

Kulak L.A. (Antoniya Ilyinskaya), MD in engineering, PhD, founder of the linguistic physics and methodology of **Fractal Synthesis**, member of PA IAIT and IIHEP (International Institute for Humanitarian and Environmental Projects) as affiliation of PA IAIT (Public Association International Academy of Information Technologies).

Email: antonyau@yahoo.com

QUANTUM MECHANICS OF THE ATOM IN THE FORMAT OF MÖBIUS TOPOLOGY.

"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.

The main materials for this article are taken from the author's monograph "Substance. Atom. Theory of Everything", as well as from subsequent articles based on the monograph and published on the website. The author's monograph is a fundamental study of the application of the Möbius Geometry to the issues of the World Order and to the intractable issues of theoretical and practical physics.

The important aspects of this article are: the proposal of a new atomic model and the proposal to conduct an experiment confirming this model, the explanation of a number of intractable questions of physics based on the proposed model and, accordingly, the understanding of a new way to fuel-free energy and a method of controlled extraction of energy from the atom is indicated.

The author's monograph laid the foundations of the Methodology of Fractal Synthesis and Linguistic Physics, and also expanded the representation of the geometry of quantum processes. The current period of development of scientific knowledge and practice requires the merging of these areas with mathematical physics, which has developed rapidly over the past century. It is this merging that will ensure a more effective use of the apparatus of algebra for an ontological model of the world order, as close as possible to the phenomena of reality and the essence of things. The algebra apparatus applied in the new format will contribute to bringing the acquired knowledge in theoretical views to a common denominator and the creation of a Unified Theory of Everything on a new platform.

Key words: energy transfer principle, quantum medium, spatial matrix spin network granule, quantum symbiosis, Fundamental Principle of Complementarity, Möbius junction, initial oscillatory Mod, magnetoelectric circuit, spatial curvature, displacement, gradient, potential difference, torque, first voltage, nature of polarity and magnetism, magnetic moment, oscillations, vibrations, spin, quantization of energy, wave-particle duality, phase portrait, fibration phases, Möbius topological knot, Charge, Mass, magnetoelectric tensor, Bipolar Gravity, Quantum Entanglement, polarization orientation in radial direction, Universal Triplet of Fundamental Interconnections, Dirac monopole, Möbius Monopole, Möbius Dipole, Newton's Law, Coulomb's Law, self-copying principle, Hopf link, Hopf fibration, quantum Generator of

Reality, new interpretation of J. Thomson's experiment and experiment of E. Rutherford, vortex wave model of the atom, intra-material plasma, electric current, sonoluminescence, heat, intra-atomic transmutation, unified Universal Typology and Torsion Topology, Fractal Synthesis, Unified Theory of Everything, Usherenko effect, method of controlled extraction of atomic energy, fuel-free energy.

MAIN CONTENT.

1. INTRODUCTION.
2. WAVE MECHANISM OF THE ATOM.
3. QUANTUM MEDIUM AS A SPIN NETWORK. MOBIUS VORTEX FORMATIONS AND THEIR PROPERTIES.
4. FIBRATIONS OF THE MOBIUS ENERGY PATTERN. FORMATION OF THE ATOM.
5. MOBIUS DIPOLE. CHARGES AND MASS.
6. NEWTON'S LAW AND COULOMB'S LAW.
7. MOBIUS DIPOLE AND ARCHIMEDE'S SCREW.
8. EXPERIMENT OF J. THOMSON. THE PHENOMENON OF THE "ELECTRON" IN A NEW APPLICATION.
9. EXPERIMENT OF E. RUTHERFORD. THE PLANETARY MODEL OF THE ATOM IN A NEW APPLICATION.
10. PROPERTIES OF THE GEOMETRY OF THE MÖBIUS DIPOLE.
11. USHERENKO EFFECT. CONTROLLED METHOD FOR EXTRACTING ENERGY FROM ATOM.
12. HOPF FIBRATION AND FIBRATION OF THE MOBIUS ENERGY PACKAGE. THE ORIGINAL UNIVERSAL ELEMENT OF THE WORLD ORDER.
13. CONCLUSION.
14. THE SIMPLICITY OF NATURAL GENIUS.

1. INTRODUCTION

This article presents a brief general schematic description of a new atomic model based on Möbius Dipoles and proposes a variant of its experimental confirmation. The new model eliminates those theoretical contradictions that arose almost immediately after the proposal by E. Rutherford of the planetary model of the atom in accordance with the interpretation of experiments on the scattering of alpha particles, and the new model reveals the essence of the interconnection "electron-proton" and "neutron", giving a different idea the "electron" phenomenon discovered by J. Thomson, which in its essence has a different non-contradictory nature and its explanation.

