Three Bombshells in Science

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Abstract
This article presents three types of new problems in theoretical physics. The aim is to draw the attention of theoretical physicists to issues that have been studied in physics for over a hundred years and that physicists cannot explain them logically in simple terms.

Contents Page

Introduction

Here we will talk about bombshells that appeared in the world at the beginning of the twenty-first century. Consequently, for science in the future, they can constitute the cause of its destruction in the form it exists nowadays. Currently, the basis of knowledge about the world is the exact sciences, especially theoretical physics. It is in theoretical physics that a lot of ideas have accumulated that do not fit in the human imagination. And it is these ideas that will become victims in the future of the "explosion" of the three bombshells presented here. Because they will contribute to the elimination of the absurdities existing in science, i.e. ideas that are contrary to human experience and logical reasoning based on experience. But in reality, the readers of this article will contribute to the repair of science.

1. The Law of Negligible Action

Negligible action between the components of matter occurs when particles (and generally material objects) move with respect to each other at enormous speed. In such a situation, there is extremely little time for mutual interaction and transfer of acceleration. In nature, we deal with such a situation in the case of ball lightning. Sometimes, someone sees a ball lightning that approaches a window pane. He sees a slowly moving, glowing ball, but does not see the extremely fast moving (in oscillatory motion and not only) components of this ball. Thanks to the high-amplitude vibrations of the atomic components in the volume of the ball lightning, and in fact, due to their high speed in the body of lightning relative to the atoms of glass, they leak through the matter of glass. The free leakage of ball lightning through glass occurs because the atoms of glass and the components of the spherical body of lightning do not have enough time to interact effectively with each other.

There is another type of phenomena related to the oscillating motion of matter particles, in which the law of negligible action is manifested. It was discovered by Professor Louis Rancourt, a physicist from College Boreal, in Canada. He called his discovery the Boreal effect. In one of his experiments, Professor Rancourt used two masses - 100 g and 500 g. He placed the smaller mass on a torsion balance, and placed the larger mass near the smaller mass. After stabilizing the position (mounted on the balance) of the smaller mass relative to the larger mass, the researcher passed a beam of laser light through the space between both masses (in another experiment it was a beam of ordinary light). The effect was that the smaller mass approached the larger one. In another experiment, the researcher did not use the action of the larger mass on the smaller one, and only had a torsion balance and a weight of 100 g suspended from it. In this experiment, he passed a beam of light through the space not far from the weight, for example, from the north side. The weight, under the influence of the light beam, moved north, i.e. it came closer to the light beam. And when the light passed near the weight from the south, then the weight deflected to the south.*1)

The Boreal effect manifests the law of negligible action, which is associated with the oscillating motion of

matter particles. Matter particles transmit light radiation. Vibrating at a high frequency, they move at a high speed. As a result, the mutual interaction with matter particles from the environment is significantly reduced. As a result, the balance in the interactions between matter particles is destroyed. And when, after the appearance of a light ray, a nearby object begins to move, then in this way the components of matter strive to create a state of equilibrium in the newly created situation. The manifestation of the Boreal effect indicates that the vacuum, i.e. space devoid of atoms, is filled with particles of subtle matter. In this vacuum, light waves propagate in a similar way as sound waves propagate, for example, in air.

It is usually believed that the resistance of the medium to a moving particle is greater if the particle enters the medium with a greater speed. And this is indeed the case if the speeds are not too high. However, at a very high speed of the particle's movement, the resistance of the medium to its movement can be almost zero. In physics, there is a well-known example of such fast particles - they are neutrinos. For example, a neutrino passes through the body of the Earth with great ease precisely because this particle has a very high initial speed when entering the Earth. We can say that because of this high speed, resistance from the Earth's atoms does not have time to form, i.e. there can be no exchange of energy between the neutrino and the atoms and no slowing down of the neutrino's speed can occur. However, a small slowing down does occur, because a trace appears in the measuring device, on the basis of which scientists form their opinion about the existence of the neutrino.

The law of negligible action is particularly evident in particle accelerators. There, to accelerate particles to ever greater speeds, ever greater amounts of energy must be used. This is because with ever greater speeds of particles, it is increasingly difficult to influence their motion from the outside. Currently, this phenomenon is wrongly explained as meaning that difficulties in imparting ever greater speeds to particles arise because of the increase in the mass of these particles.

To understand the essence of the law of negligible action and to see the mutual interaction of particle models, an appropriate computer program can be used. This can be done in a similar way as the author did using the Gas2n_A.exe program (working files with the .gas extension) and the AtomStand.exe program (working files with the .ato extension).*2)

2. The Principle of Dynamics of Self-Acting Motion

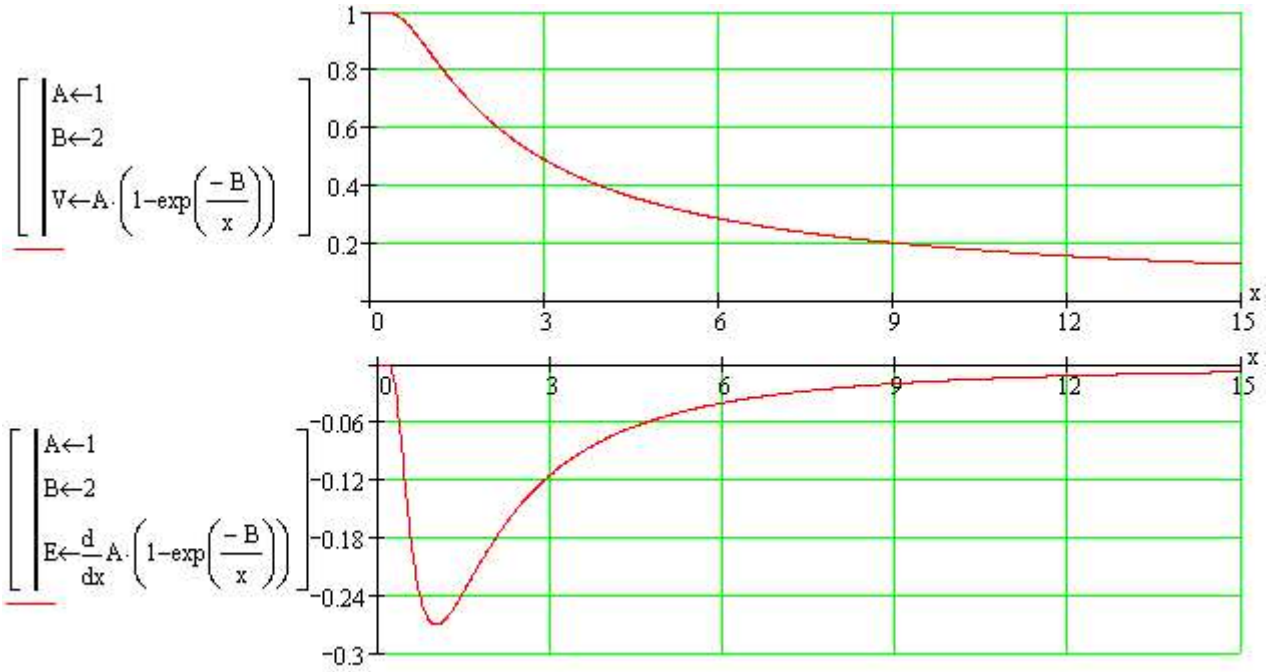
According to the law of universal gravitation, a body of mass M gives acceleration to other bodies. This acceleration is approximately described by Newton's formula $a_n \doteq \frac{G \cdot M}{R^2}$, where G is the gravitational constant G = 6.67259*10^(–11) N*m^2/kg^2, and R is the distance from the body of mass M.

