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About The Model of Nuclear

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Abstract: All nuclei of elemets consist of successive chainlets of nuclei of helium. Stability of nuclei of helium is provided by an exchange by mesons between nucleons. Division of uranium 235U takes place in a chain, where value of energy of separation of nucleus of helium 4He close to the zero.

Keywords: Successive chain of nuclei of helium or isotopes of nuclei of helium; stability is provided by cooperation of nuclides.

Substantive provisions

Basis(by a brick) for formation of nuclei of elements is a nucleus of helium 4He or isotop nucleus of helium. All other nuclei of elements consist of successive chainlets of nuclei of helium Why did the nucleus of helium become basis all other nuclei? We will consider the nuclei of deyterium 2H, tritium 3H, isotop of helium 3He and nucleus of helium.

ELEMENT Binding Energy (BE) Energy of separation (ES) MeV

	BE	BE/A	n	Proton
2H	2. 225	1. 112	2. 225	0 000
3H	8. 432	2. 827	6. 253	0. 000
3He	7. 719	2. 573	0. 000	5. 494
4He	28. 296	7. 074	20. 578	19 814

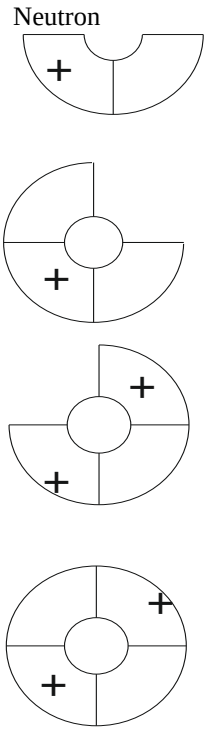


Fig.1

Appearance of fourth sector(proton or neutron) in the chart of tritium (3H) or chart of isotop of helium(3He) creates the complete structure of nucleus of helium.Thus sharply the size of binding energy grows to 28.296 Me V and binding energy on nuclide to 7.04 Me V. And no another way thus to increase the value of binding energy exists. Therefore the nucleus of helium becomes basis for all elements.

1.

Examining Fig.1 it is provide to offer the next variants of reactions:

1. 2H+1H=3He(+5.494 MeV)
2. .2H+2H=4He(+23.896 MeV)
3. 3H+1H=4He(+19.814 MeV)
4. 3He+n=4He(+20.578 MeV)

The nucleus of helium cjnsists of two protons and two neutrons. A proton is a stable particle and neutron is unstable. How to provide stability of nucleus of helium? Stability of nucleus is provided by cooperation of protons and neutrons by means of π-mesons. We will consider one of variants of such cooperation.

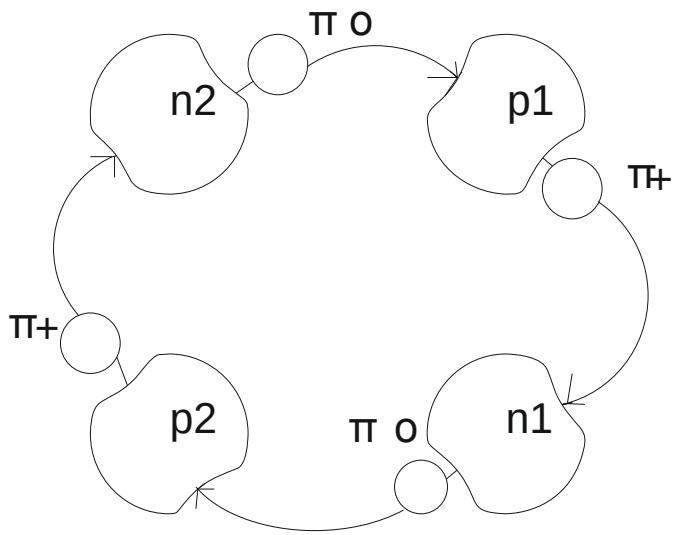


Fig 2

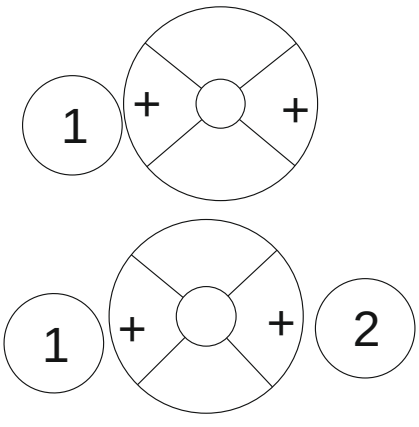
How do nucleous cooperate in a nucleus? They are cobstrained and cooperate all together. Protons and neutrons are difficult sistems consisting of central part and cloud of the continuously emitted and taken in mesons. The proton P1 emits a π+meson and he is taken in by the nutron n1.The proton p2 emits the same π+meson, that is taken in by the neutron n2. And at same time neutrons emit π-0 mesons, that is taken in by protons. After an exchange of the mesons proton and neutron change by rotes.A proton becomes a neutron and former neutron by a proton. This cooperation recurs in the next loop. A current flows in the ring of helium, because the charge of 1e moves, that creates the magnetic field. This magnetic field helps the orientation of nucleus of helium in relation to other nucle.

