The mystery of nature discovered

Abstract: The article presents the discovery of an error in physics, which has been for over two hundred years passed on to next generations as an irrefutable truth. This error concerns the law of conservation of energy.

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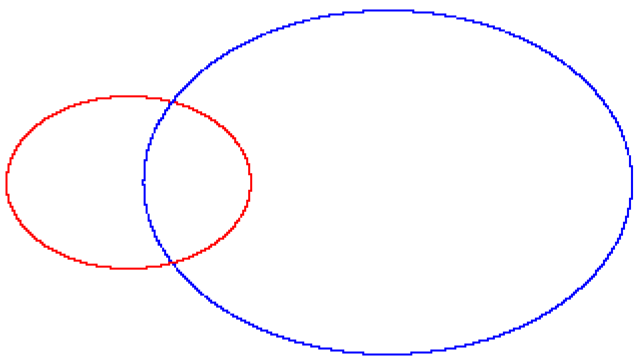
Preface

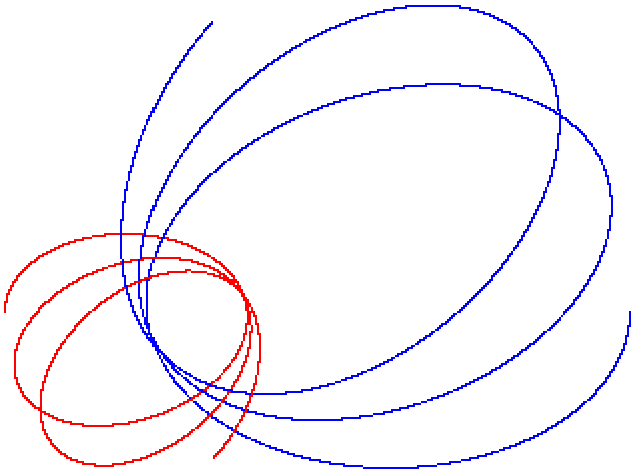
Discovered mystery, whatever it may be, ceases to be a mystery. The concept of mystery concerns something that is unknown, and this "something" can have diversified nature. Here, the concept of mystery should include a fact that is related to the law of conservation of energy (LCE). In theoretical physics it has been assumed that the law of energy conservation is irrefutable, ie, it works during the course of all physical phenomena. And the secret in this case is that the law of conservation of energy in fact is not one hundred percent true. In other words, this law does not work in all physical processes and phenomena. And this is what the "discovered mystery of nature" concerns.

The LCE works

The degree of correctness of the law of energy conservation can be compared with the degree of law validity of Newton's law of universal gravitation and Newton's laws of motion. Because the law of universal gravitation and laws of motion are not only closely related, but they are also associated with the LCE. And it is known that the law of Newton's law of universal gravitation describes the mutual interactions of celestial bodies only in an approximate way. It is known that when two heavenly bodies interact with each other in accordance with Newton's law of gravity and orbit around a common centre of mass, they move on elliptical orbits. The orbital paths are similar to those shown in the figure below.



In such case, the law of energy conservation is fulfilled in one hundred percent. Because the bodies move around the common centre of mass, which remains motionless. The bodies move on elliptical paths due to mutual accelerations, which change their distance according to the same mathematical function. Thus **the most important is the same variability of the interaction of two bodies**.

