

Abstract Submitted
for the NWS15 Meeting of
The American Physical Society

Shifted COCG Method in Nuclear Physics¹ SHI JIN, AUREL BULGAC, Univ of Washington, KENNETH ROCHE, Univ of Washington, Pacific Northwestern National Laboratory — Solving the 3-dimensional Schrödinger equations in nuclear many-body problems is always costly in time and resources. Recently, the Shifted Conjugate-Orthogonal-Conjugate-Gradient(COCG) Method has been widely used to calculate the Green's function of a many-electron Hamiltonian. Using this method, we find an approach to solving the density of nuclear matter and energy-levels. Performed in parallel, it can be very fast and with high accuracy. This is quite useful in the calculation of deformed nuclei, and the shell corrections in nuclear binding energy. In this work, we applied COCG method to a 3d Wood-Saxon Hamiltonian with pairing and calculate the density distribution of nuclear matter.

¹U.S. Department of Energy (DOE) Grant No. DE-FG02-97ER41014

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Date submitted: 10 Apr 2015

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