

Abstract Submitted
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Intrinsic Magnetoconductivity of Non-magnetic Metals YANG GAO, Carnegie Mellon University, SHENGYUAN YANG, Research Laboratory for Quantum Materials, Singapore University of Technology and Design, QIAN NIU, UT Austin — In this talk, I will show an intrinsic magnetoconductivity for general three-dimensional non-magnetic metals within the Berry-curvature-corrected semiclassical and Boltzmann framework. It is intrinsic in the sense that its ratio to the zero-magnetic-field conductivity is fully determined by the intrinsic band properties, independent of the transport relaxation time, showing a clear violation of Kohler's rule. Remarkably, this contribution can generally be positive for the longitudinal configuration, providing a new mechanism for the appearance of positive longitudinal magnetoconductivity besides the chiral anomaly effect.

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