Yhenuclei of elements consist of chain of nuclei ofhelium, thatia bound by inter se binding energy of equel energy of separation of nucleus of helium. This connection come a true by a transmission between nuclei of part of energy. This cooperation connection ends with in nuclei. Why does this chain coagulate in a ball? Maybe she aims to occupy a minimum volume in space.

We will consider a few nuclei.

ELEMENT Binding Energy (BE) Energy of separation (ES)

	BE	BE/A	n	p
5He	27.403	5.481	0	21 893 789
6He.	29 269	4.848	1. 866	22 584



2.

In these isotopes additional neutrons(1,2) are not wedged in the basic structure of nucleus of helium and are situated exactly near protons and trade with protons part of energy

ELEMENT Binding Energy Energy of Separation

BE RE/A n p α

8Be 56. 7. 18 17. 0
500 063 900 225 092

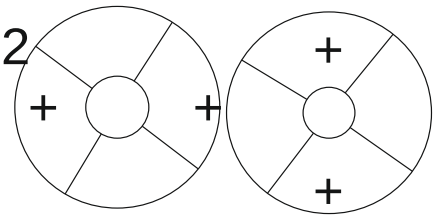


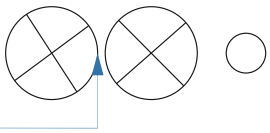
Fig.4

This nucleus of berilium unstably. It disintegrates on two nucleus of helium. That the nucleus of berilium became stable to the ordinary nucleus of helium

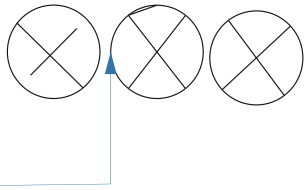
ELEMENT Binding Energy Energy of Separation

BE BE/A n p α

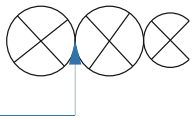
9Be 58. 6. 1. 16. 2.
167 403 167 881 468



12C 92. 7. 18. 15 7.
163 680 772 957 365



11B 76. 6 11. 11.....8
205 028 454 227 665



16O 127. 7. 15 12. 7.
621 976 064 127 162

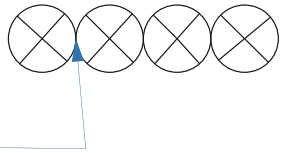


Fig.5

3.

