

Kulak L.A. (Antoniya Ilyinskaya), MD in engineering, PhD, founder of the linguistic physics and methodology of **Fractal Synthesis**, member of ISPU IAIT and IIHEP (International Institute for Humanitarian and Environmental Projects) as affiliation of ISPU IAIT (International Scientific Public Union "International Academy of Information Technologies") <https://iait.com.by/>.

Email: antonyau@yahoo.com

TIME OUT.

"Quantum physics urgently needs new images and ideas, which can only arise from a deep revision of the principles that underlie it."

Louis de Broglie, Nobel laureate.

"The correct conclusion is that the underlying equations are wrong..."

Paul Dirac, Nobel laureate.

ABSTRACT.

Over the past hundred years, the mathematical apparatus of algebra has been successfully and rapidly developed, to some extent bypassing the methodology of natural-philosophical thought and creating a certain imbalance in physics as a science of the nature of things. The observed imbalance is expressed primarily in the fact that the proposed theories, developed on the basis of the apparatus of algebra, lose their ontological content. They are slender and graceful in themselves, but often have no real application to reality and cannot offer a solution to a number of intractable problems of physics. Attempts to confirm the truth of these theories experimentally are also not successful. The created situationality has its roots and causes.

For more than a hundred years, elementary particle physics has been based on the Bohr-Rutherford planetary model of the atom, despite the fact that this model has and generates a number of contradictions in theoretical views and visualized representations. In the physics of elementary particles, an unjustified multiplication of entities has occurred and the number of elementary particles has grown to limits that contradict the principle of Occam's razor. The tendency of the developing crisis has its roots in the theoretical judgments that arose from a number of predecessors and in particular in the interpretations of the experiments carried out earlier. This article is devoted to the issues of the existing atomic model, the revision of the interpretation of the experiments of J. Thomson and E. Rutherford (Geiger-Marsden) and the proposal of the model structure of the atom and its quantum mechanics based on the geometry of Clifford's parallels.

Keywords: epistemological blunders, categories of "phenomenon" and "essence", paradoxes of physics, revision of interpretations of the experiments of J. Thomson and Geiger-Marsden, energy quantum, elementary particle, spin network, hydrodynamic model of the ether, quantum medium, Clifford's parallel geometry, Möbius dipole, gravitation, quantum entanglement, topological knot, polarization orientation in the radial direction, wave model of the atom, quantum "symbiosis", Usherenko effect, fuelless energy, creation of a gUnified Theory of Everything.

1. PARADOXES IN THE KNOWLEDGE OF REALITY.

The process of cognition of reality by a person often has the following characteristic feature: “Even when a lot of facts are collected that contradict or change the picture of the world chosen by a person, he continues to stubbornly follow an obsolete model, not noticing that his efforts are in vain. Instead of turning around, going back, comprehending new data, changing the vector of movement, he begins to beat the epistemological wall in the hope of breaking through it. [16]

To justify these senseless actions, he comes up with various reasons, creates models that turn this epistemological wall into an insurmountable obstacle, giving rise to hope for a result from the efforts made, and not the meaningfulness of what is happening.

One of the paradoxes of the current state of theoretical physics is that quantum mechanics and elementary particle physics calculate, using the apparatus of algebra, virtual particles in the etherless, empty space of general relativity. For this reason, it is not possible to bring these two theories together. It should also be noted that in this case theoretical physics for its calculations uses Maxwell's equations, derived precisely on the basis of the presence of an ethereal medium.

In the current crisis state and the situation, it is reasonable to take TIME OUT, comprehend what is happening, realize the need to go back on a number of intractable issues and take a fresh look at the heritage of natural philosophy and the experiments and their interpretations carried out earlier in order to understand the current problems and try logically to resolve them on a new round of thinking in order to again more effectively move forward in the application of the mathematical apparatus to the description of the facts of reality.

"... Purely logically, one cannot obtain any knowledge of the real world – any knowledge of reality begins with experience and ends with it." A. Einstein.

This statement should be supplemented by the fact that, when observing phenomena in ongoing experiments, it is necessary to give a correct interpretation of the essence of the process that occurs, since “... errors can arise in the foundation of the theory due to an incorrect understanding of the essence of phenomena. These errors are possible even with the correct mathematical formalism of the theory.” [30]

In this article, we will talk about how the model representation of the atom was formed, what experiments preceded this, what phenomena were observed, what interpretations were given to these phenomena and what conclusions were drawn, as well as what conclusions could take place.

It was the philosophical categories of "*phenomenon*" and "*essence*" that caused numerous paradoxes and contradictions in physical theories in the late 19th and early 20th centuries. It was about them that Mach, Avenarius, Einstein and other physicists “stumbled”. Among such examples of physical paradoxes, one can cite the interpretation of the experiment of J. Thomson in his experiments on the study of cathode rays.

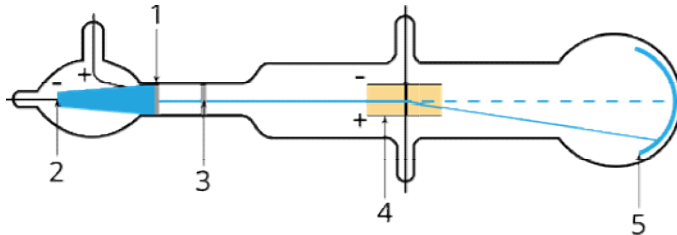
2. EXPERIMENT OF JOSEPH J. THOMSON.

Let's go back to **1897**, when Joseph J. Thomson of Trinity College, Cambridge, discovered a quantum of energy, which was called the "*electron*".

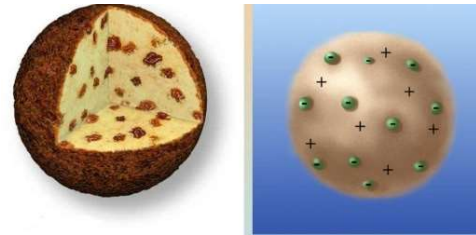
According to the experiment, J. Thomson observed a certain phenomenon of radiation. Consider this experiment in its existing interpretation:

“This type of radiation was observed when an electric current was passed through rarefied gases. The installation scheme used by Thomson is shown in the figure below.

