Abstract Submitted
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Three-fermion system with s-wave interactions under anisotropic harmonic confinement[1] SEYED EBRAHIM GHARASHI, D. BLUME, Washington State University — We develop an efficient numerical approach to solve the Schrödinger equation for three fermions in two different spin states with zero-range s-wave interactions under cylindrical harmonic confinement. Our approach builds on the work done for isotropic confinement [1] and is applicable to traps with integer aspect ratio. We reproduce the known results for the aspect ratio of unity and analyze the energy spectrum when the aspect ratio is different from one. In the weakly-interacting regime our results agree with perturbative calculations. The eigenenergies are used to calculate the third-order virial coefficient as functions of the aspect ratio, temperature and s-wave scattering length.

[1] J. P. Kestner and L.-M. Duan, Phys. Rev. A. 76, 033611 (2007).

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