Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Phase Transition between Fermionic IQHE and Bosonic FQHE Via Feshbach Resonance SHIUAN-FAN LIOU, KUN YANG, National High Magnetic Field Laboratory and Florida State Univ, ZI-XIANG HU, Chongqing University, China — We study an integer quantum Hall system with two species of fermions with total Landau filling factor two (or one per kind of fermions) on disk geometry. Via Feshbach resonance fermions interact with each other such that two different species of fermions become a boson as coupling strength increases. Through exact diagonalization method, we see that fermions undergo a phase transition from fermionic integer quantum Hall phase to bosonic fractional quantum Hall phase with $\nu = \frac{1}{2}$. Besides, it seems to be a second order phase transition by investigating the expectation value of particle number of bosons.

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Date submitted: 03 Nov 2015 Electronic form version 1.4