The current between the anode (1) and the cathode (2) passes through a flask filled with a rarefied gas. Through a narrow slot (3), the "cathode ray" enters the electric field (4) and is deflected. On the scale (5) it is possible to determine the angle of deviation of the beam from the initial direction.



Schematic of the experimental setup used by Thomson.



Pudding atomic model.

The deflection of the beam means that the beam is a stream of negatively charged particles, which are called "**electrons**". Since the flask with the gas was hermetically sealed, there was nowhere for the electrons to come from, except from the atoms of the gas through which the electric current passed. So, the atom could not be an indivisible particle. The scientist faced the question of how the atom is actually arranged.

The key findings here are that:

- the **type of radiation** that was associated with the flow of "**particles**" was observed,
- the **flow of "particles"** had nowhere to come from as soon as from **atoms** of gas, hence
- **an atom** could not be an indivisible particle if a stream of “particles” comes from it.

So, let's deal with the interpretation of the observed phenomenon, and most importantly, with its essence. Question. What was called the word "**electron**" in the experiment: an emitted quantum of energy or a particle, which, by assumption, is part of the atomic structure and which supposedly broke away from the atom and left its boards?

If the concept of "**electron**" is connected with the essential content of a **quantum of energy** that is emitted by an atom, then a simple conclusion follows from this that atoms have the ability to emit energy quanta and have a corresponding structure with a **radiation mechanism**. They radiate by themselves, and can also radiate co-directionally with a certain degree of impact, and these emitted discrete portions of energy can be of various kinds depending on the type and degree of impact on the atom of the substance, as well as on the type of the substance itself, which is affected.

Then the concept of "**electron**" has nothing to do with the atom as its constituent part. This is just a portion of energy emitted by the internal dynamics of the atomic spinning mechanism. This mechanism transforms the substrate of the quantum ether, while emitting and absorbing energy quanta. These portions of energy after radiation go into the medium or are absorbed by another matter. Proceeding from this, we cannot talk about the fact that the atomic structure loses some of its constituent part in the form of its "**electron**"-piece that has left the atom.

The fact that all atoms emit and absorb energy quanta of a strictly defined range, depending on the type of matter, is evidenced primarily by the **line atomic emission and absorption spectra**. And if the “**electron**” is a radiated **energy quantum**, then everything remains in its place: the atomic structure is not broken, the atom emitted a certain portion of energy under the influence of an electric field, and J. Thomson received his Nobel Prize for discovering an energy quantum emitted by an atom and called “**electron**”.

But if the concept of “**electron**” as a negatively charged particle is combined in the model representation with the concept of “**component**” of the atomic structure, which forms a partnership with positively charged “**protons**”, then if this part leaves the atom, then the natural balance of the atom is disturbed, since in an atom, the number of positive charges (in the current paradigm of physics - “protons”) is always balanced by the number of negative charges (in the current paradigm of physics - “electrons”) and, in general, the **atom is neutral**. In addition, the torn off components – “**electrons**” – should leave, figuratively speaking, “heaps of garbage”, if they are real components.

Therefore, proceeding from the above, the paradox of the “**electron**” arises, which was born in science after J. Thomson's interpretation of the ongoing experiment and the proposal on this basis of the “**pudding model of the atom**”.

It was here in the phenomenon of observing the flow of energy portions that two essential philosophical categories were superimposed, which formed a confusion of understanding the observed “**phenomenon**” and explaining its “**essence**”. The essence of the phenomenon of radiation of a portion of energy by an atomic structure was taken as the essence of a particle supposedly separated from an atom, and this led to consequences and became the cause of numerous further paradoxes and contradictions in theoretical physics and, in particular, in particle physics.

At that time, the development of molecular theory in chemistry pushed to the following logic of reasoning that matter consists of molecules, molecules of atoms, and, accordingly, atoms should consist of even smaller particles. Note that the very concept of “ATOM” - A-TOM - means UN-DIVISIBLE or uncut, as can be seen from the etymology of the word and its root, which underlies the concept of “ATOM”.

atom (n.)

late 15c., as a hypothetical indivisible extremely minute body, the building block of the universe, from Latin *atomus* (especially in Lucretius) “indivisible particle,” from Greek *atomos* “uncut, unhewn; indivisible,” from *a-* “not” (see **a-** (3)) + *tomos* “a cutting,” from *temnein* “to cut” (from PIE root ***tem-** “to cut”). [27]

The logic of reasoning during the experiment led to the fact that the observed phenomenon is a flow of energy quanta. But the emitted quanta were identified with “**particles**” and classified as smaller particles of matter that are part of the atomic structure. That is, energy quanta were assigned the status of smaller elementary particles, which were assigned the name “**electron**”.

What can be considered a particle of matter?

A part (particle) of a matter is a share, a piece, which in its properties corresponds to the whole, from which it is taken away. Such particles of matter are the molecule and the atom. By changing the number of atoms or molecules of any matter, we do not change the type of this

matter. Iron remains iron, whether it is one atom or many more. A salt molecule – it is one or a ton of them – but it will be salt.

A **particle of a matter** has the structure and degree of stability that provide a certain stability of the matter, and not its transformation or disappearance before our eyes. Particles, as parts of a matter, leave, let's say, mounds of "garbage". **Portions of energy**, radiating and producing an action, are absorbed or go back into the environment, dissolving in it.

The emitted quantum is a discrete portion of energy, related to the discharge of a certain kind of plasma (ethereal magnetoplasma), can be in the state of an open or closed wave and is recorded by the equipment as a **discrete portion**, which is identical to the registration of a **corpuscle**. Therefore, **the concept of wave-particle duality in quantum theory** is related to the state of the emitted portion of energy – its wave is closed or open. But both are a discrete portion of energy, which is registered as a part, but has nothing to do with a part of the matter called a "**particle**", which has a certain structure and all the qualities inherent in this kind of matter.

