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Spectroscopic Evaluation of Degeneracy in Dilute Weakly Interacting Degenerate Fermi Gases[1] MARIJAN KOSTRUN, University of Connecticut; Wesleyan University, ROBIN COTE, University of Connecticut — We consider an application of two-photon Raman probe spectroscopy to detect the onset of degeneracy in a sample of ultra-cold atomic fermions that underwent Bardeen-Cooper-Schiefer instability. We show how the method allows us to obtain lineshapes that reveal a signature of Cooper pairs: the location and width of the superfluid gap. We discuss the applicability of the method in realistic conditions for ^{6}Li prepared in two different hyperfine states.

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