Abstract Submitted
for the FWS20 Meeting of
The American Physical Society

Computational study of low energy excitations in cold atomic Fermi systems KAELYN DAUER, ETTORE VITALI, California State University, Fresno — The calculation of dynamical properties of quantum many-body theories is a big challenge from both the theoretical and computational point of view. In particular, the study of the density response function and the spectrum of density fluctuations in attractive Fermi gases is intriguing as a research topic due to the breaking of the U(1) symmetry. This symmetry is expected to give rise to a Nambu-Goldstone collective mode, which describes the fluctuations of the phase of the order parameter, as well as a more elusive Higgs mode, where fluctuations of the amplitude of the order parameter are described. We will present Generalized Random Phase Approximation and Quantum Monte Carlo results for dilute Fermi gases. We will show similarities and discrepancies between the two approaches, and we will discuss the implications for the physics of the system.

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Date submitted: 14 Sep 2020   Electronic form version 1.4