Program for modeling the structure of nuclei of all nuclides Z=1÷160

https://yadi.sk/d/3cotzCXwSQf7IQ

For Windows.

All structures of atomic nuclei are created by the program itself using the algorithm for filling electronic shells. Manual editing was only necessary for a few light nuclides. The Help - F1 call is duplicated by the button and the menu.

The program also created structures of possible but undiscovered isotopes. Their names contain the prefix-p (possible).



Figure 1.

After starting the program, select the radioactive element. Select a nuclide from the drop-down list. At the top of the cluster panel, select "View clusters".

Yellow circles represent the positions of He4 clusters, red circles represent protons, and blue circles represent neutrons. Colored lines - lines that divide the core into unequal fragments. Assign program elements to HELP - F1 or a button or menu. You can view the algorithm for filling the shells under the shells in the form of a proton-neutron pair by clicking the ALGORITHM button on the second tab. The nuclei of all nuclides are created by the program itself using this algorithm. The addition of neutrons at A>N+Z Also occurs according to this algorithm. Neutrons are removed at A<N+Z according to the algorithm in reverse order.

To view clusters larger than He4, such as Mg28 Or Ne25,select this decay at the bottom of the panel, and then confirm the selection in the cluster panel at the top right. Only this cluster will be shown from the entire core. (The location of the cluster in the core should be discussed)

Division of nuclei into unequal fragments along the lines of intercluster connections.

The location of clusters of At least 4 in each shell is such that it is the maximum value. Apparently this is an echo of the fact that all the chemical elements were created from He4. Depending on the structure of the shell, four variants of the internal position of clusters On 4 relative to the center (axis of rotation) of the core are possible.



Figure 2 (1,2,3,4)

1. the center of the cluster coincides with the axis of rotation of the core and is located at the intersection of the X,Y axes;

- 2. Both x and Y axes pass between clusters;
- 3. The X-axis runs between the clusters;
- 4. The Y axis runs between the clusters.

Structural formula of the 92-U-235 nuclide core : Ks2, Lp6,Md10,Nf14,Of3, Pd1,Qs2;

The author reminds that the formula specifies the last sub-shell, the shell filled by the algorithm (1) with a proton-neutron nucleon pair.

The formula (not the form !!!) the structures of electronic and nuclear shells and sub-shell coincide.

That is, the number of shells and sub-shells of electronic and nuclear coincide.



The shell view of structure 92-U-235 is shown below :





Figure 9,10

A simple arithmetic calculation of the number of protons on different sides of the colored lines of intercluster fission shows that the nucleus must divide to form nuclide pairs (the main possible fission options are indicated in parentheses, without taking into account the number of free neutrons that fly out).

54Xe+38Sr (54-Xe-137+38-Sr-98);

54Xe+38Sr (54-Xe-137+38-Sr-98);

```
55Cs+37Rb (55-Cs-139+37-Rb-96);
```

```
56Ba+36Kr (56-Ba-140 + 36-Kr-95);
```

The proposed fission along intercluster communication lines provides a theoretical justification for the observed data for absolutely all nuclides of all known radioactive nuclei up to 118-Og-294 and predicted by the program up to the nuclide 160-Upn-398-p.

The author knows that the specified mass numbers of division fragments in the formulas above are not completely correct. It does not take into account the outgoing free neutrons that reduce the values of A. the Author did not find a source that would correctly and unambiguously contain this information for all radioactive nuclides.

In official science, it is stated that Fe nuclides have a maximum value of binding energy per nucleon. Therefore, nuclei heavier than iron cannot be formed in the bowels of stars. How do they form up to U?

The author's proposed core structure consisting of clusters of He4 provides an answer to this question.

Let :

 N_{SV} – - the total number of proton-neutron bonds in the nucleus.

 E_{SV} . - the value of the binding energy in the core;

K_{KL}- - total number of clusters;

 N_{CL} – the number of links included in the clusters;

 $N_{KL} = K_{KL}.*4;$

 $E_{MC. ed}$ - the binding energy per one intercluster bond;

Then the specific energy per cluster bond is defined as :

 $E_{MC. ed.} = (E_{SV}-K_{KL} * 28,296 \text{ MeV})/(N_{SV}-N_{CL};);$

General graph of the E_{MC} value the unit from 2-He4 to 117-Ts-292 is shown in Graph 1.



Graf. 1.

The graph can be copied and enlarged by transferring it to another sheet.

A similar graph of the EMC value the unit for a series of Uranium from 92-U-217 to 92-U-242 is shown in Graph 2.



Graph 2.

Considering the growing with the growth of A centrifugal force and imbalance reduces the binding energy with increasing A, it is possible to reach the exact formula for calculating values of the binding energy in the nuclei of all nuclides.

The author has not yet come to an unambiguous algorithm for calculating the value of the centrifugal force and imbalance (possibly also precession and / or nutation) of a group of nucleons that make up the core and rotate around the Z axis, especially when its position does not coincide with the center of asymmetric nuclei. We need discussions and further elaboration.

The author knows that the official science stands on the position that the nucleons in the core are held by the so-called "strong interaction". It is called strong because of the decrease in the mass of nucleons in the nucleus, which, using the formula $E=mc^2$, gives energy values of the order of 7-8 MeV per nucleon. That is, the simultaneous appearance of forces holding the nucleons and the defect of their mass are considered to be related by cause and effect.

But the simultaneity of two physical processes is necessary for establishing a cause - andeffect relationship between them, but it is not sufficient. It is quite possible that these two physical processes are both consequences of the third, (and maybe the fourth...). As an example: a flash of light radiation and an acoustic shock observed during rain could be considered cause and effect, since they occur simultaneously. But in fact, both of these phenomena are the result of an electric discharge caused by the ionization of the atmosphere caused by the solar wind and the presence of a magnetic field on the planet, which is a consequence of the metal core of the Earth...

Understanding that the fission of atomic nuclei caused by the centrifugal forces of rotation around its axis leads to new views on nuclear power. In which it is possible to use modern waste in the form of U238 for nuclear reactions. And to cause nuclear fission is not an external pumping of neutrons, but a variable magnetic field, possibly resonant frequencies.

Author-Ilya Boldov

352311 Russia, Krasnodar Region, Ust-Labinsk district, village Vimovec, St. Batokhina House 31.

+79885250508 (only Russian)

ilboldov@yandex.ru