

Abstract Submitted  
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**Finite-temperature properties of small trapped two-component Fermi gases: Tan contact and statistics**<sup>1</sup> YANGQIAN YAN, D. BLUME, Washington State University — We consider equal-mass two-component Fermi gases under external spherically symmetric confinement for which the unlike atoms interact via a short-range Gaussian potential with a diverging  $s$ -wave scattering length. Using the path integral Monte Carlo technique, the thermodynamics of systems with up to ten particles is studied over a wide temperature range. We present results for the pair distribution function and the internal energy. We determine Tan’s contact by analyzing pair distribution functions for various temperatures as a function of the range of the underlying two-body potential. For the three- and four-particle systems, comparisons with results obtained by alternative approaches are presented. Lastly, we “turn off” permutations and determine the temperature regime in which exchange effects are negligible.

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