

Abstract Submitted  
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**Correlated Gaussian Hyperspherical Method for Few-Body Systems**<sup>1</sup> JAVIER VON STECHER, CHRIS H. GREENE, JILA and Department of Physics, University of Colorado, Boulder, Colorado 80309-0440 — We develop an innovating numerical technique to solve few-body systems. In this numerical method, correlated Gaussian basis functions are used to expand the channel functions in the hyperspherical representation. The simple form of the basis functions reduces the computational demands of the matrix elements calculations which allow us to efficiently solve four-body systems. The optimization techniques of the correlated Gaussian method are applied to these hyperspherical calculations in order to control the convergence. The method is applied to few-body systems with short-range interactions and several properties of the three- and four-body systems are obtained.

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