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Double-folding nucleus-nucleus potential

The density profiles of spherical nuclei are calculated with two methods based on the energy density functional approach. The simple parametrizations of the dependences of nuclear diffuseness and radius on neutron number are suggested. The nucleus-nucleus potentials are calculated with the nucleon densities obtained and are compared with those resulted from the phenomenological treatment. The height of the Coulomb barrier is suggested to be used in the fit of the density-dependent nucleon-nucleon interaction.

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