Why do the nuclei of elements consist of successive chainlets of nuclei of h

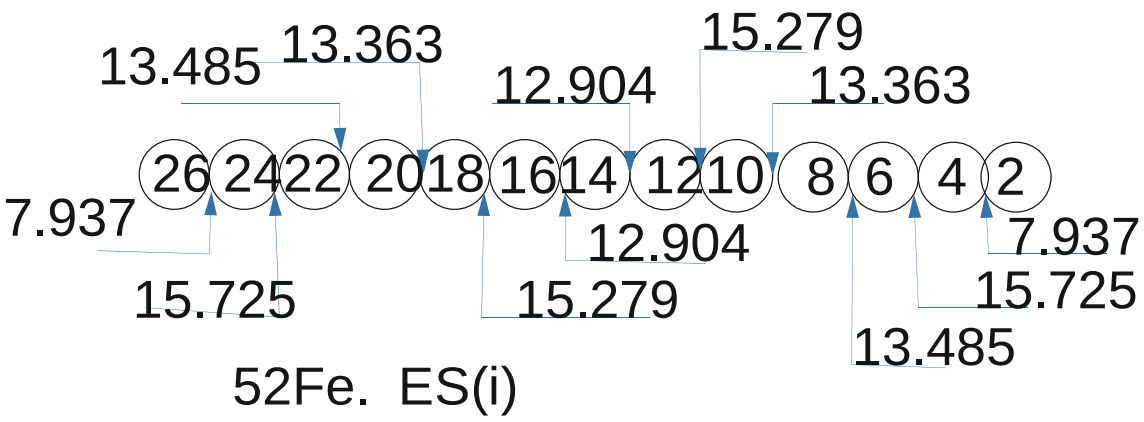


Fig.6

We take the nuclei of element 52Fe.We will divide hem into clusters. In all in the nuclei of ferum 13 nuclei of yelium. First We will separate one nucleus of helium ,after we will separate two nuclei(nucleus 8Be), after we will separate three nuclei(nucleus 12C),after we will separate four nuclei of helium(nucleus 16O) et cetere to the end.12 division will turn out in all. Thus six last divisions mirror represent the first six. The size of energy of separation changes very small. It changes from 12.904 MeV at a bipartioning one of that is 24Mg and second. is 28Si,to 16.729 MeV, when a nuclei is divided by two nuclei of helium and eleven nuclei. Division of nucleus 52Fe on two parts, idest on two nuclei 26Al requires energy of separation so much ,how many dividing of nucleus of helium by two parts. Obviosly, that nucleus 52Fe consists of successive chanlet of nuclei of helium.

We will make the table of forming of nucleus 235U. Rules, used for creation tables following:

1. Elements consist of chanlets of nuclei of helium 4HE or isotopes of helium 5He,6He,7He, 8He,that enter into cooperation. The size of this cooperation is equal to energy of separation of nucleus of helium ESα or isotopes of helium ES(α+2n).
2. This energy binds a nuclei in a successive chainlet.
3. Forming of nuclei with even Z is begun with the nucleus of helium(Tabl.2).Forming of nuclei with odd number Z is begun with deuterium(2H) or tritium(3H) (Tabl.1).Therefore are two independent branches of elements
4. The criterion of choice of method of forming of nuclei is a size of energy of separation of nucleus of helium 4He from a next element. We find the size of energy of separation of nucleus of helium for all elements from Be to 235U (Tabl.1.ESα)).IF a value ESα is positive, then the nucleus of helium (4He) can became forming for this element. If the size of energy of separation become negative then one of isotopes of yelium(mainly 6He) becomes forming.

We will pay attention to value ESα in the fourth column of Tabl.2.The size of ESα changes from a value 7.365 MeV for the element of 12C to the value 0.743 MeV for element of 109Sn and then diminishes to value -4.678MeV for the element 235U. In Tabl.2 one of possible of forming of element of 235U is shown. For elements with a mass number from A=8 to A=80 the nucleus of helium 4He became forming. For an element with A=85 isotope 6 5He became forming. For all other from A=91 to A=235 an isotope 6He became forming. Thus in Tabl.2 an ideal variant of forming of uranium 235U is brought. That to know as realy the nucleus of uranium 235U is formed it is necessary to separate the nuclei of isotope of helium on one since the nucleus of uranium 235U

Tabl.1 Formation of nuclei with of odd Z

z	Elem		A	Esa	Esa+1n	Esa+2n	%
1	H	2	3				
3	Li	6	7	2.467			92.41
5	B	10	11	8.665			80.25
7	N	14	15	10.992			
9	F	18	19	4.013			100
11	Na	22	23	10.468			100
13	Al	26	27	10.102			100
15	P	30	31	9.662			100
17	Cl		37	6.999			
19	K		41	7.219			
21	Sc		45	7.883			100
23	v		51	10.294		28.789	99.75
25	Mn		55	7.954			100
27	Co		59	6.944			100
29	Cu		65	6.790		22.630	
31	Ga		71	5.248		20.472	39.892
33	As		75	5.317			100
35	Br		81	6.484		22.538	49.31
37	Rb		85	6.617			72.17
39	Y		89	7.959			100
41	Nb		93	1.932			100
43	Tc		97	2.437			
45	Rh		103	3.124		18.397	100
47	Ag		109	3.302		18.295	48.16
49	In		115	3.742		18.471	95.71
51	Sb		121	3.071		17.653	57.21
53	I		127	2.184		16.383	100
55	Cs		133	1.793		16.683	100
57	La		137	1.454			
59	Pn		141	1.346			100
61	Pm		147	-1.600		11.662	
63	Eu		153	-0.273		11.820	52.19
65	Tb		158	0.168	6.601		
67	Ho		164	-0.431		13.105	
69	Tm		169	-1.201	7.682		100
71	Lu		175	-1.620		11.082	97.41
73	Ta		180	-2.025	5.165		
75	Re		185	-2.194	2 352		
77	Ir		191	-2.085		10.473	
79	Au		197	-0.967		12.030	100
81	Tl		203	0.909		12.156	29.524
83	Bi		209	-3.138		10.112	100
85	At		215	-8.174		0.632	
87	Er		221	-6.452		3.022	
89	Ac		227	-5.042		5.022	
91	Pa		232	-4.129	1.124		
93	Np		237	-4.953	2.863		

5.

