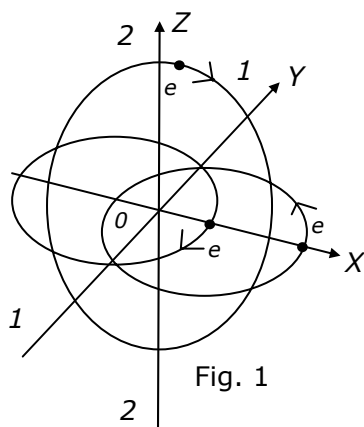


# MULTIELECTRONIC ATOMS

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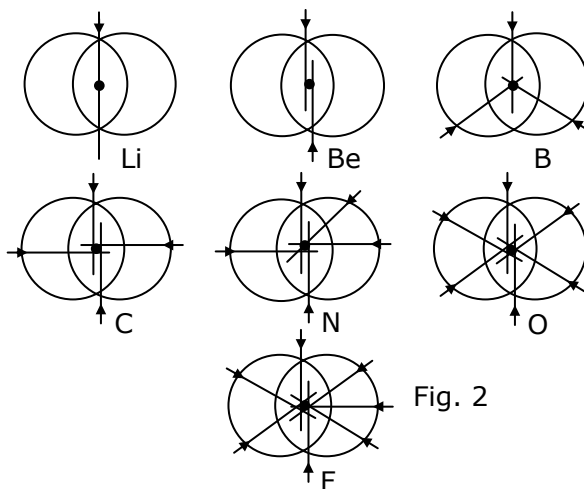
## Abstract

In the article the constitution of multielectronic atoms is reviewed and the new form of the Mendeleev's table is offered.



Principle of formation their same - greatest possible winning of energy. For three-electronic atoms the possible invariable structure is single will be then, when the third electron will have an orbit in a plane, perpendicular plane of orbits of two electrons of helium-like atom, that are show on a figure 1 (lithium).

The third electron can not move apart orbits of two first electrons because of their strong magnetic interaction (see of fig. 7). If not influence of two electrons, the third electron would have a circular orbit, but the influence of these electrons gives in a tension of an orbit along a line 1-1 and cutting along a line 2-2, that determines ellipsoidal an orbit with a eccentricity, order  $e=0.777$  for lithium, which one at first it is sharply, and then feebly is incremented with increase of nuclear charge up to, for example,  $e=0.854$ . Thus the nucleus is at centre of an equivalent ellipse, instead of in its focus.



At adding the fourth electron, from the third and fourth electrons the similarity of system of the first and second electron, only in a perpendicular plane will be formed, thus the

nucleus appears in focus of ellipsoidal orbits. Further this process is prolonged before formation of a 8-electronic torus without an interior hole (fig. 2) in which one if to be moves on a circle lengthwise axis of torus, the electrons in it meet rotary around of a nucleus in one side.

On fig. 2 orbits in para-position as of convenience perceptions are displaced relatively each other. Aspiration to pairing electrons both between interacting atoms, and at formation of a torus (fig. 2) is stipulated by alone aspiration to a minimum of a potential energy, which one is ensured, in this case, by interaction of orbital of magnet moments and makes a basis of chemistry. In this respect there is some analogy to nucleons in a nucleus, which one in the same way ensure a minimum of a potential energy own of the gravidynamic moments (see theory of a nucleus).

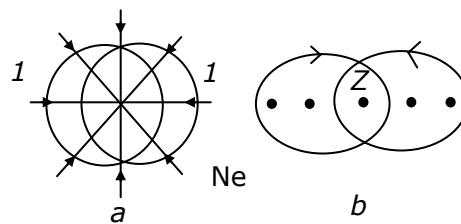


Fig. 3

On a figure 3 the neon as by way of on a plane of orbits of two first electrons (a) and in a slit 1-1 (b) is figured. The point on figure 3b shown orbits of two first electrons inside a torus moves in the counter sides.

From a figure 2 it is visible, that, despite of a blanket utility of formation of a torus and bound with it increase of an ionization energy, the affixing of the third and sixth electrons of a torus to the greatest degree deforms already existing up structure, therefore ionization energy for these electrons appears much below anticipated.

