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Anomalous spin segregation in a weakly interacting two component Fermi gas STEFAN NATU, ERICH MUELLER, Cornell University — We explain the spin segregation seen at Duke in a two-component gas of 6Li (Ref.[1]) as a mean-field effect describable via a collisionless Boltzmann equation. As seen in experiments, we find that slight differences in the trapping potentials in the two spin states drive small spin currents. Hartree-Fock type interactions convert these currents into a redistribution of populations in energy space, and consequently a long lived spin texture develops. We explore the interaction strength dependence of these dynamics, finding close agreement with experiment. [1] X.Du, L.Luo, B.Clancy, and J.E. Thomas, Phys. Rev. Lett. 101 150401 (2008).

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