Abstract Submitted
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The theory of thermomagnetic transport in topological Weyl semimetals[1] TIMOTHY MCCORMICK, Department of Physics, The Ohio State University, Columbus, OH 43210, USA, SARAH WATZMAN, JOSEPH HEREMANS, Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH 43210, USA, NANDINI TRIVEDI, Department of Physics, The Ohio State University, Columbus, OH 43210, USA — In topological Weyl semimetals the low energy excitations are comprised of linearly dispersing Weyl fermions which act as monopoles of Berry curvature in momentum space and result in topologically protected Fermi arcs on the surfaces. Although Weyl semimetals have been demonstrated to exhibit a variety novel signatures in electronic transport, thermal transport remains less understood. We report on calculations of thermomagneto transport in Weyl semimetals. In particular, we calculate the dependence of the Seebeck effect, the Nernst effect and the thermal conductivity on magnetic field and temperature. We identify signatures of Weyl nodes in our bulk transport calculations and predict how topological Fermi arcs can be definitively identified in thermomagnetic transport. Our work is applicable to several classes of material realizations of Weyl semimetals.

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