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Application of Evolved Three-Body Forces to P-Shell Nuclei[1]

ERIC JURGENSON, PETR NAVRATIL, Lawrence Livermore Natl Lab, RICHARD FURNSTAHL, Ohio State University — In recent years, the Similarity Renormalization Group has provided a powerful and versatile means to soften interactions for ab initio nuclear calculations. The large contribution of three-body forces to the nuclear interaction has required the consistent evolution of free-space Hamiltonians in the three-particle space. We present the most recent progress on this work, extending the calculations to the p-shell nuclei, and showing that the hierarchy of induced many-body forces is consistent with previous estimates. Calculations for A=6 including fully evolved NN+3N interactions show minor contributions due to induced four-body forces and display the same considerable convergence properties as in lighter nuclei. Preliminary results for independent operator evolution are also discussed.

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