The fact that this is an approximate formula is evidenced by phenomena that cannot be described and explained using Newton's formula. This is the perihelion motion of planets in the Solar System and the pericentre motion of double stars, for example, the double star PSR B1913+16. Newton's gravitational law is not suitable for explaining the essence of such movements. Because on its basis one can conclude that when there are no external disturbances, two orbiting bodies, e.g. in the form of a double star, should move on elliptical orbits.

The orbital motion of these objects can be described more precisely using the exponential derivative of the E function - the E function describes the potential of the gravitational field and has the form $V_p = A \cdot \left(1 - \exp\left(\frac{-B}{R}\right)\right)$. The derivative of the exponential E function describes the intensity of the gravitational field and at the same time describes the acceleration that other objects obtain in this field - it has the form $E_p = \frac{-A \cdot B}{R^2} \cdot \exp\left(\frac{-B}{R}\right)$. This function is also a symbolic expression of the individual character of the gravitational field of each planet or star. This means that the B coefficients in the functions that describe the accelerations of two different objects from the orbital system may be different. In such a

situation, the bodies do not interact with each other according to Newton's dynamics, but interact according to the dynamics of the self-acting motion of matter. In a system of such orbiting bodies, the dynamics of the self-acting motion is expressed physically in such a way that the bodies orbit and at the same time such a system as a whole moves in space.

Below are graphs showing an example of the field potential (function E) and the field intensity.



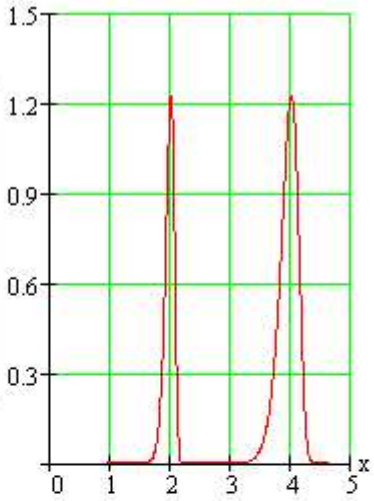
Function E – Field potential and field intensity – changes in gravitational field

The record of the field distribution in space using the E function and the A and B coefficients has the advantage of helping to unify all interactions. Such a record helps to reduce all known interactions to one common cause of their existence and manifestation - this common cause is the interaction between the fundamental components of matter. But this record also helps to deunify the concept of the gravitational interaction of celestial bodies, which has been in use since Newton's time, and to see the individual character of the gravitational field of each celestial body. This individual character of the gravitational field of celestial bodies is expressed primarily in the fact that there is a perihelion motion of planets and stars. In the case of Mercury and other planets of the Solar System, the magnitude of the perihelion motion is measured at most in tens of arc seconds per century. But in the case of the components of the double star PSR B1913+16, the perihelion of their orbits rotates at a speed of 4.2 arc degrees per year. A logical description of such a motion is possible thanks to the use of the E function.

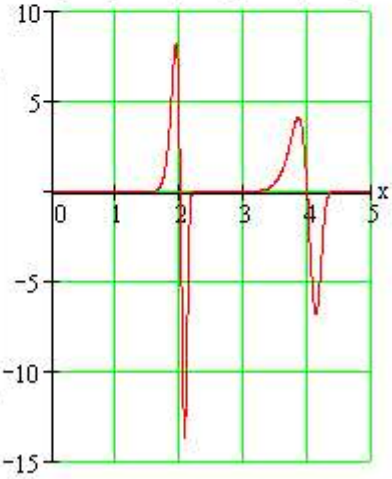
Objects such as binary stars and planetary systems maintain equilibrium because they rotate around a common center of mass. However, to balance gravitational interactions and create a stable system in matter at the nanoscale, neither spinning around a common center of mass nor exchanging virtual particles such as gluons or bosons is necessary. For the formation of stable structural systems in the form of atomic nuclei, chemical molecules and stable matter that surrounds us and from which we ourselves are built, it is enough that so-called potential shells exist in the structure of the fundamental particles of matter: protons, neutrons and protoelectrons.

At nano-distances, at which potential shells exist that allow the formation of stable structural systems, the distribution of the field potential is described by the summed polyexponential function, or PES function (PES - stands for PolyExponentialSum). An example of such a function of the field potential and field intensity together with a graph is presented below.

$$\left[\begin{array}{l} A \leftarrow 1 \\ B \leftarrow 2 \\ C \leftarrow 4 \\ V \leftarrow A \cdot \left[\left(\frac{1.029}{B} \cdot x\right) \frac{2.5 - \left(\frac{1.029}{B} \cdot x\right)^{20}}{0.1 \cdot \frac{1.029}{B} \cdot x} + \left(\frac{1.029}{C} \cdot x\right) \frac{2.5 - \left(\frac{1.029}{C} \cdot x\right)^{20}}{0.1 \cdot \frac{1.029}{C} \cdot x}\right] \end{array}\right]$$



$$\left[\begin{array}{l} A \leftarrow 1 \\ B \leftarrow 2 \\ C \leftarrow 4 \\ E \leftarrow \frac{d}{dx}\left[\left(\frac{1.029}{B} \cdot x\right) \frac{2.5 - \left(\frac{1.029}{B} \cdot x\right)^{20}}{0.1 \cdot \frac{1.029}{B} \cdot x} + \left(\frac{1.029}{C} \cdot x\right) \frac{2.5 - \left(\frac{1.029}{C} \cdot x\right)^{20}}{0.1 \cdot \frac{1.029}{C} \cdot x}\right] \cdot A \end{array}\right]$$