Further process goes in precisely the same way, thus thin split of spectral lines, for example, sodium, is stipulated by a miscellaneous current of traffic of an outside electron for miscellaneous atoms of the same element. In the result as though the double torus with an opposite electron motion is gained, that are shown on a figure 4 (argon).

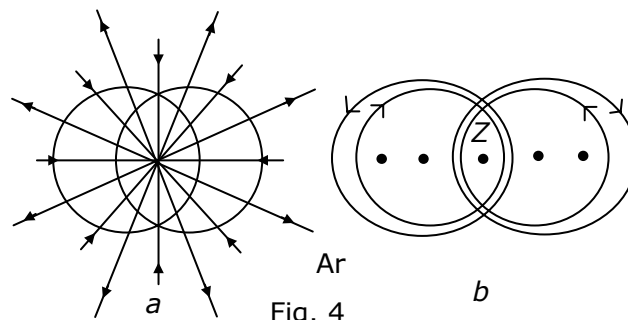


Fig. 4

Here there is a very tempting opportunity (from an energy point of view) more tight to fill atom by electrons, by arranging them on quasicircular orbits inside the second torus, but this opportunity cannot be implemented because of absence of "hole" through which one electrons could get to destination and, most important - the energy situation has not ripened yet for embodying this opportunity.

The approaching requirements occur at adding a pair of electrons initial to shape one more outside torus, we shall recollect, that the third electron to build into a torus not so profitably (fig. 2,B). It is figured on a figure 5 (calcium).

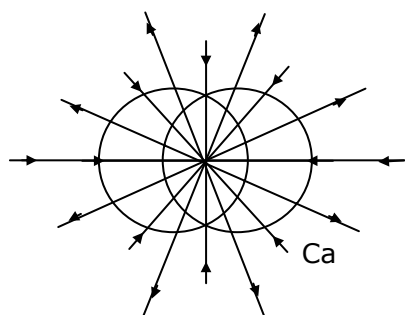


Fig. 5

Now becomes profitably to not finish building further third torus, and to fill first almost by circular orbit on which one 8 electrons (from scandium up to nickel) place only, and in atoms of cuprum and zinc already the second torus by two electrons in a standing similar to

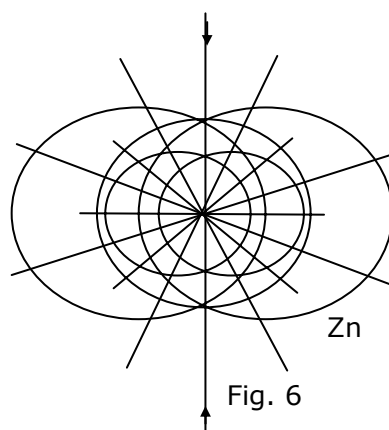


Fig. 6

helium is stuffed. The atom of zinc is figured on fig. 6.

Further is finished building the third torus starting from atom gallium and finishing a krypton. Then all process is iterated again. In atoms of rubidium and strontium starts the formation of the fourth torus, start with yttrium till a palladium 8 electrons on an almost circular orbit stuffs in an interior of the second torus, in atoms of argent and cadmium is stuffed already the third torus by two electrons in a standing similar to zinc and from indium till a xenon formation of the fourth torus is terminated.

Then is exact as in cesium and barium the beginning of the fifth torus is shaped, start with lanthanum till gadolinium 8 electrons on an almost circular orbit stuff in an interior of the third torus.

As the influence of a nucleus is considerably increased, there is an opportunity to 8 electrons (with terbium till hafnium) to form second an quasicircular orbit with an opposite electron motion inside the third torus and already not two electrons, and 8 (from a tantalum till hydrargyrum) stuff in the fourth torus in a plane of pair orbits of zinc and cadmium. If there were no two electrons of the fifth torus, 8 elements in a series a tantalum - hydrargyrum would be a certain similarity of elements in series sodium - argon. Thus, the hydrargyrum is in some respects look-alike to noble gases, because of what it represents a fluid in standard conditions. "Except for hydrargyrum, all maximums on a curve (first potentials of ionization depending on atomic numbers of elements - V.K.) are watched for noble gases and the more deep minimums for alkali metals". F. Cotton, G. Wilkinson, Modern inorganic chemistry, "World", M., 1969, 1 part, page 47.

