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Spin Order in Paired Quantum Hall States[1] IVAILO DIMOV, UCLA, BERTRAND HALPERIN, Harvard University, CHETAN NAYAK, Microsoft Station Q — We consider quantum Hall states at even-denominator filling fractions, especially $\nu = 5/2$, in the limit of small Zeeman energy. Assuming that a paired quantum Hall state forms, we study spin ordering and its interplay with pairing. We give numerical evidence that at $\nu = 5/2$ an incompressible ground state will exhibit spontaneous ferromagnetism. The Ginzburg-Landau theory for the spin degrees of freedom of paired Hall states is a perturbed CP^2 model. We compute the coefficients in the Ginzburg-Landau theory by a BCS-Stoner mean field theory for coexisting order parameters, and show that even if repulsion is smaller than that required for a Stoner instability, ferromagnetic fluctuations can induce a partially or fully polarized superconducting state.

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Ivailo Dimov
UCLA

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