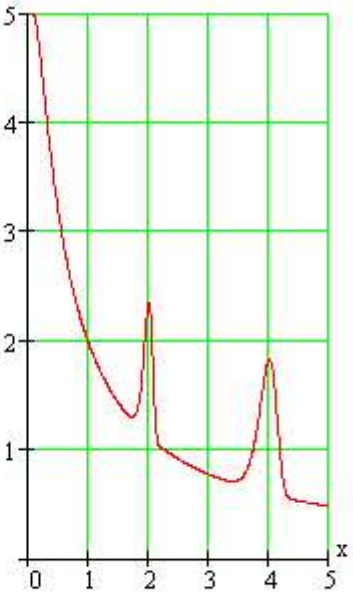


Function PES – polyexponenial sum function –
field potential and field intensity – changes in shell field

Przy nano-odległościach funkcja PES jest jedną z dwóch składowych funkcji. Wypadkowa funkcja EPES, która służy do opisu rozkładu potencjału wzdłuż dowolnego promienia wychodzącego z centralnego punktu pola, jest sumą dwóch nałożonych na siebie funkcji - funkcji E i funkcji PES. Potencjał pola, który opisuje funkcja EPES, oraz natężenie pola na wykresie wygląda następująco.

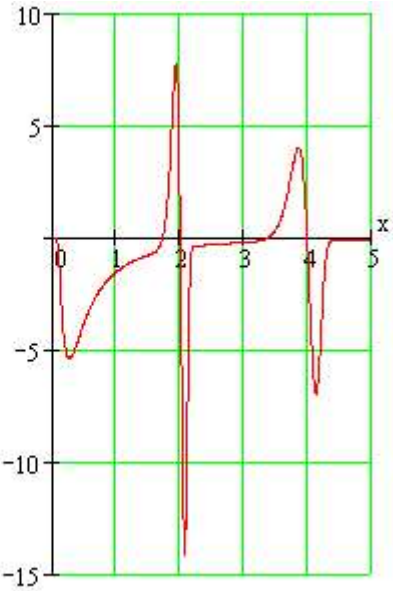
At nano-distances, the PES function is one of two components of the function. The resultant EPES function, which is used to describe the potential distribution along any radius coming out of the central point of the field, is the sum of two superimposed functions - the E function and the PES function. The field potential described by the EPES function and the field intensity on the graph look as follows.

$$\begin{bmatrix} A\leftarrow 1 \\ B\leftarrow 2 \\ C\leftarrow 4 \\ D\leftarrow 0.5 \\ V\leftarrow A\cdot\left[\left(\frac{1.029}{B}\cdot x\right)\frac{2.5-\left(\frac{1.029}{B}\cdot x\right)^{20}}{0.1\cdot\frac{1.029}{B}\cdot x}+\left(\frac{1.029}{C}\cdot x\right)\frac{2.5-\left(\frac{1.029}{C}\cdot x\right)^{20}}{0.1\cdot\frac{1.029}{C}\cdot x}+5\left(1-\exp\left(\frac{-D}{x}\right)\right)\right] \end{bmatrix}$$



Complex function - polyexponential sum and exponential - Function EPES - hypothetical distribution of potential in the vicinity of the centre of c.s. field

$$\begin{bmatrix} A\leftarrow 1 \\ B\leftarrow 2 \\ C\leftarrow 4 \\ D\leftarrow 0.5 \\ E\leftarrow \frac{d}{dx}A\cdot\left[\left(\frac{1.029}{B}\cdot x\right)\frac{2.5-\left(\frac{1.029}{B}\cdot x\right)^{20}}{0.1\cdot\frac{1.029}{B}\cdot x}+\left(\frac{1.029}{C}\cdot x\right)\frac{2.5-\left(\frac{1.029}{C}\cdot x\right)^{20}}{0.1\cdot\frac{1.029}{C}\cdot x}+5\left(1-\exp\left(\frac{-D}{x}\right)\right)\right] \end{bmatrix}$$



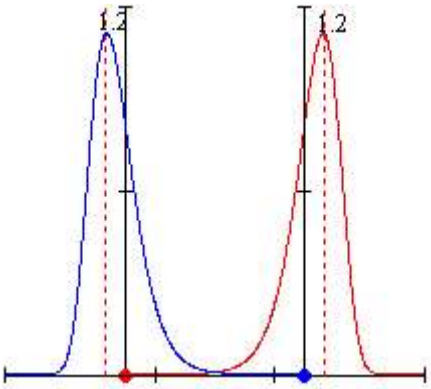
Field intensity in the vicinity of the centre of c.s. field with potential changing according to Function EPES

The fact that the components of matter have a complex distribution of the field potential, which is described by the EPES function, is closely related to the existence of the following properties of matter:
- Matter in the form of an aggregation, for example, in the form of a planet, is concentrated towards the center of the aggregation. Such a density distribution is influenced by the field component, which is described by the E function.
- Matter exists in the form of stable structures, for example, in the form of atoms, molecules and crystals. The formation of stable structures is influenced by the existence of potential shells, having different radii and arranged concentrically around the center of the field. Such a field distribution is described by the PES component function.
- When the existence of the distribution of the field potentials of the fundamental components and the way in which stable structures are formed are taken into account, this becomes the basis for further interpretations of physical relationships. On this basis, the existence of stable structures indicates the existence of two types of structural components - heavy components are known as neutrons and protons, and light components are known as electrons. The main building blocks of matter are heavy components. However, in the case of having high natural velocities, they themselves could not calm down their motion and create stable structures. Light components play a stabilizing role in matter in the movement of heavy

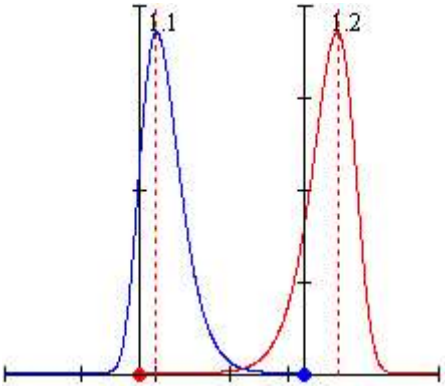
components. And they do this in such a way that during the formation of stable structures, they discharge energy (of movement) outside the newly formed structures.
- Light components of matter are those ones that exist before electrons are formed from them - they have been called protoelectrons. Light components fill the space that is called the physical vacuum. In matter, which is made of atoms, they fill the spaces between the heavy components of matter, and especially the spaces between successive shells and in the areas of shells. The density of the distribution of light components (protoelectrons) in these structural systems (neutrons, atoms, molecules) increases in a similar way and for the same reason as the density of the planet's matter.
- Neutrons, atoms, molecules as stable structures exist in the form of a stable skeleton consisting of heavy components, in the volume of which light components coexist. Thanks to the potential shells of heavy components, light components are divided into sectors in which they are trapped and held with greater or lesser force. Some sectors are more resistant to shocks, i.e. more stable, and ones less so. During a collision and a sudden change in the direction of movement of such a structural system (atom, molecule), some sectors empty. Because the protoelectrons located there are not held tightly enough to be able to follow the structure, keeping up with the change in direction of movement. The part of the protoelectron cloud that breaks away from the structure is identified with an electron.

