

Abstract Submitted
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Density of states and transport in Weyl semimetals with long-range disorder¹ DMYTRO PESIN, University of Utah, Salt Lake City, UT, ALEX LEVCHENKO, Michigan State University, East Lansing, MI — We consider the density of states in a Weyl semimetal with long-range Coulomb impurities. We show that at energies close to the nodal point the motion of electrons is essentially classical, and compute the density of states at low energies for the cases of self-consistent screening, and screening by non-Weyl bands. As an alternative to the recent renormalization-group calculations, we develop a diagrammatic technique that is capable of capturing quantum corrections to the classical result, and determine the applicability range of the classical treatment, as well as the energy dependence of the density of states away from the nodal points. Finally, the obtained results are contrasted with those obtained from the self-consistent Born approximation, and the implications for the electrical, thermal and thermomagnetic transport properties of the Weyl semimetal are discussed.

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