It is shown that the atom is an energy converter in the "radiation-absorption" mode of energy quanta and an explanation is given for the fact of the presence of intra-material plasma and its manifestation in various modifications.

The model based on Möbius Dipoles illustrates the structure of the atom, which is held and ordered by the Triplet of Fundamental Interconnections: Gravity, Quantum entanglement and Complementary, mediating the phenomena of polarity and, accordingly, magnetism. The general Universal Scheme "Center-Periphery" is illustrated, in which the mutual interaction of

fundamental interconnections leads to the formation of the polarization orientation of the coupled Möbius Dipoles in the radial direction and the formation of a stable structure – ATOM.

On this basis, the results of the well-known experiments of J. Thomson and E. Rutherford were revised, their new interpretation was given, and it was shown what the lack of earlier explanations of the observed phenomena in the experiments took place. The repetition of the earlier Geiger-Marsden experiment on the scattering of alpha particles with the installation of radiation detectors at the output and fixing the type of radiation at the output will be a variant of experimental confirmation of the correctness of the proposed new model based on Möbius Dipoles.

Using the concepts of classical physics, the new atomic model explains the stability of atoms with sufficient clarity, is consistent with the line atomic absorption and emission spectra, and also gives logical explanations for the following phenomena: heat, electric current, cold atomic transmutation – CAT, sonoluminescence, lightning during a thunderstorm, the Usherenko effect, fire as a kind of low-temperature plasma, and many other phenomena that today either have conflicting interpretations or are classified as anomalous for lack of a clear idea and a clear explanation.

A new understanding of the energy dynamics of the atom and the interconnections in it opens up an understanding of the ways of intra-atomic energy conversion, and hence the **understanding of a controlled way of extracting an energy leading to fuel-free energy**. The new method of extracting energy from the atom does not require huge costs, is safe enough, is not laborious in comparison with nuclear power plants, and can be affordable for any small country for which it will be possible to manufacture the corresponding equipment.

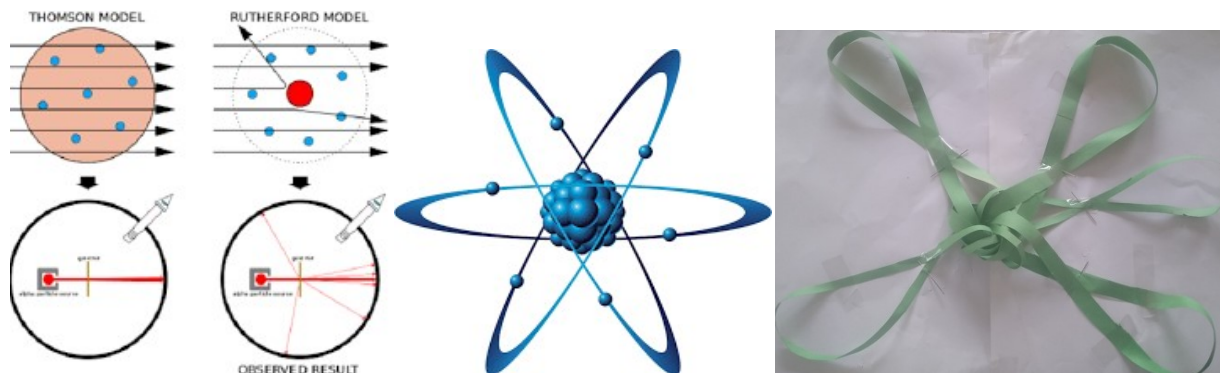
In addition to the above, in this article a comparative characteristic of the “Hopf fibration” and the fibration of the Universal Unit based on the Möbius Energy Pattern is carried out. The Hopf fibration is proposed in mathematical physics as the Universal Unit of the World Order and is obtained using the apparatus of algebra based on the non-trivial node "Hopf's link". The Universal Unit of the World Order, presented in the version of the Möbius Energy Pattern, is based on the Fundamental Principle of Complementarity (FPC), which has an ontological content and is observed everywhere in the phenomena and essence of things at all levels of the World Order and in all planes of existence.

It is shown that the essential difference between the Universal Element of the Universe based on the Möbius Energy Pattern and the Hopf fibration is the illustration of the presence of the Gravitational Interconnection, which is explained using the Möbius Geometry. It is concluded that Möbius Geometry can successfully **bring scientific views to a common denominator to build a Unified Theory of Everything**.