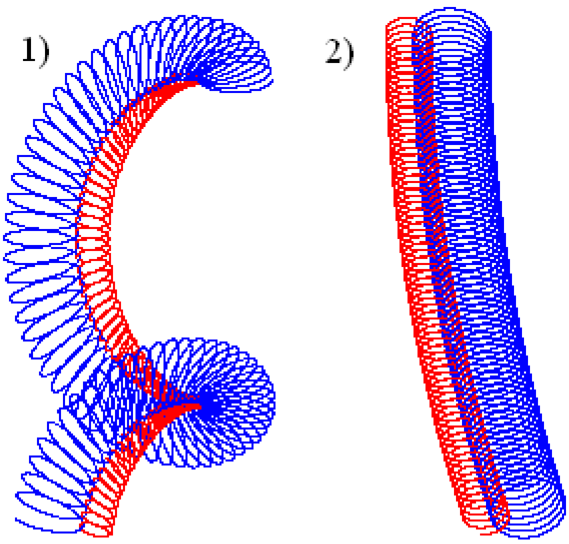


In the case when the mutual interaction of bodies even slightly differs from what is described by Newton's gravitational law, then the bodies' orbits can no longer be elliptical. Then the orbits of the bodies are similar to the rosette, i.e. they are similar to those shown in the figure below.

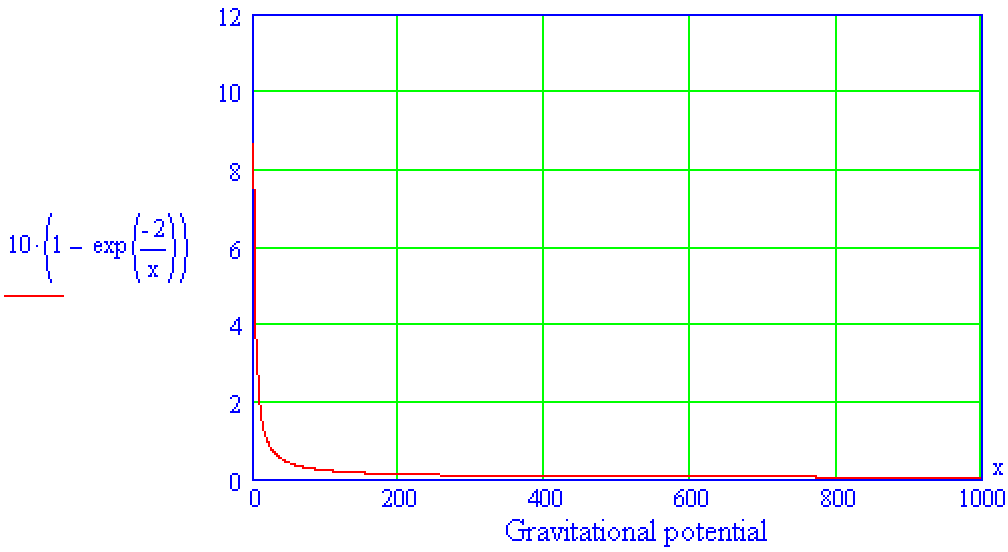
If we look for a similar example that exists in nature, then these can be the orbits of two bodies that make up the binary star PSR B1913+16. Some information about the orbiting of these bodies can be found on http://en.wikipedia.org/wiki/PSR_B1913%2B16. In this case, the orbit takes the shape of a rosette for the sole reason that gravitational interaction no longer changes inversely in proportion to square of the distance. Impact changes are taking place at a slightly different pace than Newton put it. Depending on whether the rate of gravitational interaction is greater or smaller than that described by Newton's law, the rosette leaves are arranged differently in relation to each other. Then the rosette leaves, either expand to some extent, - as in the presented figure, or slightly tighten - as in the case of the binary star PSR B1913+16. **However, in each of these two cases, the barycentre may be stationary. There is only a condition that the mutual accelerations of both bodies when changing the distance, change according to the same mathematical function.** And whether this condition in the case of the double star is preserved, it will turn out in the next short episode of this information.

The PCE doesn't work

When changes in the acceleration of two interacting bodies when changing distances run in a slightly different way, then this fact contributes to the moving of the resultant barycentre of these two bodies. In this case, the law of energy conservation can no longer be taken into account. Then the orbits of the two interacting bodies, and also the resultant trajectory of the motion of their common barycentre, have other properties. The following figure shows two examples of such trajectories of motion.