The emitted "**quantum of energy**" and "**particle**" – they are **different essential units**.

In many observed experiments, the phenomenon of emission of portions of energy can be taken for the separation of imaginary particles. Accordingly, the vector of thinking at the same time goes along the erroneous path of searching for even smaller particles, of which the atom allegedly consists.

But it is the **atom** that is the elementary **indivisible particle of a matter** that retains the properties of a given matter. And the atom is that indivisible part that has a structural dynamic mechanism within itself, its own **quantum mechanics**, which produces radiation and absorption of energy quanta in the process of internal spinning. That is, atoms emit and absorb energy quanta by themselves, and this is quite clearly illustrated by **line atomic spectra**. When an electric current was passed through rarefied gases in Thomson's experiment, atoms of gas under the influence of an external voltage produced co-directional radiation of **portions of energy**, and it was this **type of radiation** that was observed in the experiment, but was interpreted as a **stream of particles** separated from the atoms.

Based on the foregoing, it turns out that the interpretation of the experiment carried out by J. Thomson contains the statement that the emitted quantum is a "**particle**", which is part of the atomic structure, and therefore the atom is stuffed with "electron-particles", like raisin pudding. Thus, the model representation of the atom was born – Thomson's "**pudding model of the atom**".

The conclusion made in this experiment regarding "particles-electrons" as constituent parts of the atomic structure later had its consequences for the formation of conclusions in the experiments of E. Rutherford (Geiger-Marsden). The interpretation of this experiment added to the "particles-electrons" larger "parts-nuclei" and the representation of the atom in the scientific mind moved to the next step – the "**planetary model of the atom**", which was proposed by E. Rutherford based on the interpretation of the experiment on the scattering of alpha particles on gold or platinum foil.

This atomic model almost immediately came into conflict with the laws of electrodynamics, and also could not explain the arbitrarily stable stability of the atom, did not answer the question, due to which the electron is kept in orbit and does not fall on the nucleus, which has the opposite charge. In addition, such a model representation of an atom cannot in any way correspond to the resulting atomic emission and absorption spectra, which are line-like and indicate the fact that atoms emit and absorb portions of energy on their own, and in a strictly

defined range. This is the result of the dynamics of the quantum mechanics of the atom. And with an appropriate impact on the atomic structure, atoms can radiate in a co-directed mode.

But let's return to the experiment of J. Thomson and once again emphasize the fallacy of judgment that arose there.

So, according to the experiment, J. Thomson observed a certain phenomenon of radiation, called "*electron*".

1). If the phenomenon of emission of a quantum of energy by an atomic structure is called "electron", then an electron in its essential understanding is a discrete portion of energy emitted by an atom as a result of the action of an electric current on a matter and having its own energy characteristics similar to other varieties of observed energy quanta.

Such a "quantum-electron" is not part of the atomic structure, it is a certain kind of radiation produced by the internal mechanism of the atomic structure. Energy quanta as a phenomenon of radiation cannot be correlated with the class of elementary particles that have properties different from those of the emitted quanta. Elementary particles in the form of atomic blocks with the "Center-Periphery" structure and the mechanism of ethereal plasma energy conversion are **the basis of materiality**. This property of the atom and its function is to ensure the stability of this kind of matter with the help of the mechanism of conversion of the ethereal plasma.

2). If the name "electron" is correlated with an element of the structural structure of the atom, then in this case the "electron" as an element (or elementary particle) cannot leave the atom, otherwise the stability of the atom is violated and the atom in its essence cannot exist and ensure the stability of the matter. An **atom is neutral** in nature and the amount of positive charge in it is balanced by the amount of negative charge according to its initial structuring. If such "electrons" as components of the atomic structure leave the atom en masse, which is practically nonsense, then what happens to the atom itself?

Therefore, taking into account what is indicated in 1) and 2), we can conclude that in creating the interpretation of the experiment of J. Thomson, two essential concepts were superimposed, namely, the essence of the phenomenon of radiation of an energy quantum by an atomic structure and the essential component of the atomic structure, which plays the role of a conditional "negative" charge as opposed to the conventional "positive" charge.

As a result of the compiled interpretation of the observed phenomenon, it turned out that the emitted energy quantum and the component of the atomic structure were identified as the same **essential unit**, which was called the "electron". This is what led to the creation of a model representation of the "electron" as a particle capable of leaving the atom, which does not correspond to the state of affairs in reality.

At the time of this experiment, the figurative representation of the atomic structure as a set of particles that can separate from the atom and leave it did not allow us to separate these two essential factors. Due to such a conceptual overlay, the "electron" simultaneously acquired the status both as a component of the atomic structure and as a portion of the radiated energy, but **in essence these are different essential units**.

As already noted above, this had its consequences in creating an interpretation of the Geiger-Marsden experiment, and it was also followed by the discovery of a whole class of supposedly elementary particles in the conceptual frameworks of the theories of the Standard Model. In the Standard Model, phenomena related to various kinds of quantum radiation are correlated with the categories of elementary particles and are calculated using the apparatus of algebra as elementary particles. In this case, with the help of the developed mathematical

apparatus of algebra, a descriptive paradigm of these units as elementary particles is created and further erroneous judgments are formed both about their essence and the essence of the structure of the atom, as well as the very mechanism of the dynamics of intra-atomic processes, interconnections and forces.

The so-called "mathematical modified" virtual formations of algebra, presented as elementary particles, are not actually a class of elementary particles that underlie the structure of matter. These formations can be correlated with a class of various types of plasma radiation produced by the atomic structure of a matter, both as a result of non-stop oscillations (internal spinning) and as a result of a certain type of influence on the matter (friction, impact, high voltage, microwave exposure, ultrasound, focused light flux and other), leading to co-directional radiation of intra-atomic plasma in the form of emitted energy quanta and the effect of sparks, plasma flashes, luminous formations and jet plasma phenomena at colliders.

