

Abstract Submitted
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Quantum Hall Transition near a Feshbach Resonance in Fast Rotating Fermi Gases¹ KUN YANG, National High Magnetic Field Lab and Florida State University, HUI ZHAI, UC Berkeley and Lawrence Berkeley Lab — We consider two-species of fermions in a rotating trap that interact via an s-wave Feshbach resonance, at total Landau level filling factor two (or one for each species). We show that the system undergoes a quantum phase transition from a fermion integer quantum Hall state to a boson fractional quantum Hall state as the pairing interaction strength increases, with the transition occurring near the resonance. The effective field theory for the transition is shown to be that of a (emergent) massless relativistic bosonic field coupled to a Chern-Simons gauge field, with the coupling giving rise to semionic statistics to the emergent particles.

¹Reference: arXiv:0709.2934

Kun Yang

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