

Abstract Submitted  
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**Basis-set expansion and truncation approach to interacting Bose particles problem**<sup>1</sup> MICHELLE WYNNE SZE, JILA, University of Colorado at Boulder, ANDREW SYKES, JILA, JOHN CORSON, JOHN BOHN, JILA, University of Colorado at Boulder — As ultracold gases push into regimes beyond mean-field physics, alternative approaches are required to follow their behavior. To this end, we investigate a basis set expansion and truncation scheme based on perturbation theory to obtain approximate ground state energies as a function of interaction parameter. We explore the ability of this approach to describe interacting Bose particles in 1D and 3D.

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