Electronic transport in Weyl semimetals

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Electronic transport in Weyl semimetals has some peculiarities that makes them an exciting topic for a growing community. For example, the DC resistivity is known to be linear and non-saturated for high magnetic fields [1] and the DC current is considered to be subject to the so-called Chiral Magnetic Effect (CME) [2].

The optical conductivity (or AC conductivity) is also predicted to have a particular behavior. Unlike usual metals and semiconductors where a square-root dependence is observed with frequency, Weyl semimetals' conductivity is expected to be linear [3] and this behavior was observed experimentally [4]. In this poster we will show how the optical conductivity may behave in some realistic situations.

References