The example of the self-acting motion of a double star contradicts what contemporary theoretical physics says. Because in the above example, there is a motion of the common center of mass of two stars, which occurs due to their mutual interaction. But this does not result from any special properties of matter. This is a result of the known behavior of matter, which consists in the fact that the acceleration of matter always takes place in the direction of the growing gravitational (or fundamental) field, which is related to the neighboring matter. But it is also caused by the fact that the field related to different components of matter does not change in the same way. In other words, different components of matter give other components of matter accelerations that change in different ways.

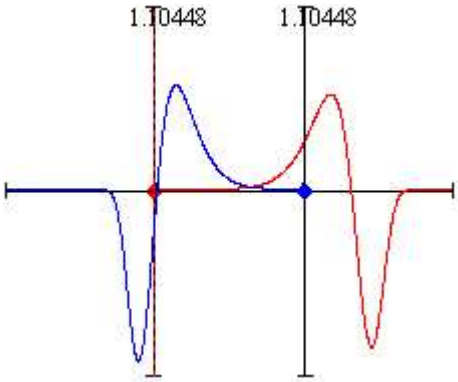
The described behavior of matter and its components can be traced using the concept of potential shells, thanks to which stable material structures exist. Two identical particles, each of which is located in the area of the potential shell of its neighbor, create a stable system. The position of a particle in the potential field of its neighbor looks schematically as in the figure below.*3)



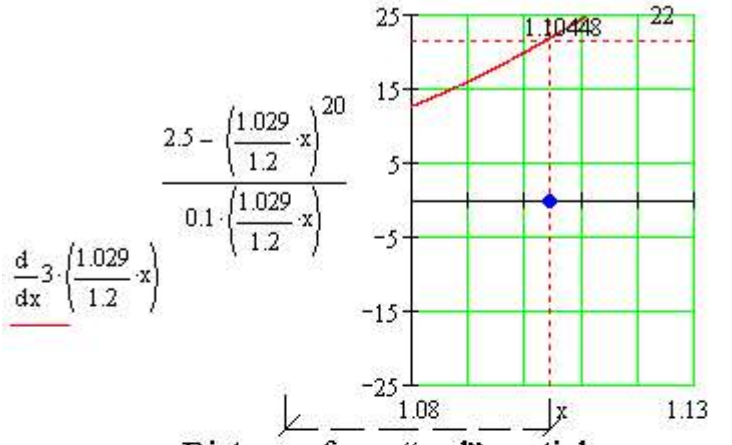
Particles mutually accelerate and vibrate. But they are constantly accelerated in the direction where the potential is maximum. During the movement, at any moment the particles are equally distant from the place where the maximum of the function that describes the potential of the neighboring particle is. At any moment when one particle is accelerated "to the left", the other particle is accelerated "to the right" in the same way. This is because the particles are identical - the radius of the potential shell for both particles is 1.2 units of length. If the oscillating motion of the particles were slowed down, then they would stop at such a distance from each other that they would be in places with the highest potential, where the acceleration is zero. The situation would be completely different if in this system of two particles one particle were replaced with one whose radius of the potential shell would be equal to 1.1 units of length. The diagram of this new situation is shown below.

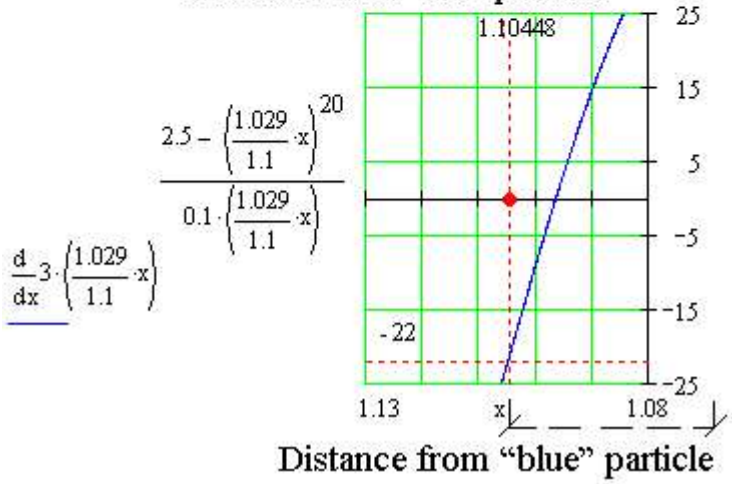


In this situation, the particles can also vibrate relative to each other, and they can also be slowed down. But in this situation, they will not position themselves in places with the greatest potential in their neighbor's field. Because when one of them is at the location of the maximum potential field of its neighbor - let's say that the "red" particle is at a distance of 1.1 units of length from the "blue" particle - then the "blue" particle is on the "left slope" of the potential shell of the "red" particle and is subject to acceleration directed "to the right". Therefore, this particle will move away from the "red" particle and the "red" particle will also be on the "left slope" of the potential shell of the "blue" particle. In the case of slowing down the mutual vibrations of both particles, both of them will be on the "left slopes", in places with the same slope inclinations. In other words, both particles will have approximately the same accelerations "to the right". This will occur when the distance between them is approximately 1.10448 units of length. When superimposed, the field strength graphs of both particles are shown below.



More details can be seen in the graphs below.





Based on the diagram, in which the particles are located against the background of the graph of the field intensity of their neighbor, the following information can be read. The "blue" particle is located in the area of the positive field intensity of the "red" particle, so it is accelerated in the direction of increasing distance from the "red" particle, i.e. to the right. The "red" particle is located in the area of the negative field intensity of the "blue" particle, so it is accelerated in the direction of decreasing distance from the "blue" particle, i.e. it is also accelerated to the right.

The automatic motion of matter in the light of experimental facts

The automatic motion of matter can be considered in two different contexts. In one context, the automatic motion of matter exists in the sense that the components of matter (for example, atoms) move relative to each other. This happens as a result of mutual acceleration. But this system of atoms and its common center of mass does not change its position and does not accelerate in any direction. This is how, for example, a gas molecule behaves, i.e. a structural system formed by two identical gas atoms.

