

Abstract Submitted  
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**Trapped unitary two-component Fermi gases with up to ten particles**<sup>1</sup> X.Y. YIN, D. BLUME, Washington State University — The properties of two-component Fermi gases with zero-range interactions are universal. We use an explicitly correlated Gaussian basis set expansion approach to investigate small equal-mass two-component Fermi gases under spherically symmetric external harmonic confinement. At unitarity, we determine the ground state energy for systems with up to ten particles interacting through finite-range two-body potentials for both even and odd number of particles. We extrapolate the energies to the zero-range limit using a novel scheme that removes the linear and, in some cases, also the quadratic dependence of the ground state energies on the two-body range. Our extrapolated zero-range energies are compared with results from the literature. We also calculate structural properties and the two-body Tan contact.

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X. Y. Yin  
Washington State University

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