Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Chiral Topological Superconductor and Half-Integer Conductance Plateau from Quantum Anomalous Hall Plateau Transition QUAN ZHOU, JING WANG, BIAO LIAN, SHOUCHENG ZHANG, Stanford Univ, ZHANG'S GROUP TEAM — We propose to realize a two-dimensional chiral topological superconducting (tsc) state from the quantum anomalous hall plateau transition in a magnetic topological insulator thin filmthrough the proximity effectto a conventional s-wave superconductor. The optimal condition for realizing such chiral tsc is to have inequivalent superconducting pairing amplitudes on top and bottom surfaces of the doped magnetic topological insulator. We further propose several transport experiments to detect the chiral tsc. The conductance will be quantized into a half-integer plateau at the coercive field in this hybrid system. In particular, with the point contact formed by a superconducting junction, the conductance oscillates between e^2/h and e^/h with the frequency determined by the voltage across the junction.

Quan Zhou
Stanford Univ

Date submitted: 29 Dec 2015 Electronic form version 1.4