Further with thallium till a radon the formation of the fifth torus is terminated, and francium and radium start shaping the sixth torus. 8 elements from actinium on кюрий will forms a quasicircular orbit inside the fourth torus, and 8 elements with berkelium till 104 element - second almost circular orbit inside the fourth torus with an opposite electron motion. In hypothetical elements with 105 till 112 eight electrons would stuff in the fifth torus in a plane of pair orbits and would be chemical analogs of a series a tantalum - hydrargyrum, in elements with 113 on 118 the formation of the sixth torus would be completed. The terminations of this filling and the more so terminating of shaping of the sixth torus we, on all visibility, never shall see because of instability of heavy nuclei, instead of because of any restrictions on the part of electronic shells. Therefore hopes of the

scientists on "an island region of stability" in far transuranium elements will not be justified. By the way, now under a shell it is necessary to understand one of 8-electronic toruses inserted each other, as matreshkas, together with their interior content. If to be more precise, exist of a miscellaneous view of a shells in essence distinguished from each other: formatives a torus and lying in a plane, perpendicular axis of a torus. Last, in turn, are subdivided into two and eight-electronic with orbits of electrons similar to orbits in toruses, but lying in one plane and eight and 16-electronic of a quasicircular orbit in the same plane, on which one the electrons are collective. The sizes of all atoms in a nonexcited state are about identical, switching here and hydrogen. It indicates that all electrons in atom are on stationary orbits, the size which one wholly is determined by traveling speed of an electron so that they met condition: one wave de Broglie, the mechanical moment is peer to the moment of a mobile electron. In this connection arouses surprise of the logic of a modern physics, when quantum numbers, in which one there can be an excited atom of hydrogen, mechanically are transferred on all atoms, considering is completely groundless, that only these states and are permitted. We have shown that these states metastable and any relation to a constitution of nonexcited atoms have not. Really, radius of an orbit of an electron is inversely proportional to nuclear charge and is directly proportional to a quadrate of a quantum number; therefore, from a point of view of a modern physics, radius of atoms should linearly be incremented with increase of nuclear charge. By sets of quantum numbers it is impossible to describe a constitution of atoms if not to resort to eliminations, by amount is significant superior rules, of what the curious reader can personally be convinced, if he will have enough patience to understand it the finally tangled problem.

