

Abstract Submitted
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The Weakly Coupled Pfaffian as a Type I Quantum Hall Liquid¹

S.A. PARAMESWARAN, Princeton University, S.A. KIVELSON, Stanford University, S.L. SONDHAI, Princeton University, B.Z. SPIVAK, University of Washington — The Pfaffian phase of electrons in the proximity of a half-filled Landau level is understood to be a $p + ip$ superconductor of composite fermions. We consider the properties of this paired quantum Hall phase when the pairing scale is small, *i.e.* in the weak-coupling, BCS, limit, where the coherence length is much larger than the charge screening length. We find that, as in a Type I superconductor, the vortices attract so that, upon varying the magnetic field from its magic value at $\nu = 5/2$, the system exhibits Coulomb frustrated phase separation. We propose that the weakly and strongly coupled Pfaffian states exemplify a general dichotomy between Type I and Type II quantum Hall fluids.

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