Abstract Submitted
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Tracing the evolution of nuclear forces under the similarity renormalization group[1] CALVIN JOHNSON, San Diego State University — I examine the evolution of nuclear forces under the similarity renormalization group (SRG) using traces of the many-body configuration-space Hamiltonian. Through both analytic and explicit numerical calculations I show that if the SRG generator approximates the diagonal of the Hamiltonian, the primary effect is to shift downward the diagonal matrix elements in the model space, while the off-diagonal elements undergo significantly smaller shifts. Thus the primary effect of SRG on low-lying states is to shift energies downwards, with relatively small changes to the configuration-space wavefunction. This in turn helps us to understand how SRG has been so successful a scheme in renormalizing and softening the nuclear interaction for many-body calculations.

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