No one has yet studied atoms for their accelerating abilities. Therefore, the functions that describe their field intensity are not yet known. Therefore, for now, it is necessary to use hypothetical models of fields and particles and structural systems that can be created using them. Here is the simplest example of such a system - it consists of two particles and its initial parameters are saved in the working file DC_1.2-1.2.gas.*3) After familiarizing yourself with the exercise that can be carried out with this file using the computer program Gas2n.exe, you can state that the immobility of the center of mass of this system of two particles is related to the fact that the mathematical functions that describe the accelerations that each of these particles imparts to the other particle are identical, and above all, the values of the exponential coefficient B in these functions are identical - they are 1.2.

There are quite different properties of a two-particle system in which values of the exponential coefficient B for both functions are different. Then there is an automatic motion of matter, which should be understood completely differently. Then there is mutual acceleration of particles, as in the previous case,

but there is also a kind of asymmetry in the process of mutual acceleration of particles. The result of this is the resultant accelerated motion of the particle system. The exercise with such a particle system can be carried out using the working file DC_1.2-1.1.gas.

After starting the process, the output parameters of which are saved in the working file DPC_1.2-1.1a.gas, you can see two pairs of particles connected to each other. Each pair (when separate) automatically accelerates, and these accelerations have opposite directions. However, the two pairs of particles connected to each other do not move away from each other, because the whole is held in a stable position by the two central particles - the "green" ones. This is an example of a stable system whose center of mass remains motionless, despite the fact that the components of this system (in the form of pairs of particles) tend to automatically accelerate. In this case, the stability of the four-particle system is permanent. This means that despite the existence of small vibrations of the components around the equilibrium positions *4) and the existence of the tendency of the pairs of particles to automatically accelerate, there is no increase in the amplitude of the particle vibrations and no increase in their energy, and consequently there is no disruption of the particle system. This particle system is stable even after the time in which more than one hundred thousand computational iterations are performed - the state of such a system is saved in the file DPC_1.2-1.1a_T100079.gas. In order to make the time that elapses in this process more real and to have a unit of comparison for it, it can be compared to the number of computational iterations that fall on one period of particle vibration from this system. Approximately, one period of particle vibration falls on about 200 iterations. Another system, which consists of the same four particles, but its central particles are two "yellow" particles, behaves completely differently. The initial parameters of this system are saved in the working file DPC_1.2-1.1b.gas. This system is also a stable one, but the process of maintaining a stable state must take place under different conditions. Namely, it will be stable only if the "Cooler" button is active after the process is started. Then the increase in energy of this system will be discharged outside the system. When observing the behavior of the system without the "Cooler" button turned on, the system as a whole does not even survive the time of 5000 computational iterations. Such a system of particles, already falling apart, is saved in the working file DPC_1.2-1.1b_T4717.gas.

Observing the process, the initial parameters of which are recorded in the file DPC_1.2-1.1b_T4717.gas, two phenomena can be observed that are related to the particle system - the one that existed as a single whole until recently, and the individual pairs of particles that were connected to each other. After starting the process, the particle pairs at the beginning of the process move in opposite directions, and the particles visibly vibrate. After switching on the braking process of moving particles using the "Cooler" button, the accelerated movement of the particles stops, after which the accelerated movement in the opposite direction begins. This reveals the fact that the functions that describe the acceleration of particles are associated with the existence of two different directions in which these pairs of particles can accelerate on their own. Acceleration in one direction - this acceleration that existed at the beginning of the process, when the particles vibrated strongly - can be relatively easily braked and eliminated. When this happens, the acceleration process in the opposite direction begins, despite the existence of the braking effect that was started with the "Cooler" button.

The second phenomenon is related to the different durability of the systems that are created from the two mentioned pairs of particles, in two situations: 1) when these pairs combine into one system using "green" particles and 2) when they combine with each other using "yellow" particles. To see this difference, you need to start the process, the initial parameters of which are saved in the file DPC_1.2-1.1b_T4717.gas. Without waiting too long, so that the pairs of particles do not accelerate too much and do not disappear from the screen, you need to start particle braking using the "Cooler" button. After starting braking, the pairs of particles first stop, and then they start accelerating "towards each other". The "Cooler" button should be active all the time. The pairs of particles will approach each other until at some point the "yellow" particles are at such a distance, at which they happen to be when they participate in the creation of a stable system. However, the movement of the particles will not stop and a stable system will not be created. (One can conclude that for this to happen, the particle braking would have to be much stronger.)

The pairs of particles will continue to move until the "green" particles are at a similar distance from each other. Only then will the accelerated motion of the pairs of particles cease and a stable four-particle system will be created.

The behavior of the self-accelerating pairs of particles shown here is an example of the behavior of the simplest system. Self-accelerating structural systems can consist of a large number of particles, but their behavior will be similar. At certain positions relative to each other, their acceleration resultants may have the same direction, and then they will move side by side in the same direction. Under suitable conditions, such particles can bind together in a known way and form a larger, stable, self-accelerating particle. The same particles in other positions relative to each other will have opposite directions of self-acceleration, and when bound together, they will form a stable particle that will not have the ability to self-accelerate.

Self-accelerating particles, in the form of complex particle systems, will also be called baron particles here interchangeably. Because these baron particles are reminiscent of an episode from the life of Baron Munchausen, who pulled himself, along with a horse he was clutching between his knees, out of a deep swamp by pulling himself by the hair. Baron particles are extremely difficult to see in physical phenomena, and this difficulty results from one reason. In order to see particles similar to baron particles in matter, one must have at least a faint suspicion in one's mind that such particles can exist in nature at all. If one says "in advance" that there are no hints, clues, or evidence in nature that baron particles exist, then their abilities and characteristics have no right to exist in interpretations of physical phenomena. Then all phenomena that could be explained in a simple way using the properties of baron particles, and above all by differentiating acceleration functions, must be explained in a different way or have no explanation at all. The existence of baron-particles results from experimental facts, therefore these facts must be presented. Because they show that the constructive field theory is not contradictory to experimental facts and correctly describes the world of physical phenomena. Here are some such experimental facts.