Analyzing jet plasma phenomena during the collision of objects at colliders, stubborn epistemological scientific thinking tries to see in them new elementary particles as units of the Universe structure, attributing to them purely mathematical properties of particles and trying to confirm the reality of the existence of such particles in ongoing experiments. Thus, **abstract mathematical units** are introduced into thinking, which are fixed in a figurative representation as the presence of factors for the further division of matter. These units reflect the logic of mathematical transformations, but do not reflect the essential content of actually observed phenomena.

These mathematically modified "essences", multiplied with the help of the apparatus of algebra and classified as elementary particles, **are the phenomena of ethereal plasma**, structured into energy quanta by the mechanism of atomic spinning. They must be included in the category of quantum plasma radiation, its varieties and variations. Such plasma energy portions may have a number of characteristics inherent in particles, but they are not stable structural formations that characterize materiality.

Mathematical images and concepts can be useful and valuable in the process of analyzing physical phenomena, but they should not replace the understanding of the essence of the nature of things.

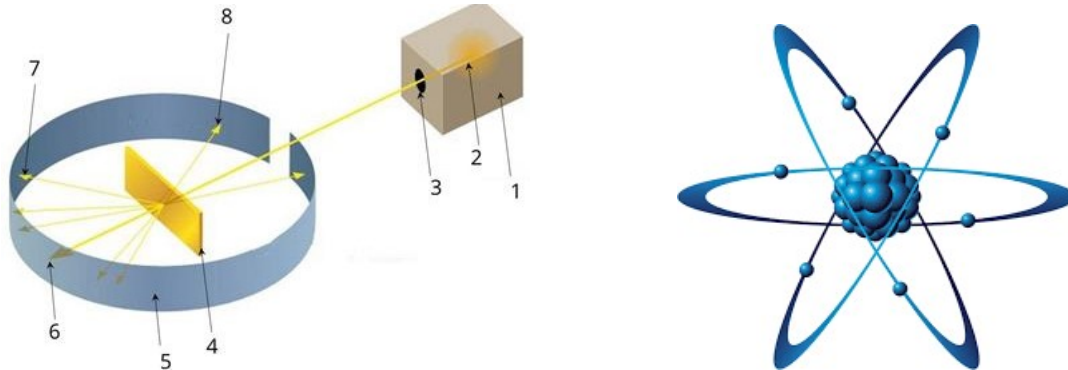
Returning to the subject of J. Thomson's experiment, we note that in the observed phenomenon, the interpretation of experience and the creation of a model representation are important. The discovery in this experiment of energy quanta emitted co-directionally when voltage is applied (impacted) is the right course of scientific thought. The fact that atoms emit and absorb energy quanta by themselves in a non-co-directional mode and without external influence is confirmed by the line character of atomic spectra. In the presence of external influence factors, atoms can radiate co-directionally, and the phenomena of such plasma jet radiation are observed in many experiments.

3. GEIGER-MARSDEN EXPERIMENT.

E. Rutherford initiated experiments to study the passage of alpha particles through thin metal plates of gold and platinum. **In 1906**, he proposed to carry out this probing by atoms of heavy elements of alpha particles with an energy of **4.05 MeV**, which were emitted by the nucleus of uranium or radium. Thus, it was proposed to study the scattering of alpha particles in matter. Consider the subjects of this experiment.

“There is a radioactive substance (2) in a thick-walled lead case (1) that emits a stream of alpha particles. Through a small hole (3), the flow of alpha particles is directed to a thin gold foil (4) (about 0.1 micron thick). Behind the foil is a screen coated with zinc sulfide (5). When an alpha particle hits, a flash is observed on the screen.

Experience has shown that the majority of alpha particles fly unhindered through a metal plate (6). And only a small part of all alpha particles change the direction of movement, deviating by small angles (7). And some particles even fly away from the foil in the opposite direction (8). Separate flashes (sparks) appeared not only outside the circle on the screen, but they could even be observed from the opposite side of the gold foil.



Information about alpha particles emitted by radioactive elements.

According to current ideas “an alpha particle (α) is the nucleus of a helium atom ${}^4_2\text{He}$.

It has a mass of 4 a.m.u. = $6.68 \cdot 10^{-27}$ kg.

It has a charge $+2e = 3.2 \cdot 10^{-19}$ C.

- Consists of two ${}^1_1\text{H}$ protons and two ${}^1_0\text{n}$ neutrons.
- Deviated by magnetic (according to the rule of the left hand) and electric (in the direction of lines of force) fields.
- Possesses weak penetrating power (easily retained by a sheet of paper)."

“Being quite heavy and positively charged, alpha particles from radioactive decay have a very short range in matter and, when moving through a medium, quickly lose energy at a short distance from the source. Alpha particles can be effectively trapped by a few centimeters of air or tens of micrometers of a dense matter, such as a sheet of paper and even a horny dead layer of the epidermis (skin surface), without reaching living cells. All of the above applies to radioactive sources of alpha particles whose energies do not exceed **15 MeV**. Alpha particles produced at the accelerator can have much higher energies.” [Wikipedia]

Alpha particles emitted by naturally radioactive elements have an energy of **4 to 11 MeV**. According to the description of the Geiger-Marsden experiment, the probing was carried out by atoms of heavy elements of alpha particles with an energy of **4.05 MeV** (in other sources, the values may differ, for example, **5.4 MeV** in [24] and **7.7 MeV** in [26]), which is in two-three times below the above 15 MeV limit, beyond which the effect of alpha particles changes.

Up to this limit, the alpha particle has the following properties: it has a short range, quickly loses energy at a short distance from the source, can be stopped by a sheet of paper, and cannot pass through the dead epidermis.

