Quantum Phase transition from $\nu = 1$ Fermionic Integer Quantum Hall phase to $\nu = 1/4$ Bosonic Fractional Quantum Hall phase through Feshbach Resonance SHIUAN-FAN LIOU, KUN YANG, Florida State University and National High Magnetic Field Laboratory, ZI-XIANG HU, Chongqing University, China — We investigate the quantum phase transition with one species of fermions in $\nu = 1$ fermionic integer quantum Hall phase to $\nu = \frac{1}{4}$ bosonic fractional quantum Hall phase by introducing a p-wave pairing interaction among fermions through Feshbach resonance. Previous theoretical work studying this phase transition through Chern-Simons-Landau-Ginzburg theory showed that this phase transition can be of second order in the (2 + 1)D Ising universality class. Through exact diagonalization method, we demonstrated that it is indeed a second order phase transition.

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