Fact 1. Radioactivity of radioactive elements in the form of atomic decay is caused by the destabilization of the structure of atoms. The process of atomic decay itself is the escape of their components - baron particles - from their structure. Such a baron particle is an alpha particle, i.e. two protons and two neutrons connected together. The accelerating properties of the alpha particle are influenced by the fact that a neutron and a proton accelerate each other according to different functions. But this is not the only difference. Because there are also such consequences that a proton as a heavy component of matter relatively easily loses part of its protoelectron cloud, which (this part) is identified with an electron. On the other hand, a neutron, as a combination of a heavy component (for which a separate name has not been invented) and the surrounding and penetrating protoelectron cloud, holds this cloud tightly in the area of its potential shells. The combination of two different heavy components, i.e. neutrons and protons, in an appropriate structural arrangement, when such a combination is found in the structure of a heavy atom, is constantly a potential cause of the disintegration of this large atom. This happens even when the protons are surrounded by clouds of protoelectrons, in which there will be no losses, and such structures will appear outside as non-ionized atoms. The disturbance of equilibrium in such a structural arrangement can contribute to the separation of the baron particle from the whole. Then this particle escapes with its proper self-acceleration. This is exactly what happens in the case of radioactive disintegration, which is connected with the emission of alpha particles.

Fact 2. The existence of asymmetry in the acceleration of protons and neutrons is also the cause of the movement of beta particles. During nuclear processes, in the form of decay and reorganization of the structure, the difference in the accelerating effect of heavy components of atomic nuclei also manifests itself in the form of the resultant acceleration of light components, i.e. electrons. From the point of view of the cause, this process is identical to the contact phenomenon in the form of electric current flow and the formation of electric potential at the contact of two metals, for example, at the Fe-Cu contact. However, the contact phenomenon involves potential shells of components, which have much larger radii and different potential distributions in the area of these shells than in the area of shells with small radii. For

this reason, in the contact phenomenon, electrons (until the maximum value of the electric potential appears on the electrodes) move at much lower speeds than the speed of beta particles, which radiate out during radioactive decay.

Fact 3. This fact will be presented here first from a theoretical point of view, and then it will be presented in connection with physical phenomena in nature.
Using the working file DPC_1.2-1.1.gas, two exercises with baron particles can be performed. In one exercise, you can observe the motion of the baron particle with the "Cooler" button active, when the particle motion is slowed down, and the particles lose 1% of their speed during each calculation iteration. In the second exercise, you can observe the motion of the baron particle when this motion is not slowed down. After performing the exercises, based on their results, the following can be concluded.
- In the absence of a slowing factor, the baron particle maintains approximately constant acceleration. In this way, after a sufficiently long travel time, it can reach an arbitrarily high speed.
- In the case where there is a slowing factor, the baron particle moves in accelerated motion only for a short time at the beginning of the process. The dissipation of the excess energy that appears results in the accelerated motion ceasing, and the baron particle continues to move in uniform motion at a certain specified speed. The presented relationships can be seen in the results that come from several sample exercises - they are written down below.

DC_1.2-1.1.gas
X=0 u(x)=0

DC_1.2-1.1_T10001_Cr.gas
X=7.24097650550874 u(x)=0.731264075261031

DC_1.2-1.1_T20002_Cr.gas
X=14.5543485221943 u(x)=0.731264075261031

DC_1.2-1.1_T10001.gas
X=365.741734289613 u(x)=73.1337299325783

DC_1.2-1.1_T20002.gas
X=1462.89380382228 u(x)=146.267445444155

The working files DC_1.2-1.1_T10001_Cr.gas and DC_1.2-1.1_T20002_Cr.gas contain the parameters of one of the components of the baron particle - the "green" particle (after 10001 and 20002 calculation iterations). The process was carried out with simultaneous braking of the baron particle's motion. It can be seen that after 10001 calculation iterations and after 20002 iterations the speed is the same. This means that when energy is received from the baron particle, then at a certain speed this energy reception balances the energy gain (which is related to the acceleration of the particle) and the particle's speed does not increase. The other two files contain the parameters of the "green" particle after a similar process duration, but without braking the baron particle's motion. In this case, we can see that the accelerated motion after twice the time has caused the baron particle's velocity to double. This is what happens in uniformly accelerated motion.

In nature, there are various particles that move at different speeds. Various speculations can be made about the causes of particle speeds. They can be associated with causes that act briefly and accelerate them to enormous speeds at the very beginning of their movement, and one can guess that these are baron particles, and the cause of the movement of each such particle is directly related to it and is its physical feature. There are grounds for believing that both causes of movement exist in nature.
The cause of the ejection of particles from material structures, which during movement behave in accordance with Newton's laws of dynamics, is short-term accelerated movement. This initial stage of particle movement occurs in the structure in those areas where potential shells exist. Particles, creating structural systems, interact with each other most energetically at these distances and the accelerations they impart are the greatest. With appropriate positions of particles relative to each other, large resultant

accelerations can occur, which, acting on (other) particles in a short time of action, impart high speeds to them.
And it is precisely in connection with the possibilities of acceleration and the conditions in which the accelerated particles then move that we can conclude at what speeds both particles can move.

The existence of a material medium in the form of a protoelectron atmosphere in a physical vacuum, on the one hand, enables the propagation of various waves, some of which we perceive as light waves, and on the other hand, is the cause of the inhibition of the motion of particles that move at high speeds in this medium. From this we can conclude that particles that move through space at speeds close to the speed of light could not be accelerated to these enormous speeds during a short-term act of acceleration, for example, during a nuclear explosion. These particles exhibit the characteristics of baron particles. Because particles that are accelerated during a short-term process, even if they reach high speeds, due to the resistance of the medium in which they move, reduce their speed to ever smaller values. And only baron particles can theoretically accelerate to arbitrarily high speeds. But practically speaking, due to the inhibiting effect of the protoelectron medium that exists in a physical vacuum, the speed of baron particles is limited precisely due to the resistance of the medium.

Considering theoretically, in different places in space the protoelectron medium has different density. In a physical vacuum, in areas that are very far from large concentrations of matter, this medium is the most rarefied. It may therefore happen that in such an area, baron particles, as a result of self-acceleration, will reach such high speeds that, thanks to the phenomenon of relative permeability, their mutual interaction and influence with both protoelectrons and other matter will almost disappear. Then such baron particles are in a sense lost to our material world. Because they will continue to accelerate to ever greater speeds and will never again be possible to observe them in any way.
The movement of baron particles could be recognized by one particular feature. If it happened to observe the movement of a particle along a spiral path, and at the same time the pitch of the spiral was getting larger, this would be information that a baron particle is moving, which is also rotating very slowly.
Interpretations of many other physical phenomena can be found in articles at https://pinopa.narod.ru/Polska.html.

3. Magnetism - Change of Mass and Various Interactions
There is a known experiment with two parallel conductors located close to each other. They have the ability to move freely relative to each other. When electric current flows in one direction in both conductors - the conductors attract each other. And when current flows in opposite directions in both conductors - the conductors repel each other.
Such behavior of conductors results from the operation of a mechanism that is identical in all magnetic interactions, and here it occurs in an elementary form.

