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Revealing dissipationless chiral edge channel in magnetic topological insulator via non-local transport measurement WEI-LI LEE, Institute of Physics, Academia Sinica, Taipei, XUFENG KOU, Department of Electrical Engineering, University of California, Los Angeles, SHIH-TING GUO, Institute of Physics, Academia Sinica, Taipei, YABIN FAN, LEI PAN, MURONG LANG, Department of Electrical Engineering, University of California, Los Angeles, YING JIANG, Department of Materials Science and Engineering, Zhejiang University, Hangzhou, QIMING SHAO, TIANXIAO NIE, KOICHI MURATA, JIANSHI TANG, Department of Electrical Engineering, University of California, Los Angeles, YONG WANG, Department of Materials Science and Engineering, Zhejiang University, Hangzhou, LIANG HE, Department of Electrical Engineering, University of California, Los Angeles, TING-KUO LEE, Institute of Physics, Academia Sinica, Taipei, KANG L. WANG, Department of Electrical Engineering, University of California, Los Angeles — We observed quantum anomalous Hall effect (QAHE) in our 10-quintuple layer Cr-doped $(BiSb)_2Te_3$ film grown by MBE technique. The Hall resistance R_{xy} attains quantized value of h/e^2 (25.8 kΩ) as temperature drops below 85 mK. Unlike previous report in a thinner Cr-doped $(BiSb)_2Te_3$ film, a finite longitudinal resistance is found in the QAHE regime and remains non-zero up to 15 Tesla suggesting the coexistence of the chiral edge channel and certain dissipative conduction channel. From macroscopic non-local transport measurements with leads separated by few millimeters, we further identify the dissipationless nature of the chiral edge channel associated with the QAHE. Detailed T-dependence and field-dependence of the non-local signals will be presented and discussed.

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