Abstract Submitted
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Metrologically precise measurements of Hall quantization and dissipation in the quantum anomalous Hall effect[1] ELI FOX, ILAN ROSEN, DAVID GOLDHABER-GORDON, Stanford University, YANFEI YANG, GEORGE JONES, RANDOLPH ELMQUIST, National Institute of Standards and Technology, XUFENG KOU, ShanghaiTech University, LEI PAN, KANG WANG, University of California, Los Angeles — In the quantum anomalous Hall effect, chiral edge states should ideally produce quantized Hall conductance and dissipationless transport. However, early experimental realizations of this effect in magnetic topological insulator films found significant longitudinal resistivity and measurable deviations from quantization of the Hall resistance. Recent progress in the growth and gating of these films has resulted in greatly reduced dissipation and improved Hall quantization, requiring careful metrological techniques to accurately measure. Here, we report the most precise quantization measurements to date in Cr-doped $(Bi,Sb)_2Te_3$, and assess competing models for dissipation as a function of current, temperature, and chemical potential.

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