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Spin-flip dynamics of a radiofrequency-dressed ultracold Fermi gas[1] YUN LONG, FENG XIONG, COLIN PARKER, Georgia Institute of Technology, PARKER LAB TEAM — Ultracold fermionic spin mixtures serve as a basic model for itinerant material systems with magnetic and superfluid properties. In such systems, a comparison of basic properties such as magnetic susceptibility may help elucidate the connection with more complex systems such as cuprate superconductors. Towards this end, we investigate methods to generate equilibrium spin imbalances using radiofrequency dressing in an ultracold lithium-6 gas. We apply a magnetic gradient in the presence of radiofrequency dressing to create a spatially-varying matrix element coupling the two dressed states. The second lowest, rather than the absolute lowest, pair of spin states are chosen for their greater magnetic sensitivity. We emply a phase-contrast imaging system to directly measure the spin difference.

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