Then a question. How, according to the description of the experiment, such an alpha particle reaches the foil, then passes through it (the density of the foil is indirectly higher than the density of the epidermis), then, having a fairly short range in its properties and at the same time

quickly losing energy, it also reaches the screen and, in addition to this also produces scintillation on it?

It is obvious that the interpretation of the phenomenon observed in the experiment is not correct and does not correspond to the properties of the objects of the experiment.

According to the above properties of alpha particles used in the experiment, it is precisely the conclusions that the alpha particle, when reaching the foil, passes through it, reaches the screen and leaves flashes on it, raise doubts. In fact, the indicated properties of the alpha particle with an energy of **4.05 MeV** do not correspond to the set of those actions that are attributed to the alpha particle.

What then actually happens in the experiment? As already indicated above, the line atomic spectra testify to the fact that atoms emit and absorb energy quanta by themselves. With various factors of external influence, for example, in the experiment of J. Thomson, exposure to voltage, atoms radiate co-directionally and emit a stream of discrete portions of energy, which, leaving flashes on the detector screens, go back into the medium or are absorbed by the detector substance.

The impact factors can be different, as well as the radiation effects themselves are different depending on the combination of the selected type of substance and the type of impact on it. What really happens in the Geiger-Marsden experiment can be described as follows: alpha particles act on foil and the effect of their action is the emission of plasma portions by atoms of the foil – opposite the emitter most of all, and also in the form of sparks on both sides of the foil. It was these emitted energy quanta that reached the screen and produced scintillations on it.

There are descriptions of Geiger-Marsden experiments in which one sheet of foil was replaced by several, with the statement that after passing through all these layers of foil, alpha particles finally reach the screen and leave flashes.

With the properties of the alpha particle mentioned above, can we talk at all about the passage of an alpha particle through one, and even more so several layers of foil with gaps between them? It turns out that the data provided on the properties and effects of alpha particles, which are emitted by natural radioactive elements and have energies **from 4 to 11 MeV**, declare that an alpha particle with such energy does not even pass through the epidermis and is retained by a sheet of tissue paper, and when we are talking about the interpretation of the experiment of E. Rutherford with gold or platinum foil, as well as using foil of other metals, then epistemological conviction, based on the authority of the previous interpretation, tries in any way to prove the passage of such low-energy particles not only through one, but even through several layers of metal foil, and explain this passage of scintillation on the screen, **without finding any other explanation for the essence of this phenomenon.**

It is obvious that in that historical period of the development of scientific thought, there were simply no alternative explanations due to the maturation of the next stage after Newton, the expulsion of the ether from the field of scientific thinking. Proceeding from this, all questions of interactions with the ethereal medium did not receive their development, despite the fact that the predecessors had already almost built a model of the quantum ether, based on magnetoelectric oscillating vortex formations and its mechanic.

The existing explanatory paradigm in current physics of the presence of final scintillations on the detector screen when alpha particles act on the foil, in fact, requires a radical revision. You can beat your head against the epistemological wall of the atomic structure paradigm that has been established in the modern worldview for an arbitrarily long time and foam at the mouth to prove the dogmas that have settled in it, but the fact remains that the

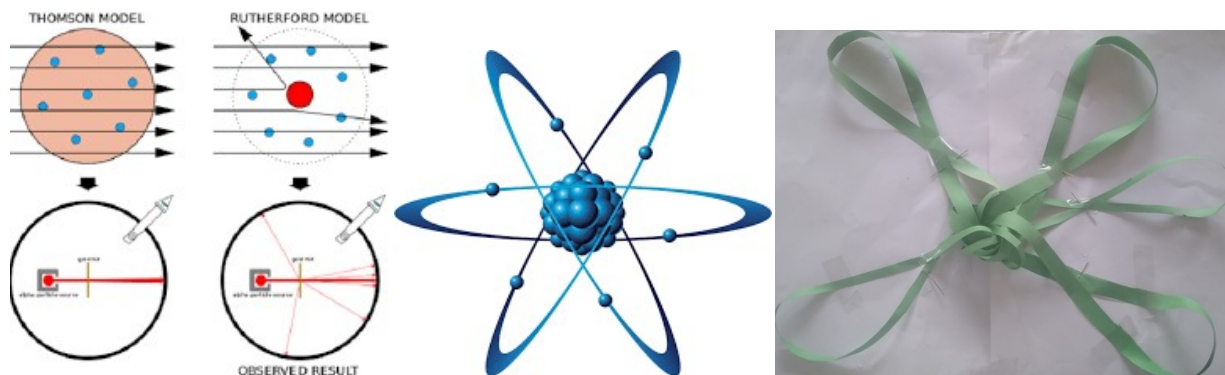
observed phenomenon of scintillations has a different explanation according to its essence, since the current explanation has a sufficient number of contradictory logical chains.

Flashes similar to scintillations in the Geigerv-Marsden experiment, or, in other words, plasma sparks, are also observed during mechanical collision of pieces of silicon in the process of making fire, which is a kind of low-temperature plasma, during friction of dry wood surfaces against each other and the appearance of ignition and flame, short circuit in the phenomenon of electric current, in a microwave oven when exposed to microwave radiation on metal, in the phenomenon of sonoluminescence when exposed to ultrasound on water, in the phenomenon of lightning during a thunderstorm, when rubbing a comb against hair and observing a sparking phenomenon called static electricity, and so on.

The effect of a similar release, but already a much larger amount of plasma, has not yet been explained in a number of already known experiments, for example, such as the Usherenko effect. This effect does not find an explanation at the level of the currently accepted atomic structure, but can be explained quite clearly and simply using the quantum mechanics of the atomic model based on Möbius Dipoles, which function as a mechanism that transforms the **quantum ethereal "liquid"**. [17], [19].

This model gives a visual representation of both the internal dynamics of spinning and the mechanism of energy conversion in the atom, and the fundamental interconnections: gravity and quantum entanglement, which balance the complementary components of the atomic structure and keep the atomic structure in one whole, ensuring its stability.