2. WAVE MECHANISM OF THE ATOM.

In the research field of the author's monograph “Substance. Atom. The Theory of Everything” proposes a general structural scheme of a new wave model of ATOM based on Möbius Dipoles interconnected by a Möbius topological knot. Structural interconnections, energy dynamics of intra-atomic processes and ongoing transformations are illustrated and explained. In the proposed atomic model, dual wave bundles of mirror asymmetric “arms” of Möbius Dipoles, as vortex “energy beams”, are balanced by a gravitational interconnection, which has a movable Center of Tension and Balancing (CTB).

Such a wave Möbius model of an atom was obtained as a result of the internal process of fibration of a generative granule of the **spin network** (Quantum Medium) through the method of doubling its Info-Genome. **Möbius Dipoles** are derived from the original **Möbius Monopole** in the phases of its fibration, in which the **Gravitational Interconnection** and Link quantum coupling (**Quantum entanglement**) are actualized with the subsequent formation of the “**Center-Periphery**” structure as a result of **the polarization orientation** of the Möbius Dipoles **in the radial direction**.



[Wikipedia]

The Bohr-Rutherford model.

Wave Möbius Model

In the phases of the fibration of the Möbius Monopole, a **Universal Triplet** of Fundamental Interconnections is formed, which is equally inherent in all levels of the World Order: micro-, macro- and mega-, as well as in the spheres of existence.

3. QUANTUM MEDIUM AS A SPIN NETWORK. MOBIUS VORTEX FORMATIONS AND THEIR PROPERTIES.

The term "**Quantum Medium**" (*Quantum environment*) as the name of space-time was introduced by me using analogy with the terms "*aquatic environment*" and "*air environment*" and is in the same conceptual field with them. These environments are continuous and each has a penetrating ability at its own level, and all life processes take place in them.

The term "**Quantum Medium**" is identical to the already existing terms: "*fabric of space*" (Brian Green), "*fabric of the universe*" (Kondratov V.P.), "*spin network*" (the theory of loop quantum gravity), "*quantum ether*" (M. Levin, Xiao-Gang Wen), "*physical vacuum*" (Shipov G. I.), which, in their essential content, are conceptual modifications of the same *essence*. These terms mean a **granular spatial fabric**, the granules of which are a **matrix network of spinning vortex formations**, peculiar nodes that are in phases of continuous **oscillations**. The nature of these oscillations is a magnetoelectric phenomenon mediated by the **Fundamental Principle of Complementarity – FPC**.

FPC is observed everywhere as an invisible frame of phenomena and the nature of things at all levels of the World Order and in all spheres of being, and is an accessory of the entire universal content. In accordance with this, FPC can be considered as the Initial original Principle from which the consequence is taken and all other principles originate.

The application of the Complementarity Principle (FPC) in science eventually led to the creation of the concept of complementarity, covering not only physics as a subject, but also

biology, psychology, cultural studies, humanitarian knowledge in general, in other words, EVERYTHING, i.e. THE ALL NATURE OF THINGS AND PHENOMENA.

In the format of the Fractal Synthesis Methodology (FSM), proposed and developed in the author's monograph and articles, the spin network granule is illustrated using the simplest Möbius connection. The Möbius Pattern is considered as a **geometric analogue** of the FPC on the grounds that the Complementary ratio is the opposite, but complementary components of the One Whole, which fully corresponds to the **geometric connection** of two opposite, but complementary sides of the plane into the One Whole, i.e. into one topological surface closed through an **inverse** turn by 180 degrees. This type of connection and its geometry mediate the three-dimensionality of space, thereby causing the Triadic Modeling Principle of constructions. Based on this logic, the Möbius Typology will determine both the spatial configurability of a single matrix vortex formation of the Quantum Medium and subsequent info-genetic generations.

It is important to emphasize that the **Möbius Pattern** as the granule of the Quantum Medium is a vortex **energy circuit** in which a **magnetolectric phenomenon** is generated, due to which the internal process of self-motion occurs, in the current paradigm called *spinning*. Due to vortex self-movements, such an energy circuit is in the process of non-stop continuous **oscillations**, and all its creations as components of the Quantum Medium inherit this property info-genetically and contain it.

The magnetolectric phenomenon in the Möbius energy circuit is due precisely to the presence of two complementary components connected into one topology through a spatial turn of 180 degrees, in other words, *inversion*. This mediates the bulk wave configurability of the Möbius Pattern and the formation of spatial CURVATURE, which causes the level difference. Thus, by creating a turn angle, the Möbius Eversion forms the *difference* and *gradient*, and thereby causes the presence of a difference in *energy potentials* and, at the same time, the presence of a *torque*.

Such an energy circuit, closed through inversion and containing a mirror asymmetry, has its own internal *angular momentum*. This causes the presence of a *magnetic impulse* and collectively mediates the effect of the *first voltage* with the formation of a *magnetic property* and the *phenomenon of polarity*.

