Abstract Submitted for the MAR13 Meeting of The American Physical Society

Topological States Ruled by Stacking Faults in Bi₂Se₃ and Bi₂Te₃¹ LEANDRO SEIXAS, LEONARDO ABDALLA, Universidade de Sao Paulo, TOME SCHMIDT, Universidade Federal de Uberlandia, ADALBERTO FAZZIO, Universidade de Sao Paulo, ROBERTO MIWA, Universidade Federal de Uberlandia — Extended defects like stacking faults (SF) can originate topologically protected metallic states in bulk topological insulators (TI). These induced topological states are a response to the weakening of the inter-layer van der Waals interactions due to the SF defect. In TI thin films the degeneracy of Dirac bands of opposite surfaces can be lifted upon the formation of SF defects. Such slab asymmetry can promote a net spin current, absent of backscattering processes, in thin film made of TIs. These results have been obtained by fully relativistic first principles calculations.

¹The authors acknowledge financial support from CNPq/INCT, CAPES, FAPEMIG, and FAPESP, and the computational support from CENAPAD/SP.

Leandro Seixas Rocha Universidade de Sao Paulo

Date submitted: 27 Nov 2012 Electronic form version 1.4