Role of disorder in superconducting Chern insulator\(^1\) YINGYI HUANG, Sun Yat-sen Univ Univ of Maryland-College Park, JAY SAU, Univ of Maryland-College Park — Motivated by a recent experiment in which a half-integer quantized conductance plateau (\(0.5e^2/h\)) has been observed on a superconducting quantum anomalous Hall insulator film, we carry out a simulation of a two-dimensional disordered Chern insulator coupled with superconductor. In particular we calculate the magnetic field dependence of the longitudinal and Hall conductance in the Hall bar geometry of a disordered Chern insulator both with a superconductor and without. Our specific focus is on the behavior of this conductance near the transition between topological phase (\(\nu=0\)) and trivial phase (\(\nu=1\)), where we expect to reproduce the conductance plateau.

\(^1\)This work has been supported by China Scholarship Council and the NSF-DMR-1555135 and the Alfred P. Sloan foundation.