4. WAVE MODEL OF THE ATOM BASED ON MÖBIUS DIPOLES.



[Wikipedia]

The Bohr-Rutherford model.

Wave Möbius Model

The atomic structure in the format of the Möbius Geometry application as a special case of Clifford's parallels is represented as a dynamic interconnection into a **topological knot** of closed vortex Möbius Dipoles, each of which has a kind of vibrating blade mechanism in the likeness of an **Archimedes screw**, closed on itself, due to which the process of radiation-absorption of energy quanta is carried out and their transportation.

In such an atomic structure, the **charges** and their signs are the characteristics of the dual vortex rotation as a result of the phenomenon of **magnetolectric bipolarity** in one closed circuit of **Möbius Dipole**. This model representation is based on the process of fibrillation of a generative granule of the ethereal Quantum Medium as a unit of a granular spatial matrix in the geometry of closed Clifford's parallels (**Möbius strip**). As a result of the process of fibrillation of the original granule (**Möbius monopole**), the actualization of structural interconnections occurs:

gravity – in the first phase of fibrillation, and **quantum entanglement** – in the second phase of fibrillation. Both of these interconnections ensure the mutual stability of the atomic structure and **act from within**.

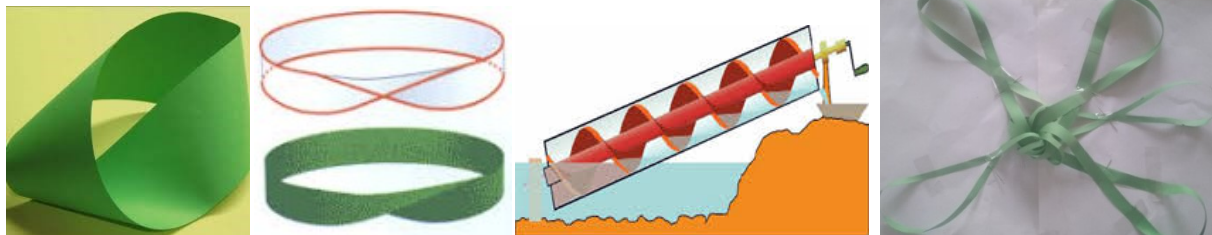
The nucleus of an atom and its periphery are formed due to the **polarization orientation of the Möbius dipoles in the radial direction** – one of the arms of the dipoles, connected in a **topological knot** and forms the **nucleus**, and the asymmetric arms mirroring them form a vibrational **peripheral membrane**. [19] In essence, both the initial vortex granule of the medium and the structure of the atom obtained on its basis are a kind of “**quantum generator**” that operates in the non-stop electromagnetic mode of quantum **oscillations** as a continuous transformation of the ethereal substrate of the Quantum Medium.

“This explains the laws of electric and magnetic attraction/repulsion, the action of electric currents on magnets and on each other, the laws of induction, the derivation of the speed of charges and the polarization of light, the rotation of the plane of polarization by a magnetic field. All these things must be deduced **from the knowledge of the geometric forms of the atoms and their relationship with the ether.**” W.Clifford [1]

Möbius inversions (turns of the plane formed by two Clifford’s parallels) are geometrically peculiar blades similar to the blades of Archimedes' screw. Dynamically spinning like a bladed mechanism, the atom is a kind of set of lemniscate-like closed Archimedes screws connected by quantum entanglement into a topological knot and transporting the transformable magnetoplasma of the ocean of ethereal “**quantum fluid**”.

“And then it turns out that such matter really exists. Around the same time that the theory of relativity began to be accepted, studies of radio emissions began to show that the empty vacuum of space had its own spectroscopic structure – similar to that of ordinary quantum solids and liquids”. [29]

With a certain type of influence on a certain kind of matter, atomic dipoles can co-directionally radiate ethereal plasma quanta. Such a “**hydrodynamic**” **wave model of the atom** illustrates the principle of a kind of **quantum “symbiosis”** of the atom with the Quantum Medium.



Based on the foregoing, if we return to the explanation of the Usherenko effect, then with the help of a new format of the atomic structure, it is possible to explain in a general schematic way the colossal release of plasma energy in this effect, as well as the appearance of new elements. [28]

The type of matter that was affected in Usherenko's experiment was solid metal barriers (targets), and the type of impact was finely dispersed solid microparticles of silica (silicon dioxide), practically ordinary sand. If we recall the effect of the collision of two silicon stones, then sparks of the released intra-material plasma are observed in it, i.e. silicon releases plasma rather easily just on impact, and metal, as is well known, has a high conductivity of electric current (plasma energy current). Therefore, during the bombardment of metal targets with silica

particles and the collision of silica atoms with metal atoms, a colossal release of plasma energy occurred.

For metal targets, silica is the “ignition” mechanism, namely, that kind of “candle” that operates from its internal atomic silicon “battery” and gives off plasma. With its plasma spark, this “candle” ignites that intra-atomic plasma “fuel”, on which the quantum generator of atoms of metal targets operates. It supplies and conducts its energy, giving out jets of this fuel uphill – a jet plasma emission is observed.

Such an analogy with the ignition process in an internal combustion engine of a car helps to understand both the Usherenko effect itself and the fact that the use of silica opens up great opportunities for extracting atomic plasma and transforming it as a new controlled way to obtain energy from an atom. Thus, the process of releasing atomic energy in the Usherenko effect is quite efficient and, what is important, controllable. This is the key to fuel-free energy.

5. "HYDRODYNAMIC SYMBIOSIS" OF THE ATOM AND THE QUANTUM MEDIUM.

Returning to the experiments of J. Thomson and Geiger-Marsden, one can continue to defend the positions of previous interpretations, which were followed and continue to be followed by a further set of contradictions and intractable questions of theoretical physics.

