

Abstract Submitted
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Scissors mode oscillations for a finite-temperature strongly-interacting ultracold Fermi gas.¹ M.J. WRIGHT, S. RIEDL, A. ALTMAYER, C. KOHSTALL, E. SANCHEZ, J. HECKER DENSCHLAG, R. GRIMM², Inst. of Experimental Physics and Center for Quantum Physics, Univ. Innsbruck; 6020 Innsbruck, Austria — We investigate the finite-temperature phase diagram for a strongly-interacting Fermi gas. This system consists of two distinct regimes, hydrodynamic and collisionless, which have different collisional properties and depend on interaction strength and temperature. We study the transition from hydrodynamic and collisionless behavior throughout the crossover by examining the scissors mode. This mode proves to be an excellent candidate for finite-temperature measurements as the oscillation is independent of the equation of state and has a low damping term, which provides better resolution of the mode's frequency characteristics.

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