The stable position of two orbiting bodies presented here is possible due to two factors. One factor in the stability of this system is spinning around a common centre of mass, and in fact - orbital speed. The second factor is the gravitational impact of each body, which consists in accelerating its neighbour "towards itself". During the spinning of bodies their velocities and mutual accelerations are associated with cyclic energy transformations - kinetic energy of bodies turns into potential energy and vice versa. These energy changes occur under the influence of monotonically changing gravitational acceleration. Each of these bodies can be attributed with gravitational potential, which changes in the same way as the distance changes, as shown in the figure below.



These changes in gravitational potential (depending on the distance) are very similar to those given by Newton, and gravitational acceleration changes in a similar way. But there is a slight difference. And it is thanks to this difference that one can explain in a rational way what is the cause of the perihelion movement of orbiting celestial bodies in planetary systems.

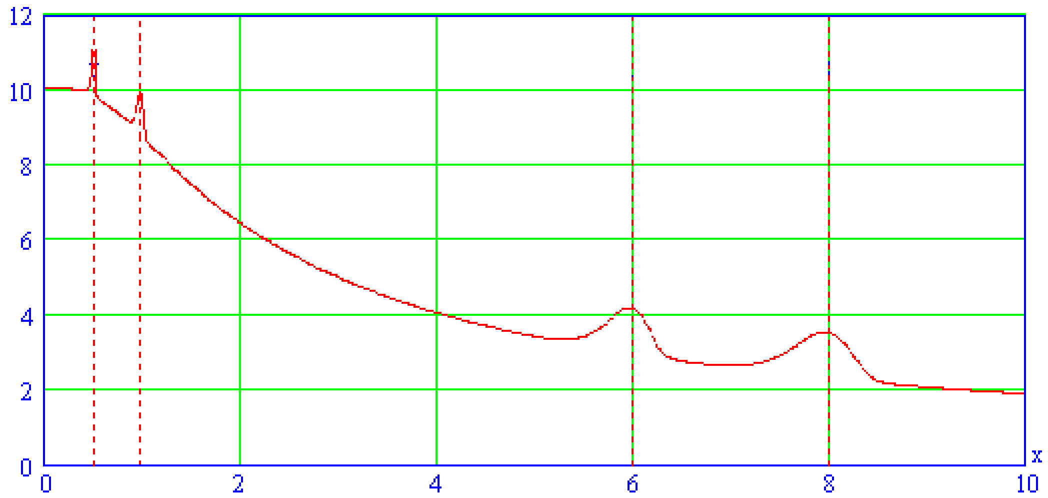
There is another kind of circumstance associated with the gravitational influence. Namely, today in theoretical physics it is silently assumed that the gravitational interaction of celestial bodies of various sizes, which takes place when the distance changes, changes in an identical way for each body and changes as if the entire body mass was located at its central point. In fact, the bodies have different sizes and the mass of their components can be distributed in their volume in a variety of ways. For this reason, when changing the distance, the gravitational influence of various bodies changes according to mathematical functions that have a slightly different structural arrangement. **And this results in the fact that the centre of gravity, e.g. of the binary star PSR B1913+16, cannot be stationary in one space location. It must constantly move, thus in this case the law of energy conservation doesn't work.**

Working and not working of the LCE in nanoscale and microscale

So far, we have dealt here with the limitation in the functioning of the law of energy conservation, which occurs when the bodies interact in megascale. But this interaction is a summary effect of all of its component particles. Hence it can be inferred that the gravitational potential of the body is the sum of the gravitational potentials of all component particles that make up its material structure. So that in a similar way at large distances, the gravitational potential of the most important components of matter particles - protons and neutrons also changes.

With only a gravitational interaction, a stable system of particles (or bodies) could only arise in the form of a spinning system. The creation of a solid, for example, grains of sand, but also the creation of stable systems of particles in the form of atoms of various elements, would be impossible. Because spinning systems would break apart when approaching each other. The existence of atoms and solids made of them indicates the existence of yet another type of action and acceleration. The other action is the structural one. It has been so named because thanks to its existence, various types of stable structures can be created, such as atoms, molecules, sand grains, etc.

