

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Spintronics device made of topological materials¹ JIANSHENG WU, ZHANGSHENG SHI, MAOJI WANG, South University of Science and Technology of China — Topological Materials is a new state of matter of which the bulk states are gapped insulator or superconductor while the surface states are gapless metallic states. Such surface states are robust against local disorder and impurities due to its nontrivial topology. It induces unusual transport properties and shows nontrivial topological spin texture in real space. We have made use of these two exotic properties to make application in spintronics. For example, we propose to make spin-filter transistor using of 1D or 2D quantum anomalous Hall insulator or 2D topological Weyl semimetal, we also propose a device to measure the spin-polarization of current, a device to generate entangled electron pairs.

¹Startup funds of SUSTC, Shenzhen Peacock Plan, Shenzhen Free Exploration Plan with grant number JCYJ20150630145302225

Jiansheng Wu
South University of Science and Technology of China

Date submitted: 06 Nov 2015

Electronic form version 1.4