J. P. Blocki, A. G. Magner, A. A. Vlasenko

NUCLEAR ASYMMETRY ENERGY, NEUTRON SKIN AND ISOVECTOR STIFFNESS

The isovector particle densities and surface tension coefficients for the average binding energy in the approximation of a sharp edge proton-neutron asymmetric nucleus are used for analytical calculations of its neutron skin and isovector stiffness coefficients. They are significantly different from the well-known ones for the most Skyrme forces. The energies and energy-weighted sum rules of the isovector giant dipole resonances obtained within the Fermi-liquid drop model are in good agreement with the experimental data.

Keywords: nuclear binding energy, symmetry surface energy, proton-neutron asymmetry, neutron skin, isovector stiffness, dipole giant resonances.