distribution may turn out smaller than the neutron radius by about 10^{-13} cm.

A more detailed examination of the nucleon orbits gives qualitatively the same result. The intercept of the energy level with the radial potential determines a point of inflection for the wave function; beyond this point the wave function is always convex to the axis. This point will be different for different angular momenta but will lie at systematically smaller radii for protons. In addition, the higher potential barrier for protons outside this point causes proton wave functions to vanish more rapidly than neutron wave functions. The lower part of Fig. 1 gives a qualitative picture of the proton and neutron densities within the nucleus.

In experiments with nucleons and π-mesons which interact strongly with nuclear matter, one may find the surface of the nucleus at radii where practically no protons are present and the neutron density is well below its plateau value. In experiments with electrons and μ-mesons which interact only with the electrostatic field, one may find the smaller radii characteristic of the proton distribution.

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