**Quantum transport in three-dimensional Weyl electron system –
in the presence of charged impurity scattering** YUYA OMINATO, MIKITO
KOSHINO, Tohoku Univ — Quantum transport in 3D Wey electron system with
the charged impurity is studied theoretically using a self-consistent Born approxima-
tion (SCBA). The scattering strength is characterized by the effective fine structure
constant which depends on the dielectric constant and the Fermi velocity of the
linear band. The Boltzmann transport theory works well in a condition that the
level broadening is much smaller that the Fermi energy, but it fails near the Weyl
point. At the Weyl point, the conductivity takes a nearly constant value which is
almost independent of the effective fine structure constant, even though the density
of states linearly increases with the effective fine structure constant. The qualitative
behavior is significantly different from the case of the Gaussian impurities, where
the conductivity exhibits critical behavior and vanishes at the Weyl point below a
certain critical disorder strength.

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