Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Temperature and final state effects in radio frequency spectroscopy experiments on atomic Fermi gases YAN HE, CHIH-CHUN CHIEN, QIJIN CHEN, KATHY LEVIN, University of Chicago — We present a simple and systematic characterization of the radio frequency (RF) spectra of homogeneous, paired atomic Fermi gases at general temperatures, T, in the presence of final state interactions. The spectra, consisting of possible bound states and positive as well as negative detuning (ν) continua, satisfy exactly the zeroth- and first-moment sum rules at all T. We show how to best extract the pairing gap and how to detect the $\nu < 0$ continuum arising from thermally excited quasiparticles, not yet seen experimentally. We explain semi-quantitatively recent RF experiments on "bound-bound" transitions, predicting effects of varying temperature.

Yan He
University of Chicago

Date submitted: 21 Nov 2008 Electronic form version 1.4