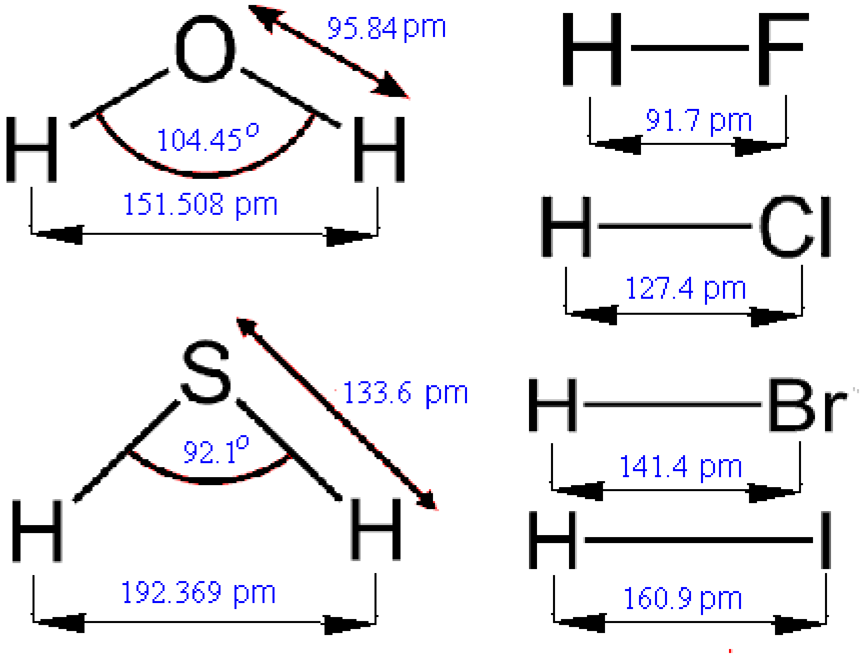
The structural impact is associated with the existence of spherical areas that at some distance surround the central point of every particle of matter. These areas are called potential shells. The mutual acceleration of the particles in the area of each such shell proceeds in such a way that an impression may arise that the potential shell of a given particle attracts the neighbouring particle to itself. Because when two particles don't have too high velocities in relation to each other and are separated from each other by a distance approximately equal to the radius of the potential shell, then acceleration in the shell area contributes to the entrapment of the particle therein. In this way, a stable system is formed with two vibrating particles facing each other, which can connect with other similar systems and attach individual particles to its structure.
The figure below shows the image of combining two types of potential - the potential of gravity and structural potential.



Along any ray coming out of the central point of the particle, but in the vicinity of this point, the resultant potential is no longer monotonic. This potential already contains some kind bumps - these are local increases and decreases in the potential value that make up the potential shells. The figure shows schematic images of the potentials of four shells that belong to two families. Closer to the centre of the particle is the family of nuclear shells. Thanks to these shells, atomic nuclei are formed because protons and neutrons with their help combine with each other. In nature, the size of the nuclear radii of proton and neutron shells are of the order of femtometer or around 10^(-15)m.

At a much further distance from the centre of the particle (which cannot be accurately represented in the illustrative drawing) there is the family of molecular shells. In nature, thanks to molecular shells, molecules of various chemical compounds are formed. The magnitudes of the molecular radii of the shells are of the order of angstrom, i.e. they are about one hundred thousand times larger than the radii of the nuclear shells. In addition, molecular shells also have much less steep slopes than nuclear shells. This means that the combinations of particles by means of molecular shells are much less tear resistant than combinations by means of nuclear shells.

