

Abstract Submitted  
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**Energy spectra of small harmonically trapped few-fermion systems**<sup>1</sup> K. DAILY, D. BLUME, Washington State University — In an effort to determine a large portion of the energy spectra of s-wave interacting harmonically trapped few-fermion systems, we pursue three distinct approaches: i) Weakly-interacting systems with small s-wave scattering lengths (i.e.  $|a_s|$  small) are treated within a perturbative framework. Using hyperspherical coordinates, the perturbative energy spectra are obtained through an efficient semi-analytical formalism. ii) The energy spectrum of the three-fermion system with zero-range interactions is obtained by solving the Lippman-Schwinger equation numerically for all  $a_s$ . iii) The energies of larger systems are determined using the stochastic variational approach. These complimentary approaches allow for the characterization of the energy spectra of few-fermion systems. The energies can then be used to, e.g., calculate the virial expansion coefficients that determine the thermodynamics of universal Fermi gases.

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