Abstract Submitted
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Calculation of Few-Body Observables with the SRG Flow Equations[1] E.R. ANDERSON, R.J. FURNSTAHL, R.J. PERRY, Ohio State Univ., S.K. BOGNER, Michigan State Univ., E.D. JURGENSON, LLNL — The Similarity Renormalization Group (SRG) flow equations are a series of unitary transformations which can be used to achieve different patterns of decoupling in a Hamiltonian. An SRG transformation applied to internucleon interactions leads to greatly improved convergence of energies in few- and many-body calculations. Not only does it provide a way to consistently evolve many-body potentials, but also other operators. Here, a method is presented to evolve and extract few-body operators, as well as to correct for evolution in a relative coordinate basis. These operators can be used to evaluate both low and high momentum quantities (e.g., electroweak observables, momentum distributions, etc.) in few- and many-body systems. The corresponding *ab-initio* calculations are performed using the realistic 3D NCSM and with a 1D model (to gain insight into issues encountered in the realistic basis). Properties of the evolved operators will also be explored, as well as methods to improve convergence of matrix elements in truncated model spaces.

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Eric Anderson
The Ohio State University

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