This difference in the structure of the shells contributes to the fact that when the particles combine with each other by means of nuclear shells, then their molecular shells almost entirely overlap. Because they are only slightly shifted from each other. In other words, the molecular potentials of the shells add up. This fact in nature is expressed in such a way that in chemical compounds the distances between atoms whose atomic number is greater are usually greater than between atoms with a smaller atomic number. This is because (due to the increasing number of components in the nucleus) as a result of the summation of potentials, molecular shells with ever-larger radii gain increasingly greater ability to retain neighbouring atoms in their area. It is on these shells that the nuclei of other atoms stop in the first place and in this way molecules are formed.
Below are some examples of such dependencies.

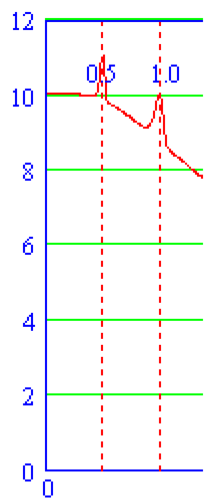


The figure shows a schematic structure of several chemical compounds - specifically, combinations of various chemical elements with hydrogen - and the distances between atoms.

The mathematical formulas presented below, or rather the sum of mathematical formulas, are used here for a demonstrative presentation of changes in the potential values that particles have in nature.

$$a := \frac{1.029}{0.5} \qquad b := \frac{1.029}{1.0} \qquad d := \frac{1.029}{6.0} \qquad f := \frac{1.029}{8.0}$$

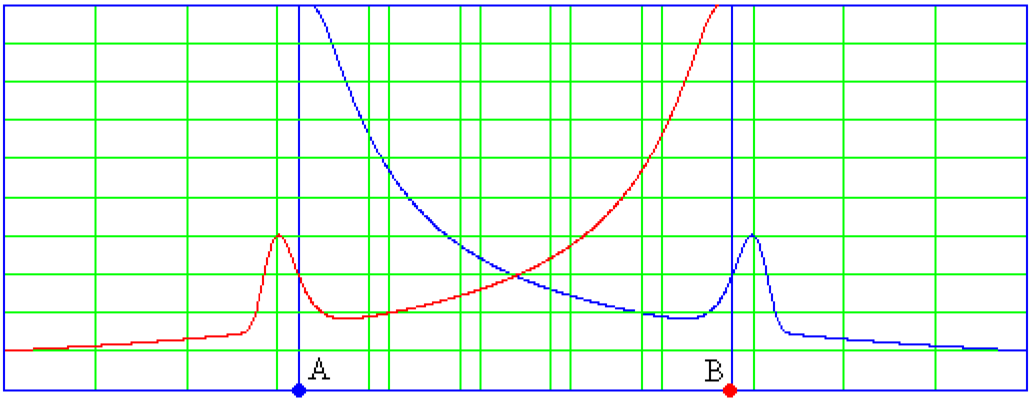
$$V = 10\cdot\left(1-\exp\left(\frac{-a}{x}\right)\right) + (a\cdot x)^{\frac{2.5-(a\cdot x)^{20}}{0.1\cdot(a\cdot x)}} + (b\cdot x)^{\frac{2.5-(b\cdot x)^{20}}{0.1\cdot(b\cdot x)}} + (d\cdot x)^{\frac{2.5-(d\cdot x)^{20}}{0.1\cdot(d\cdot x)}} + (f\cdot x)^{\frac{2.5-(f\cdot x)^{20}}{0.1\cdot(f\cdot x)}}$$



These formulas are suitable for a demonstrative presentation of what is happening in nature. They help logically explain and understand the occurring physical processes and phenomena.

