

## Nucleon density profiles and nucleus-nucleus interaction potential

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One of the standard methods to construct the internuclear potential is the folding procedure. Consequently, the characteristics of the Coulomb barrier obtained by this procedure turn out to be sensitive to both the parametrization of the nucleon-nucleon interaction and the quality of the description of the nucleons distribution in nuclei [1,2]. In this report, the calculations are carried out for spherical even-even nuclei with  $Z, N \geq 8$ . Required nucleon density distribution is chosen as a Fermi-distribution. Special attention is paid to the correction of charge radius. The approximation most accurately describing experimental data is applied [3]. The dependency of the potential barrier localization from both diffuseness and half-density radius is considered. Gained nucleon density Fermi-distributions are compared with those obtained in Skyrme-Hartree-Fock approach.

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2. A. B. Migdal. The Theory of Finite Fermi-Systems and Properties of Atomic Nuclei, 2-nd ed. (Nauka, Moscow, 1983) [in Russian].
3. I. Angeli *et al.*, At. Data Nucl. Data Tables **99**, 69 (2013).

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