This article proposes to return to the starting point of these experiments and derive a different logic for explaining the essence of the observed phenomena, comparing it with the ideas of the predecessors who developed the hydrodynamic theory of the quantized vortex ether and emphasized the geometrization of physics. The most important aspect that has been voiced on the historical path of development of the scientific worldview since the time of R. Descartes is that, in fact, EVERYTHING that happens in nature comes down to dynamic changes in the geometry of space.

Therefore, it is natural and convenient to study and describe this dynamics, relying on the geometric methods of mathematics. W.K. Clifford stressed this in his program.

The English mathematician and thinker **William Kingdon Clifford** clearly indicated that in the “*hydrodynamic*” picture of the world that he intends to build, literally everything that seems to us to be reality and its physics of variously interacting objects, ultimately turns out to be “curvature in the geometry of space and their movements like waves.”

In the picture of the world presented by W.K. Clifford, the issue is related to the force of gravity generated by spatial curvature and Clifford emphasized gravity, which, in his opinion, connects very different phenomena together, and the **ether provides a bridge between these phenomena**. In the scientific plans of W. Clifford (1845-1879), the ideas of creating a common platform for combining all research from different fields of science are clearly visible. But, as is well known, until now the issue related to gravity is a key issue and a "stumbling block" in attempts to create a unified Theory of Everything.

It is especially worth emphasizing that in the language of Clifford’s algebras, the system of four Maxwell equations acquires a particularly compact and natural notation in the form of just one short formula. It is this fact that is the cherished dream of physicists – to express the entire world order "in the form of an inch-long formula", as A. Einstein indicated in his time, and to build a **Unified Theory of Everything**.

The great merit of **J.K. Maxwell** turned out to be precisely in the fact that he linked the idea of the vortex cellular structure of the ether with magnetolectric properties. For Maxwell, the idea of the ether as an all-penetrating medium that transmits interactions was fundamental.

Using a mechanical model based on wheel vortices that connect magnetic fields and electric currents, Maxwell was able to obtain the most important equations of his theory and build a formally consistent picture in which magnetic energy is the kinetic energy of a medium occupying the entire space, and electrical energy is the tension energy the same environment.

Bernoulli's model was based on an idea that much later among William Thomson's associates would be called "fine-grained turbulent motion" or "vortex sponge". According to this idea, the **liquid ether**, penetrating all space, consists of sub-micro-vortices. Due to the properties of these vortices, their dimension and the degree of fineness that is inherent in the ether, it has a degree of elasticity and can propagate vibrations.

Kelvin (Thomson), on the basis of Helmholtz's vortex hydrodynamics, not only put forward the **vortex theory of atoms**, but also gave the first prototype of the vortex "wave-soliton as a particle" (Kelvin oval) and gave rise to a whole line of research with his concept of aether as a vortex sponge (and from this end theorists, to their surprise, eventually came back to Maxwell's equations).

For several decades, **K. Bjorknes**, in the conditions of scientific self-isolation, developed a **hydrodynamic model** for the Maxwellian theory of electromagnetism. Based on the wave physics of this hydrodynamic model, K. Björknes managed to derive all the core relationships of the theory of electromagnetism of J. Maxwell and gave a **complete description of this theory in terms of hydrodynamics**, representing charges as **pulsating spheres**, now known as oscillating solitons or oscillons.

In the early 1950s, P.Dirac published a whole series of papers demonstrating the expediency of returning the ether concept to physics, as well as several other concepts related to the ether, returning common sense to advanced science. He provided detailed ideological and mathematical arguments, convincing that the attraction of the ether is of decisive importance for the development of new physics. And that the ether can exist in quantum mechanics "in perfect harmony with the principles of relativity."

A. Einstein himself experienced his own oscillations regarding the presence of the ethereal medium and several times returned to this idea, then moved away from it. For Einstein, as the creator of a new theory of gravity (GR), the idea of the possibility of the existence of "empty" space was nevertheless just as unacceptable as it was for **I. Newton**. Newton himself clearly felt the need to preserve the ether in the physical picture of the world in order to remove the problem of incomprehensible "interactions at a distance. Gravity must be caused by some intermediary."

The well-known physicist **R. Laughlin**, Nobel Prize winner in 1998, can find a very clear explanation of why the basis for the unification of the Einstein theory of gravity, quantum physics and computer science should be precisely **hydrodynamics**:

"The irony is that Einstein's most creative work, his general theory of relativity, eventually comes down to the concept of space as a physical medium, while initially Einstein proceeded from the assertion that no such medium exists..."

"The idea that space can be some kind of material substance is actually very ancient, traceable back to the ancient Greek Stoics, who gave it the name "ether."

"The ether was very firmly rooted in Maxwell's mentality when he invented the description of electromagnetism that we still use today. Maxwell represented electric and magnetic fields as displacements and flows of the ether, which is why he borrowed the corresponding mathematics from the theory of liquids to describe them.

“... In fact, the formulas of relativity do not state anything about the fact of the existence or non-existence of all-penetrating matter that fills the universe. The theory of relativity says only that any such matter must have relativistic symmetry.”

“And then it turns out that such matter really exists. Around the same time that the theory of relativity began to be accepted, studies of radio emissions began to show that the empty vacuum of space had its own spectroscopic structure - similar to that of ordinary quantum solids and liquids.

“Following research at large particle accelerators has now led us to understand that space is a medium that looks more like a piece of window glass than a perfect Newtonian void. The space is filled with "material" that normally looks transparent, but it can be made visible - if you hit harder and knock out part of it.

“The modern concept of the vacuum of space, daily confirmed by experiments, is the relativistic ether. But we don't call it the way it is. Because it's taboo". [29]

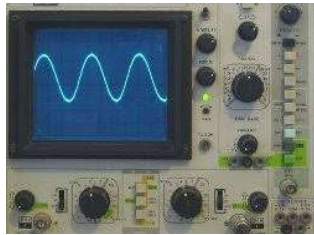
Continuing the logic of the founders and followers of natural philosophy in matters of the properties of the fabric of space and the presence of a comprehensive space environment, it is necessary to summarize the results of their experiments and the conclusions drawn on their basis, as well as add to them those theoretical findings of modern theories that are a logical consequence of everything laid down by natural philosophy into the foundation of the **hydrodynamic model of the ether**.