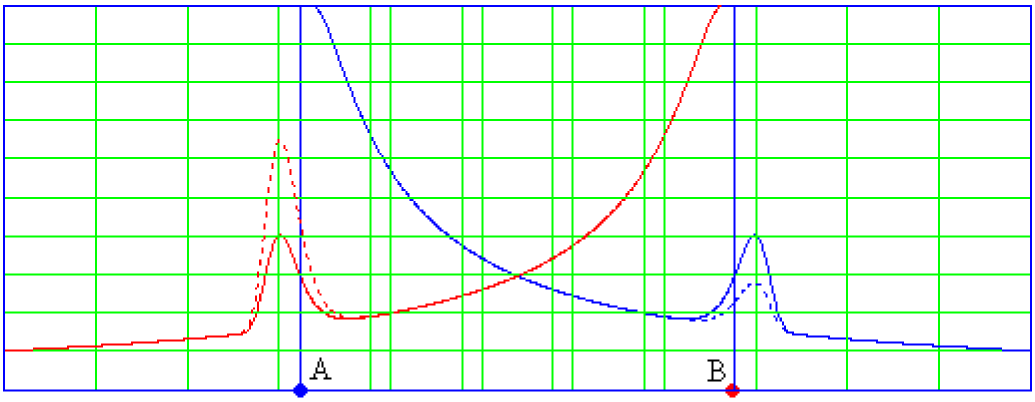
When a particle is trapped in the area of the potential shell of its neighbour, then simultaneously in its potential shell, having the same or similar radius, this neighbouring particle is trapped. Each particle vibrates between the slopes of its neighbour's shell. Because on these slopes the particle is accelerated towards the place with the greatest potential that is on this shell. Just at the place of the greatest potential, the particle moves at the highest speed and has zero acceleration. After exceeding this point the braking of its speed begins. Because now on the slope acceleration works in the direction opposite to the direction of its motion. The particle is braked until it stops on this slope. From that moment, its accelerated motion in the opposite direction begins.

The particle that vibrates in the area of the potential shell behaves similarly to a particle moving on an elliptical path. So there are similar transformations of kinetic energy into potential energy and vice versa. Exactly in this way processes take place when the interacting particles are connected via identical potential shells. This situation is illustrated in the schematic drawing below.



In this case, the two particles have an identical distribution of potentials and each of them is located in the area of the potential shell of its neighbour. In this case, the acceleration of the particles takes place in a symmetrical manner. At any moment, the particles vibrate in the shell area, approaching or moving away from each other and from the common centre of mass. The particles shown in the diagram have the same masses, so their velocities are the same at any time, but they have opposite directions. At the same time particles are separated from the common centre of mass at the same distance at any time.

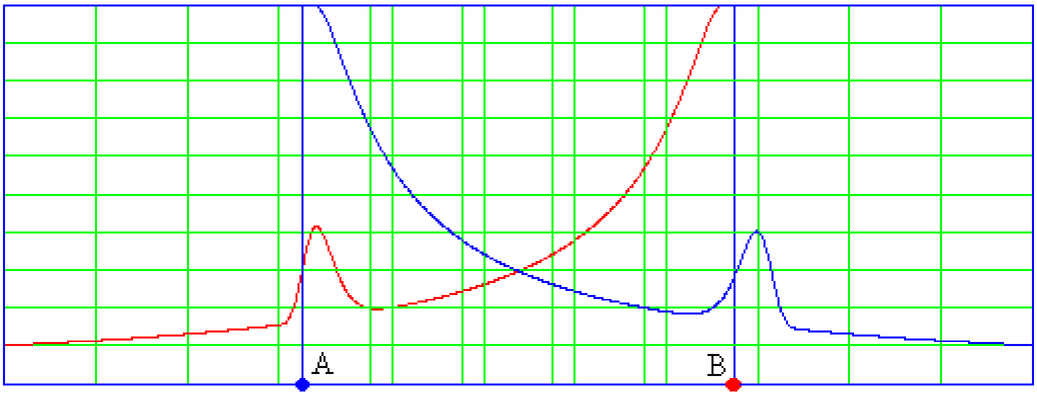
In the following figure, a different case is presented using dashed lines. The distributions of potentials of similar particles are presented, but their shells differ in the values of proportionality coefficients.



