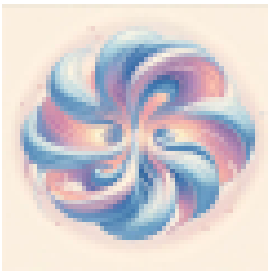

ID de Contribution: **41** Type: **On-line talk**

Negative magnetoresistence in Dirac Semimetals from Keldysh technique (online)

mardi 23 juillet 2024 12:00 (30 minutes)

Negative magnetoresistance in topological semimetals is typically considered as a manifestation of chiral magnetic effect (CME). The relation between these two phenomena has the status of hypothesis and is based on the sequence of assumptions. In the present paper we rely on rigorous Keldysh technique of non-equilibrium theory. It allows us to investigate the accumulation of axial charge —the process that involves both chiral anomaly and relaxation followed by the energy dissipation.
We also calculate directly the contribution to electric conductivity due to the same two processes. We obtain the same dependence of conductivity on the angle between electric and magnetic field as the standard heuristic CME calculation. The dependence of conductivity on magnetic field in the limit of weak magnetic field also matches the CME calculation. However, comparison of axial charge density and electric conductivity does not confirm the CME hypothesis, and demonstrates that the true mechanism of magnetoresistance in Dirac semimetals is (partially or completely) different from the one based on the CME.

Auteur principal: ABRAMCHUK, Ruslan (Ariel University, Israel)

Co-auteur: ZUBKOV, Mikhail (Ariel University, Israel)

Orateur: ABRAMCHUK, Ruslan (Ariel University, Israel)

Classification de Session: Chiral Magnetic Effect