This experiment can be modified and carried out in the following way. Two conductors are placed horizontally, one slightly above the other, perpendicular to each other. The conductor placed higher should be able to rotate around a vertical axis. The lower conductor is placed in the north-south direction, and the upper one in the east-west direction. When electric current flows in one conductor in the "north" direction, and in the other "west", the second conductor begins to rotate "right", i.e. it strives for the directions of currents in both conductors to coincide with each other - for the electric current in both wires to flow "north".

The above experiment can be modified. It can be done so that the upper conductor (from the previous experiment) is the lower part of the circuit of the frame in which the electric current flows. The entire frame is placed in a vertical plane in the "east-west" direction and can rotate around a vertical axis. In this experiment, during the flow of electric current in both conductors, the frame is an elementary electromagnet.

At this point, we can recall the concept of a magnetic field and use the concept of a magnetic induction vector and the right-hand rule. Using the right-hand rule, we can see that the induction vector, which can

be placed in the middle of the frame at the beginning of the experiment, is directed "north", and when the electric current begins to flow, the frame gradually deflects to the right. That is, the frame with the current behaves exactly as a magnetic needle would if it were above a conductor with current. Because in such a situation, when the magnetic needle is above the conductor parallel to it (at the beginning of the experiment), and the current in the conductor flows in the direction "north", the needle deflects to the right.

There is an interesting issue related to the magnetic induction vector and the behavior of the magnetic needle, which can actually be misleading. However, when the physical mechanism of the course of phenomena associated with what we call a magnetic field is known, such an error is no longer possible.

Well, the direction of the magnetic needle's deflection depends on whether the needle is above or below a conductor with electric current. Because when the needle is above the conductor, it deflects to the right, but when it is placed under the conductor, it deflects to the left. The behavior of the needle therefore suggests the existence of magnetic field lines around the conductor, with a suitably directed magnetic induction vector. Because the needle behaves as if it were trying to align itself along these field lines.

The direction of the conductor's deflection when it is (at the beginning of the experiment) placed perpendicularly to the second conductor and when an electric current flows in both conductors does not depend on whether it is placed above or below the second conductor. In both cases, the conductor deflects in the same direction, because the directions of the current flows in the conductors have not changed.

The described behavior of the perpendicular conductor (with current) and the magnetic needle (set in parallel) near the conductor with electric current is a hint about the stability of the magnet's structure and the nature of this structure. A hint is also given by what happens in the conductor when an electric current flows in it, and everything that happens around it.

And in a conductor there is such a situation that there is a stable structure, which is built of atoms, and there is a strong stream of flowing electrons. Atoms maintain a stable structure thanks to their potential shells. Atoms densify matter in their structure, which consists of protoelectrons. And this densification takes place according to a similar physical law, as the densification of the atmosphere around a planet. The densified protoelectrons create separate densities in the atoms in the form of electrons. The formation of electrons is facilitated, on the one hand, by the densification of the material from which they are built, and the existence in these building blocks, i.e. in protoelectrons, of their potential shells. But an important role is also played by the potential shells of protons and, in general, the potential shells of atoms. These shells separate the protoelectronic matter from each other into certain portions, and in addition, they create spherical areas in atoms, in which the protoelectronic matter circulates, as if in an orbit.

In the structure of a conductor, atoms are in some sense in contact with each other, and they do this through potential shells, thanks to which they maintain stability. Other potential shells of these atoms, having larger and smaller diameters, interpenetrate each other and in some sense regulate the movement of free electrons in the structure. Electrons that flow in the conductor and physically make up an electric current, flow in streams, bypassing the largest densities of protoelectrons that exist in atomic nuclei and near them. Their movement in the conductor determines the paths along which every time new electrons rush.

Electron paths in the conductor change their configuration during the movement of electrons. However, for the movement of electrons in the conductor, this does not have much significance as long as the stable structure of the conductor as a whole is maintained.

The electron flow in a conductor (leaving aside for now the reason for its existence) is in fact the core of the whole phenomenon. Because the difference between what happens in a conductor under the influence of an applied electric voltage and what happens outside it is only quantitative. The greatest intensity of the flow of protoelectrons exists in a conductor, because there they are most densely packed in the form of

electrons. There is a smaller intensity of the flow of protoelectrons around a conductor, because there they are less densely packed. And so, as you move away from the conductor, the intensity of the flow of protoelectrons, in the direction parallel to the conductor, becomes smaller and smaller.

Increase in the mass of magnets and other phenomena

The flow of electric current in a conductor is associated with the phenomenon of protoelectron densification in and around the conductor. Densification occurs only when the voltage applied to the ends of the conductor increases and the speed of electrons (protoelectrons) flowing in the conductor increases. The increase in the speed of the electron stream in the conductor results in an increase in the speed of protoelectrons everywhere around the conductor, and the increased speed results in the mutual attraction of protoelectron streams flowing parallel to each other. And this occurs on similar principles as the attraction of two parallel conductors with current when the current flows in the same direction. In this way, protoelectrons located far from the conductor come closer to it and the total intensity of the magnetic field increases. When the current intensity in the conductor decreases, the phenomenon occurs in the opposite direction, i.e. the speed of protoelectrons decreases and they move away from the conductor.

The change in the density of protoelectrons flowing around the current-carrying conductor, which occurs with the change in the electric current intensity, is the basic phenomenon thanks to which electromagnetic waves are created and emitted. Alternating current, when it flows in a conductor, contributes to the pulsating densification and rarefaction of the protoelectron environment (physical vacuum), and these changes, as ordered disturbances, are transmitted in different directions over enormous distances.

The changes in the density of protoelectrons in a physical vacuum can be observed indirectly in a beautiful experiment, the film of which can be viewed at http://www.youtube.com/watch?v=43TzU0TTzjk . In the experiment, a vacuum flask is placed between two Helmholtz coils, and an electron gun is placed in it. A stream of electrons is ejected from the gun, which run parallel to the planes in which both coils are located. In other words, using magnetic terminology, the electrons run in a direction perpendicular to the magnetic induction vector B of the coils.

When an electric current flows through the coils, the path of the electron stream curves. The curvature of the electron path in the vacuum flask to a circle and the decrease in the radius of this circle, which occurs when an increasing electric current flows through the coils, testify to several facts. First, it confirms both the existence of protoelectrons in the physical vacuum and their movement in circles, which are located concentrically with respect to the cylindrical surfaces passing through the coil windings. Second, the decrease in the radius of the electron path in the flask, which occurs under the influence of the increase in the current intensity, confirms the existence of a greater density of the protoelectron medium in the physical vacuum at that time. The decrease in the radius of the electron path is possible precisely due to the increased density of the protoelectron medium and the increased speed and intensity of the flow of protoelectrons along concentric paths. Because only under such conditions can the protoelectrons of the physical vacuum affect the running electrons in such a way that the radius of their movement in the flask decreases.

