

Abstract Submitted
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Measuring the spectral function of a strongly interacting Fermi gas RABIN PAUDEL, ROMAN CHAPURIN, TARA DRAKE, JILA, NIST and University of Colorado, YOAV SAGI, Technion-Israel Institute of Technology, DEBORAH JIN, JILA, NIST and University of Colorado — We present a novel measurement of the single-particle spectral function for a homogeneous Fermi gas above the critical temperature for superfluidity throughout the BCS-BEC crossover. The data show signatures of both Fermi liquid behavior and pairing. We find that the data fit well to a two-component function that includes fermionic quasiparticles and an “incoherent background” that is modeled using the dispersion of thermal molecules. As the strength of interactions is increased, the quasiparticle spectral weight vanishes, which signals the breakdown of a Fermi liquid description.

Rabin Paudel
JILA, NIST and University of Colorado

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