Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Stability of composite fermion states in Chern insulators[1] PAWEL POTASZ, BLAZEJ JAWOROWSKI, wroclaw university of technology — We analyze an existence of composite fermion (CF) states in fractional Chern insulators (FCI) using exact diagonalization. The consider Chern insulator models for spinless fermions exhibit a signature of CF states at 2/5 and 3/7 filling factors. Evidences of fractional quantum Hall type phases for a region in a parameter space with larger energy gap are shown by looking at momenta of the n-fold degenerate ground state, spectral flow, quasihole excitation spectrum, and entanglement spectra. We analyze stability of phases as a function of model parameters showing strong correlation with flatness of Berry curvature.

[1]The authors acknowledges partial financial support from the sources granted for science development in the years 2013-2016, Grant No. IP2012 007372

Pawel Potasz
wroclaw university of technology

Date submitted: 03 Dec 2015 Electronic form version 1.4