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Transport Studies of Thin Film Magnetic Topological Insulator Nanostructures[1] ELI FOX, ANDREW BESTWICK, DAVID GOLDHABER-GORDON, Stanford University, XIAO FENG, KE HE, YAYU WANG, QI-KUN XUE, Tsinghua University, XUFENG KOU, YABIN FAN, KANG WANG, University of California, Los Angeles — Ferromagnetic order in a topological insulator breaks time-reversal symmetry, opening a gap in the surface states and giving rise to a number of exotic phenomena, including dissipationless chiral edge conduction along domain walls. Thin films of the topological insulator $(Bi,Sb)_2Te_3$ doped with chromium exhibit ferromagnetic ordering that is not mediated by bulk carriers, allowing the magnetism to persist in the bulk energy gap [1,2]. Here, we discuss fabrication and transport measurements of nanostructures based on these films. We further discuss the possibility of engineering magnetic domains in the film to study the chiral edge state along the domain wall.

[1] C.-Z. Chang *et al.*, Science **340**, 167 (2013).
[2] X. Kou *et al.*, Nano Lett. **13**, 4587 (2013).

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