Along with the already existing terms that define space-time: "**fabric of space**", "**fabric of the Universe**", "**physical vacuum**", "**spin network**", "**ether**", "**quantum ether**", I proposed the term "**Quantum Environment**" [19]. The term I have chosen corresponds to the analogies "***air environment***" and "***aquatic environment***" and is with them in a single conceptual field, since it is the prototype of these environments. All environments exist according to a One Image and Likeness – these are continuous environments that have a penetrating ability and ensure the process of life.

The Quantum Medium (Environment) is a connected network of continuously spinning closed sub-micro-vortex formations, in which sub-micro-currents circulate and Planck length quanta are generated. Such a matrix structure allows us to consider the spatial medium as granular, and its units as granules. Such a network is a discrete-continuous space-time matrix, and its granule (seed) is a single vortex formation, which is a magnetoelectric circuit, closed according to the complementary principle through an inverse turn (Möbius Pattern or closed Clifford's parallels). Such a contour combines the principles of symmetry and mirror asymmetry. The inverted turn mediates the **curvature** of the spatial fabric, causes the difference of potentials by this geometry, respectively, the phenomenon of electromagnetism and polarity in the process of vortex spinning. This non-stop spinning process and its quantum mechanics is the potential energy content of the Quantum Medium.

Such spinning magnetoelectric ring-shaped formations, structured according to the principle of complementarity, are in phases of continuous oscillations, the result of which is the process of emission-absorption of energy quanta of the Planck length. The presence of quantum radiation of this dimension was once suggested by Oscar Klein. [15]

The Möbius configurability of the spinning magnetoelectric circuit determines the sinusoidal nature of the energy current with phase change. A closed sinusoid is nothing more than a Möbius Pattern and the movement displayed by the sinusoid is a **phase portrait** of the movement along the line of Möbius curvature.



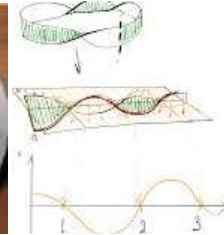
Energy Current



Sinusoid



Mobius Pattern



Graphs

These vortex formations are physical points of space-time, which are in the phases of a kind of "**quantum breathing**": inhalation-absorption, exhalation-radiation. They are that luminous quantum ether of potential Energy in the form of a kind of granular "**quantum liquid**" – the original magnetoplasma.

The concept of "**Energy**" means "**internal doing**".[27] The non-stop process of internal spinning of vortex spinor formations of units of the Quantum Medium is the energy source of the fabric of space. And the primordial magnetoplasma from such matrix units is the initial "plasticine", from which the matter is "molded" with the help of the atomic blade mechanism. Each atomic mechanism, depending on the individual level of vibrations, creates from the "quantum liquid" the corresponding kind of materiality. Each atom as a product of the Quantum Medium and a derivative of its unit, as well as any formations consisting of atoms, respectively, are in phases of a continuous oscillating process of **radiation-absorption** of energy quanta as a **kind of breath of life**.

Taking into account what has been said above about the concept of Energy and the Quantum Medium, as well as about atomic formation, we can conclude that the atom is an energy converter and is in constant "**energy symbiosis**" with the Quantum Medium, producing an intra-membrane energy swing in the same way as it does the screw of Archimedes, which in the atomic version is closed on itself. The helical discrete-continuous swing of the emitted and absorbed magnetoplasma of the quantum ether is the process in the atom, which in fact is the **perpetual motion machine** that inventors have been dreaming about for a long time.

Based on the magneto-electric properties of the units of the Quantum Medium and the phenomena generated by them, as well as these same properties, information-genetically transmitted to all generations of the Medium, regardless of their cosmic dimension and fractal level, the interpretation of a number of experiments carried out earlier and laid in the foundation of the scientific worldview, can be reformatted in accordance with a new point of view on the structure of the atom and its interaction with the Quantum Medium. Also, new interpretations can be given to a number of modern experiments that have not received an intelligible explanation based on the current paradigm of physics, but in which there is a colossal release of plasma, including at colliders.

Following all the above logic, it also creates the opportunity to take a fresh look at the results of mathematical physics obtained using the apparatus of algebra, and combine them with an updated look at the essence of the nature of elementary particles and draw the logic of separating their classifications, taking into account the variations and varieties of quantum radiations accepted in the current period of development of science for the category of elementary particles due to the created logical chains, built on the basis of erroneous judgments.

The ontology of the fundamental principle of complementarity (FPC), implying the existence of its equivalent at all fractal levels of beingness, makes it possible to substantiate a

single equation, a single formula and a single geometry. The FPC ontology is embedded in Clifford's parallel geometry and can be expressed and illustrated by a closed Möbius Pattern. As indicated in [17], the application of this geometry to questions of theoretical physics makes it possible to create a real foundation for a **unified Theory of Everything**.

Also it is necessary to focus on the following. Mankind in the process of evolution of consciousness goes through a number of stages of mastering the ethereal plasma and its varieties. The first stage of this development was the stage of development of fire as a kind of low-temperature plasma. At this stage, a person has learned to make fire through elements that easily give off plasma when they collide, rub, and focus sunlight with a lens.

The next stage in the development of mastering the plasma was the stage of obtaining plasma energy flow in metal conductors by creating electric current generators, which is a way for plasma to move when creating rotation in a magnetic field.

The current period of development has already been marked by a number of experiments in which a huge amount of plasma is released when this process is started using a chemical reaction (Brilliant Light Power, New Jersey, USA) or using the Usherenko effect (Belarus). This is the next stage in the development of mastering of ethereal plasma and its extraction from the atom in a controlled way without burning fuel [28].

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