

Abstract Submitted
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Chiral Anomaly and Diffusive Magnetotransport in Weyl Metals

ANTON BURKOV, University of Waterloo — We present a microscopic theory of diffusive magnetotransport in Weyl metals and clarify its relation to chiral anomaly. We derive coupled diffusion equations for the total and axial charge densities and show that chiral anomaly manifests as a magnetic-field-induced coupling between them. We demonstrate that a universal experimentally-observable consequence of this coupling in magnetotransport in Weyl metals is a quadratic negative magnetoresistance, which will dominate all other contributions to magnetoresistance under certain conditions.

Anton Burkov
University of Waterloo

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