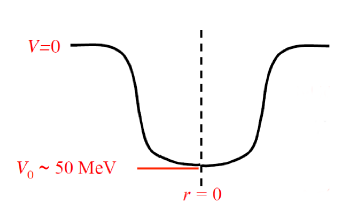
Nuclear magic numbers

Atomic magic numbers:

* Electrons are moving in a **central** potential of Coulomb type (the Coulomb field of the nucleus)
* The energy levels can be obtained (in the first order) by solving the Schrodinger equation for a central potential (that is the Coulomb potential itself)

Magic numbers for the nuclear case (assuming a **Fermi gas model)**

* Nucleons move in a net nuclear potential that represents the *average effect* of interactions with the other nucleons in the nucleus
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**Properties of the nuclear force**

* Nuclear force has a short range + **saturation character**
* The nuclear force near the center of the nucleus (V(r) is almost constant)
* The potential is slightly modified for the protons, due to the Coulomb interaction