

Abstract Submitted
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Scaling properties of the harmonic oscillator basis calculations for $N = Z$ nuclei in the infrared limit with the JISP16 potential¹ CHRYSOVALANTIS CONSTANTINOU, MARK A. CAPRIO, Univ of Notre Dame, JAMES P. VARY, PIETER MARIS, Iowa State University — It has recently been found [S. A. Coon *et al.*, Phys. Rev. C 86, 054002 (2012)] that when no-core configuration interaction (NCCI) calculations of low-mass nuclei are plotted against an infrared momentum cutoff λ_{SC} (scaling cutoff), a universal curve is obtained for the energy and the RMS radius. The plotted results must have an ultraviolet (UV) cutoff Λ_{UV} greater than or equal to the intrinsic cutoff Λ_{NN} of the interaction. This assures that UV convergence is reached. The scaling property then allows for the performance of extrapolations in the IR limit. Here we conduct NCCI calculations in the harmonic oscillator basis with the JISP16 potential. In the IR limit we obtain universal curves for $N = Z$ nuclei up to and including ^8Be . An extrapolation in the IR limit for the ground state energy and the RMS radius is performed, and extrapolated results are obtained.

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