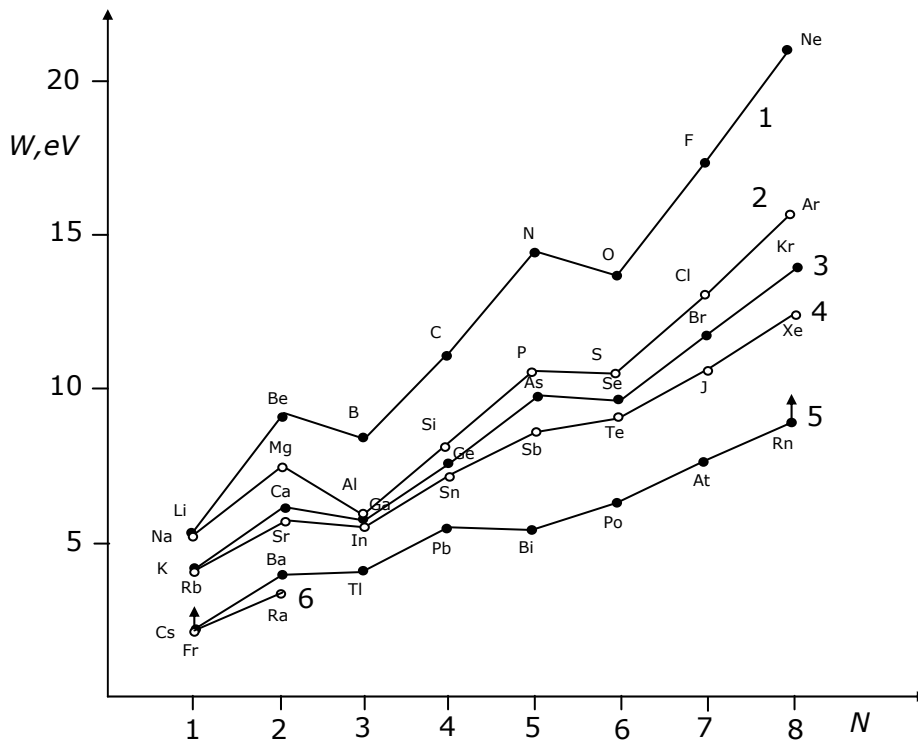


Fig. 7

By constructing the diagrams of the first ionization energy of atom depending on number of electrons formatives a given torus (of fig. 7), we visualizes the steady tendency to a rectification of the diagrams with increase of the number of a torus (for 5-th and 6-th torus the diagrams are displaced downwards on 2 eV as a matter of convenience viewings). It is bound to increase of azimuth mobility of electronic orbits with increase of nuclear charge. Thus in the fifth torus the fifth electron is already capable to move apart orbits of the previous electrons (we compare from fig. 2,N). Nevertheless, the affixing of the third electron remains energy poorly to turn to advantage, that is visible on a start of the diagram for the sixth torus, namely, this circumstance and determines rules of build-up of electronic shells of atoms, which one remain, thus, invariable not only for existing, but also for hypothetical elements. If it was not so, the filling by electrons of an interior of the fifth

torus could not happen. In due course, we shall learn to do to profitable affixing of the third electron to a torus and to that there are some independent paths. Unique opportunities for chemistry in this case are unclosed, for example, it is possible to receive iron as noble gas.

In table 1 the plan of filling by electrons of toruses, of quasicircular orbits and orbits in one plane is shown. As a matter of fact, this table represents the new shape of the table of the D.I. Mendeleev: the elements on one vertical have similar chemical properties. "But it, however, does not mean, what even the perfect knowledge of electronic configurations of atoms in all without elimination cases allows to do unique deductions concerning properties of the relevant elements". "About a systematic of particles", 1969, page 40.

Except for short "period": *H, He*, which one takes the special standing, remaining start with alkali metal and are finished by noble gas. Thus they can be compared only pairwise, since the constitution of the subsequent pair differs from previous sharply.

Table 1.

Filling of toruses	Filling of quasicircular orbits	Filling of orbits in one plane
(H) (He)		(H)(He)
Li Be B C N O F Ne		
Na Mg Al Si P S Cl Ar		
K Ca Ga Ge As Se Br Kr	Sc Ti V Cr Mn Fe Co Ni	Cu Zn
Rb Sr In Sn Sb Te J Xe	Y Zr Nb Mo Tc Ru Rh Pd	Ag Cd
Cs Ba Tl Pb Bi Po At Rn	La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tu Yb Lu Hf	Ta W Re Os Ir Pt Au Hg
Fr Ra 113 114 115 116 117 118	Ac Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lw 104	105 106 107 108 109 110 111 112

If in a modern physics, which one considers electrons in atom "spread" in space there is no problem on sync of their motion, in featured here to neoclassical physics this problem is major not only for exact comprehension of a constitution of atoms, but also at formation of molecules from atoms and solid bodies from molecules and in more detail will be surveyed below. In the same partition we should pay attention that the sync is possible only for two electrons, the orbits which one lie in one plane and completely are symmetrical concerning a nucleus or for a lot of electrons, if they place symmetrically on one to a quasicircular orbit. In the latter case atoms have magnetic properties. All remaining versions can not be practically implemented because of impossibility of a synchronous electron motion. The requirement of sync of electrons has by a self-acting corollary high symmetry of a constitution of atoms, molecules, solid bodies, as a matter of fact - high symmetry of all Universes.

The orthodoxes, especially with a mathematical bias, recognize which one except for the formulas nothing, can charge the author of only speculative exposition of a constitution of atoms. On it is possible to object following: speculative exposition - much more effective method of knowledge when mathematics is powerless. If the Copernicus instead of speculative exposition of a constitution of a solar System attempted to make it mathematically, he would be excruciated with this problem about today and without any result, since such exposition does not exist now. And try "mathematizing" the theory of evolution of the Darwin - nothing will be received. Always any scientific reaching starts with a descriptive method of knowledge and only then, as far as possible, is connects up the mathematical apparatus for elaboration already of rather clear notions. Attempt to put this process of knowledge on a head gives only in mass of the wanton mathematical calculations.

References:

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