

Abstract Submitted
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Modern Energy Density Functional for Nuclei and Nuclear Matter¹ ALBERTO HINOJOSA, Tecnologico de Monterrey — We search for a modern energy density functional for nuclei and nuclear matter, based on the Skyrme type effective interaction. This interaction has been widely used for decades and many parameterizations have been realized to best reproduce binding energies, charge root mean square radii, and other properties of nuclei. Now that more experimental data is available, we are able to fit our results to a broader collection of nuclei at and far from the stability line. We implement the Simulated Annealing Method to search for the particular set of Skyrme parameters that best reproduces a collection of nuclear data. The data consist of binding energies, charge root mean square (rms) radii, rms radii for valence neutrons, spin-orbit splittings and breathing mode energies. The results we obtain using this new parameterization are in good agreement with a wide range of experimental measurements.

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