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Spin Susceptibility of a Fermi Gas with Strong Repulsive Interactions¹ EDWARD SU, MIT, CHRISTIAN SANNER, AVIV KESHET, WU-JIE HUANG, JONATHON GILLEN, WOLFGANG KETTERLE — The possibility of itinerant ferromagnetism in degenerate Fermi gases with strong repulsive interactions has recently been the subject of vigorous theoretical and experimental work. In this study we characterize a nonequilibrium system shortly after the sudden switch-on of strong repulsion. Using the recently-developed technique of speckle imaging, we measure its spin susceptibility and the corresponding pair correlations. As expected, the system develops substantial anticorrelations between the two spin species, but our observations are inconsistent with significant formation of ferromagnetic domains within the samples studied.

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