Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

First- and second-sound-like modes at finite temperature in trapped Fermi gases from BCS to BEC YAN HE, CHIH-CHUN CHIEN, QIJIN CHEN, KATHRYN LEVIN, University of Chicago — We determine the temperature (T) dependence of first- and second-sound-like mode frequencies for trapped Fermi gases undergoing the BCS to Bose-Einstein condensation (BEC) crossover. Our results are based on numerical solution of the two-fluid equations in conjunction with a microscopic calculation of thermodynamical variables. As in experiment and at unitarity, we show that the lowest radial breathing mode is T independent. At finite T, higher-order breathing modes strongly mix with second sound. Their complex T dependence should provide an alternative way of measuring the transition temperature T_c. We will also discuss collective mode frequancy for polarized Fermi gas.

Yan He
University of Chicago

Date submitted: 13 Dec 2007 Electronic form version 1.4