# Description of nucleus-nucleus interaction using the Skyrme energy density functional

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The typical requirement for the energy density functional (EDF) is the accurate description of the binding energies of nuclei, the energy spectra of single-particle states, and the properties of collective excitations [1]. At present, the EDFs based on the effective Skyrme-type interaction serve as a powerful tool for studying the nuclear structure. However, a simultaneous description of nuclei properties and their interaction potential within the Skyrme EDF has yet to be realized. As known, the sub-barrier fusion cross sections, as well as astrophysical reaction rates, are very sensitive to the effective nucleus-nucleus potential [2]. The experimentally determined height of the Coulomb barrier will become an additional criteria for finding a new set of the EDF parameters. In the present report, we discuss a procedure aimed for improving the Coulomb barrier height while preserving the description of nuclear structure based on the new EDF set.

References:
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