Abstract Submitted
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Basis truncation schemes in the symplectic no-core configuration interaction framework[1] JAKUB HERKO, MARK CAPRIO, PATRICK FASANO, University of Notre Dame, ANNA MCCOY, TRIUMF, TOMAS DYTRYCH, Academy of Sciences of the Czech Republic, PIETER MARIS, Iowa State University — The no-core configuration interaction (NCCI) framework is an *ab initio* method predicting properties of light nuclei from the underlying internucleon interaction. However, the dimension of the NCCI model space rapidly increases with the maximal number of allowed excitation oscillator quanta and the number of nucleons, which limits the convergence of calculated observables that can be achieved in practice. To obtain more converged results we can make use of the approximate Sp(3,R) symplectic symmetry of the nuclear many-body problem by working in a basis organized according to this symmetry and truncating the basis in a scheme capturing the most important nuclear degrees of freedom. In the symplectic NCCI (SpNCCI) framework, we carry out calculations in a center-of-mass free basis organized according to the Sp(3,R) symmetry. We present different basis truncation schemes and their effect on the dimension of the SpNCCI model space.

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