temperature T are numerically analysed. The obtained graph for j/j_0 against ω_q qualitatively agreed with an experimentally obtained results. For j/j_0 versus T, the dependence of Acoustoelectric current in Graphene was found to manifest at low temperatures.

Key Words: Acoustoelectric effect, Graphene, Fermi-Dirac distribution

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