Today, a physicist will say that the decrease in the radius of the path along which electrons move is due to the increase in the magnetic induction B of the Helmholtz coils. Although he does not yet know the real cause of the curvature of the electron path, in the "mathematical sense" he is right. But undoubtedly, he will be more satisfied if, while giving such an answer, he also knows the real mechanism of this phenomenon.

Another interesting issue is the stability of the magnetic field of a permanent magnet. Because in the case of an electromagnet, this stability is ensured by the electric voltage that is applied to the ends of the coil, and by the flow of electric current in the coil. And what contributes to the fact that this stability exists in a magnet?

Well, when there is a steel core in the coil of an electromagnet and an electric current flows through the

coil, then in the structure of the coil material (in copper or aluminum) there are electron paths along which electron streams flow. Similar types of electron paths are created in the structure of the steel core - and electrons flow along these paths. Electron paths in the core are formed from the moment the electric circuit of the coil is closed and the current begins to flow.

Logic suggests that when the current intensity in the coil changes, the current intensity in these paths will change in the core. And this would indeed be the case... But on condition that the core was made of a non-magnetic material or magnetically soft iron. Because these materials cannot fix electron paths in their structure, which are created as a result of the magnetization process using an electric coil. Because when the current stops flowing in the coil, the thermal movements of the atoms in these materials immediately eliminate the electron paths.

The situation is different in the case of a steel core. Steel is a material whose structure maintains stability and fixes the electron paths that are created in it when electric current flows in the coil. Switching off the current in the coil only slightly reduces the current that flows in the steel core along electron paths.

In this way, a ready-made magnet is created... There are no windings wound in it, but despite this, a constant electric current flows constantly. There is no need for electric voltage to power it, because this role is played by the structure of the magnet itself and the existing thermal movements of the structural components. The only thing that distinguishes a magnet from a non-magnet is that in a magnet a lot of electrons move along organized paths, imitating the movements of electrons in the windings of the no longer existing (around it) coil.

To sum up the topic of magnetism, we can mention three important processes related to magnetism.
The first process is that the mass of the magnet is slightly greater than the mass of the same steel core when it was in the coil and was not yet a magnet. The increase in the mass of the magnet is caused by the densification of the protoelectron medium in the magnet itself and all around it. And this densification is caused by the flowing electron streams in the structure of the magnet.
The second process is related to the fact that the flow of electron streams in the magnet is essentially a manifestation of the principle of the dynamics of self-motion. In steel, there are atoms that differ in the way they accelerate their neighbors. But they are connected by strong bonds, thanks to which there is a permanent structure of hard steel. These bonds do not break at normal temperatures. For this reason, the atoms cannot accelerate each other to move on their own in this way. But they can and do accelerate electrons, creating permanent electron streams from them.
The third process is related to the interaction between two magnets. Two magnets at the same distances between them interact with different forces during attraction and repulsion. These different interactions are related to the mutual interaction of electron streams in the magnets. This difference in interaction is directly influenced by the distribution of the potential of the fundamental field of protoelectrons, which create electrons. The fundamental field of the protoelectron contains components in the form of a gravitational field and a shell field. The interaction of two electron streams is different when they flow in one direction and different when they flow in opposite directions. When two electron streams flow in the same direction, the gravitational component of the field plays the main role - then the streams attract each other. When the electron streams flow in the same direction, the shell component of the field does not constitute an obstacle. On the other hand, when the electron streams flow in opposite directions, the shell component of the field plays the main role - then the streams repel each other. Then the shell component of the field is the main cause of the mutual repulsion of the electron streams from each other. Gravitational attraction between the streams also exists then, but it is much weaker than shell repulsion.
The mutual interaction of protoelectron streams presented here is directly related to the interaction of two magnets. Two magnets facing each other with different magnetic poles attract each other, and when they are facing each other with identical poles, then they repel each other. And the force of mutual repulsion in some cases is about 50% greater than the force of attraction. These results were obtained by the author when he studied this phenomenon in home conditions.*5)

Conclusions

Three groups of issues have been presented here. They are related to: 1) the disappearing interaction between the components of matter, which occurs at increasingly higher speeds, 2) the emergence of automatic motion of material objects, which limits the area of application of the principle of conservation of energy, and 3) the explanation of the essence of magnetism and phenomena related to magnetism. For today's natural science, these are new issues. It may take a long time before these issues are accepted and adopted by official science. However, in order for them to be accepted, they should be disseminated in advance. In this way, there will be a chance that not only representatives of science will be able to familiarize themselves with them, but also people who are just entering the world of science. Dissemination of the knowledge presented here will encourage many people to conduct experiments themselves and check the correctness of this knowledge.

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*1) Some of Prof. Louis Rancourt's works can be copied on https://independent.academia.edu/rancourtlouis.

*2) Computer modeling programs can be copied on http://pinopa.narod.ru/pinopapliki1.html and http://pinopa.narod.ru/pinopapliki2.html. They are designed to work on computers with Windows ME and Windows XP.

*3) To perform exercises with mutually accelerating particles, you should use the Gas2n.exe executive program. You can copy it on https://pinopa.narod.ru/pinopapliki2.html. After opening this program, you should activate the "PES" button in the "Formula" table. Because particles interact with each other according to this mathematical function.

The "Cooler" button is used to slow down the movement of particles, i.e. to remove part of the energy associated with the ongoing process. When the "Cooler" button is active, then during the calculation of subsequent positions of particles in the coordinate system, during each calculation iteration, the velocity of particles is reduced by 1%.

*4) Small vibrations around the equilibrium positions of components, which seem to be stationary on the screen, can be observed when the "Show Listing" button is active. Then the changing velocities of particles or their positional parameters are displayed on the "Listing" table. The change in the "Listng" table from particle velocities to their positional parameters (or a change in the opposite direction) is obtained by double-clicking the left mouse button when the cursor is on the white field of the table. When the "Show Listing" button is active, the modeled process slows down significantly, which allows for a more precise stopping of the program at the required moment to save the process parameters.

*5) The description of the mentioned study and the obtained results are presented in the article. "Two hundred years of deception in theoretical physics" at http://pinopa.narod.ru/Two_hundred.pdf.

Poland, Legnica, 2025.03.21.