

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Controlling the carrier concentration of Bi₂Se₃ nanoribbons via doping and gating STEFAN MEISTER, DESHENG KONG, JUDY CHA, Stanford University, HAILIN PENG, Peking University, YI CUI, Stanford University — Bi₂Se₃ is one of the few materials identified as a topological insulator; hence, many efforts are underway to measure its electric properties. While recent transport studies of Bi₂Se₃ nanoribbons have provided strong evidence for the existence of surface states, additional measurements are needed to reveal identifying signatures of the topological states such as dissipationless transport or spin polarized current. The main roadblock to these experiments is the high bulk carrier concentration, which masks the effects of the surface states. Here, we present our efforts to reduce the bulk carrier concentration in Bi₂Se₃ nanoribbons via doping and gating.

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Date submitted: 20 Nov 2009

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