

Abstract Submitted  
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**Reflection-asymmetric Nuclear Deformations within the Density Functional Theory** ERIK OLSEN, University of Tennessee at Knoxville, JOCHEN ERLER, Oak Ridge National Laboratory, WITEK NAZAREWICZ, University of Tennessee at Knoxville, MARIO STOITSOV, Oak Ridge National Laboratory — Within the nuclear density functional theory (DFT) we study the effect of reflection-asymmetric shapes on ground-state binding energies and binding energy differences. To this end, we developed the new DFT solver AxialHFB that uses an approximate second-order gradient to solve the Hartree-Fock-Bogoliubov equations of superconducting DFT with the quasi-local Skyrme energy density functionals. Illustrative calculations are carried out for even-even isotopes of radium and thorium.

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