Table.2 Formation of nucleus of uranium 235U

A	**Element**	**Z**	**ES α**	ES (α+2n)		
4	He	2				
8	Be	4	-0.092			
12	C	6	7.365			
16	O	8	7.162			
20	Ne	10	4.730			
24	Mg	12	9.322			
28	Si	14	9.985			
32	S	16	6.947			
36	Ar	18	6.041			
40	Ca	20	7.040			
44	Ti	22	5.125			
48	Cr	24	7.696			
52	Fe	26	7.937			
56	Ni	28	7.997			
60	Zn	30	2.710			
64	Ge	32	2.527			
68	Se	34	2.285			
72	Kr	36	2.157			
76	Sr	38	2.724			
80	Zr	40	3.685			
85	Mo	42	3.092	14.989		
91	Ru	44	3.435	24.795		
97	Pd	46	2.466	26.196		
103+	Cd	48	0.887	20.146		
109	Sn	50	0.734	19.583		
115	Te	52	-1.460	17.110		
121	Xe	54	-0.199	18.007		
127	Ba	56	-0.009	17.938		
133	Ce	58	-0.217	17.203		
139	Nd	60	-0.209	17.163		
145	Sm	62	-1.115	16.262		
151	Gd	64	-2.653	11.132		
157	Dy	66	-1.036	13.293		
163	Er	68	-1.574	13.241		
169	Yb	70	-1.733	12.791		
175	Hf	72	-2.404	11.708		
181	W	74	2.211	11.266		
187	Os	76	-2.724	10.560		
193	Pt	78	-2.083	10.854		
199	Hg	80	-0.824	12.665		
205	Pb	82	-1.465	6.815		
211	Po	84	-7.534	6.258		
217	Rn	86	-7.887	1.497		
223	Ra	88	-5,973	3.920		
229	Th	90	-5.167	5.253		.
235	U	92	-4,678	6.260		

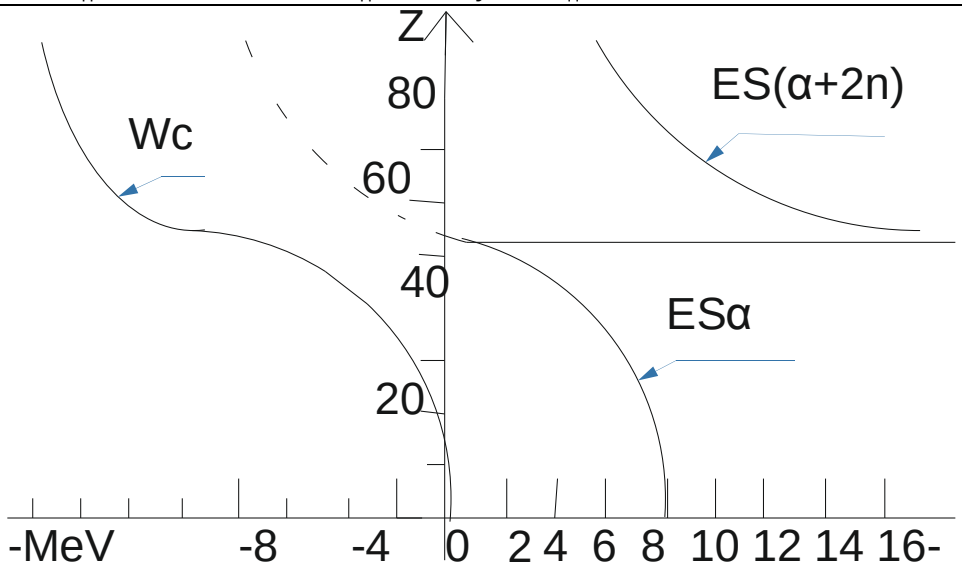


Fig.7

On FIG.7.dependence of ESα and ES(α+2n) is shown on the size of Z.For the elements from Z=2 to Z=80 the size of energy of separation changes from 8MeV to a zero value and. further falls to the value -4.578MeV for uranium..The division of uranium takes place, when value of energy of separation of nucleus of helium close to the zero. Therefore the isotope of helium 6He become a further forming element A value ES(α+2n) is begun with a size near 18MeV and falls to 6.260MeV for uranium.

Conclusion

Dividing of uranium by two parts making 2/3 basic nucleus takes place the break of successive chainlet of nucleus, whene a value ESα approaches a zero.

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