Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

The Similarity Renormalization Group with Novel Generators[1]

WEISHI LI — The Similarity Renormalization Group (SRG) uses a series of unitary transformations to decouple high-energy and low-energy physics. Because of the properties of unitary transformations, the SRG automatically preserves physical observables while decoupling allows the truncation of the Hamiltonian, improving convergence. With the relative kinetic energy ($T_{\rm rel}$) as the generator, the SRG has been applied successfully for several years to calculate nuclear structure. However, only a few generators have been explored. Different generators relate to different evolving patterns and parameters. Here some new alternatives, such as an exponential form of $T_{\rm rel}$, are evaluated for the degree of decoupling and improvements in computing speed.

[1]This work is supported by Ohio State University URO Summer Research Fellowship.

Weishi Li

Date submitted: 02 Aug 2010 Electronic form version 1.4