Abstract Submitted
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Title: Bi_2Se_3 Thin film topological insulators as a field effect transistor[1] LEAH LANGER, Chatham University, NAMRATA BANSAL, NIKESH KOIRALA, MATTHEW BRAHLEK, SEONGSHIK OH, Rutgers the State University of New Jersey — Topological insulators are materials with insulating bulk and conducting surfaces. Bi_2Se_3 is one such material. However, perfect Bi_2Se_3 topological insulators have yet to be realized because imperfections in thin film growth and intrinsic se-vacancies lead to conduction in the bulk. This project explores the use of gating to eliminate bulk conduction. We demonstrate that back gating in an 8QL Bi_2Se_3 film results in reduced carrier density when negative gate voltage is applied. We also present a study of SiO_2 as a gate insulator for top gating Bi_2Se_3.

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