In this case, the particles behave as if they had different masses. For example, when the mass ratio of two particles is 4:1, the amplitude of the particle's vibrations with a larger mass is four times smaller than the amplitude of the vibrations of the other particle.
In both cases, the two particles behave according to Newton's dynamics. Their common centre of mass remains immobile, and thus the law of energy conservation is preserved. The particles vibrate in relation to each other, alternately moving away and moving closer to each other. When such vibrations are suppressed (it is understood that under the influence of an external cause), then the interaction of particles

will stop, because the particles will stop on shells in places with zero acceleration.

The two interconnected particles behave differently when the connection is made using potential shells that have slightly different values of radii. This situation is schematically shown in the figure below. Looking at the figure, one can guess that due to vibration damping, the particles will be zoomed in or out of each other. One or the other particle will be in the shell area of the second particle, where the acceleration is zero. The second particle from this pair of particles will then be located on the potential slope of the neighbour's shell.



Looking at the above drawing, it can be seen that when the particle B approaches the particle A, the second particle will be in the region of the particle B shell, where there is zero acceleration. But the particle B will still be in the area of the particle A shell, where the acceleration in the direction "to the right" works. When the particle B is separated from the particle A, the first particle will be in the region of the particle A shell, where zero acceleration works. But the particle A will still be in the area of the particle B shell, where the acceleration in the "right" direction also works. It can therefore be guessed that this particle system will accelerate in the "right" direction. So in this case, the law of energy conservation will not work.

Experiments refute the LCE
The discovery presented here has been confirmed many times in an experimental way. A good example can be (presented at a university in the Netherlands and on Turkish on television) the magnetic energy generator of Turkish inventor Muammer Yıldız and other similar types of generators (https://www.youtube.com/watch?v=_ArBfUkzhxE, https://www.youtube.com/watch v = E__o0vDZZqI, http://vixra.org/pdf/1602.0372v1.pdf, http://pinopa.narod.ru/26_C4_Kawit_Samoprzyspiesz.pdf). Another kind of proof that physicists are not yet aware of today is the self-acting acceleration and, as a result, the very high velocity of the particles during the thermonuclear reaction. During a thermonuclear explosion, a huge number of bonds between molecules and nuclear bonds that previously held atoms in a stable state are torn apart. The bursting of the atomic nuclei results in the fact that so far not very mobile components of nuclei, for example "alpha" particles, obtain freedom and the ability to self-accelerate. Previously, these complex particles could not accelerate, because together with other similar particles they were trapped in the structure of the nucleus, and adjacent to similar particles, they reset their accelerations.

The decay of the atom of a radioactive element is connected with the escape from its nucleus of one or more "alpha" particles, which consist of two protons and two neutrons. Protons and neutrons are the two types of particles that have similar values of radii of the potential shells, but not the same. These particles combine with each other and thanks to the existing difference between them they have the ability to accelerated motion. For this reason, there is also a huge mobility of helium atoms. This mobility contributes to the fact that helium atoms extremely hard enter into molecular bonds with other atoms. For similar reasons, there are impediments in the formation of molecules also in the case of other noble gases.

There is another mystery that awaits its discoverer. The secret is that a mixture of two types of particles - protons and neutrons - is necessary to create a nucleus. Maybe someday it will be discovered, for what reason two nuclei or two neutrons can not form a nucleus with each other, and only a mixture of these particles can form an atomic nucleus.

Epilogue

This is the end of information about the limited effect of the law of energy conservation and why it happens. The fact that the action of the LCE is limited show experimental facts. And the information presented is important because it logically explains the reasons why there is a limitation of the action of the LCE and why noble gas atoms are characterized by particularly high mobility. Today, in natural science, there are spread ideas that stagger the imagination. But the development of science is inevitable. Sooner or later, the preposterous theories will be removed from theoretical physics. One can hope that the information provided will help to remove these absurdities.

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Poland, Legnica, 12.07.2019