A set of such internal properties mediates the dynamics of continuous *internal torsion*, which results in the *generation of portions of energy* (sub-micro-doses of magnetoplasma) and *oscillations*. These oscillations are based on continuously generated magnetolectric processes induced during a two-cycle rotation of the Möbius turn around the conditional internal and external centers in the process of its vortex torsion, accompanied by the emission-absorption of energy quanta.

Due to the presence of inversion, such a magnetolectric circuit is in the mode of self-generation of portions of energy, forming their continuous flow – energy flow along a trajectory similar to Archimedes' screw, i.e. with phase change to opposite (sinusoid). Thus, the Möbius energy circuit is a magnetolectric structure that organizes in itself the mechanism of self-motion – spinning – generates internal polarity, electromagnetism and converts energy quanta.

Mutually reflected dual coherent energy flows of Möbius torsion lay the foundation for hologram formation.

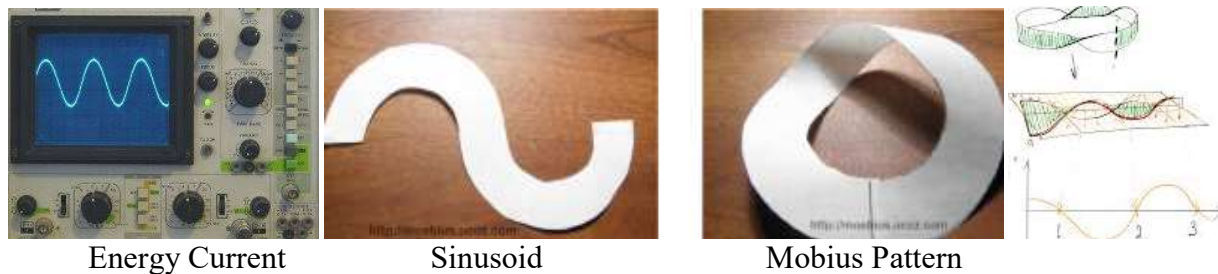
The fundamental conclusion regarding the initial nature of the magnetolectric phenomenon is that it is mediated by the structuring of Energy according to the FPC and is illustrated with sufficient clarity using the **geometric analogue of the FPC** – the Möbius junction.

Thus, the Möbius energy cluster closed on itself with one turn by 180 degrees is the *initial oscillatory* MODE, which produces continuous non-stop oscillations due to the monopolarity closed on itself. Such a vibrational mode can be called the **Möbius Monopole**, since its polarity is internal. As stated above, the inverse rotation of the Möbius Monopole performs a process of continuous two-cycle rotation around two axes: a conditional internal axis passing along the Curvature Line, and simultaneously around a conditional external center located inside a closed contour. Such an internal character of the motion of the Möbius Monopole is its **quantum mechanical spin**.

An explanation of the spin of an electron based on the example of the Möbius strip was once given by the Nobel laureate P. Dirac. As it becomes obvious, the Möbius Monopole is exactly the monopole of reality that Paul Dirac was looking for in his time and theoretically laid the supposed fact of its existence as the basis for the mathematical explanation of the phenomenon of quantization of electric charges.

If such spinning vortex formations, like granules, structure and fill the spatial fabric, being it's continuously oscillating magnetoelectric nodes, non-stop converting energy quanta in the form of primordial plasma, then the cosmic Medium will be **Quantized**, granular, matrix, pixelated by its nature. This nature and property of the Quantum Medium is also inherent in its more ancient name – "light-bearing Ether", since the filling of the Quantum Medium is **sub-micro-doses of luminiferous primordial plasma**.

Any oscillation is a consequence and result of the Möbius type motion. If you display the wave function of the oscillation on a plane using not a thin line, but a strip of paper cut out in the form of a sinusoidal harmonic, and connect its ends, then the result will be a Möbius connection. This suggests that the front of the sinusoidal wave harmonic is closed precisely in the ring-shaped wave Möbius Energy Package, and the movement displayed by the sinusoid is a **phase portrait** of the movement along the Möbius Pattern.



Such an experiment with paper geometry illustrates the *wave-particle duality* mediated by the FPC, namely, the presence of an energy quantum in both **annularly closed** and **wave open** states. A closed wave will be registered by the equipment as a **corpuscle**.

In 1990, Antonio Fernández-Rañada, relying on Hopf bundles, found closed solutions of Maxwell's equations (1989). And physicists William Irvine and Dirk Bouwmeester showed that among closed solutions there are also stable ones (2008).

Thus, the mathematical discovery of Ranjada is a confirmation of the fact that was revealed using the Geometry of the Möbius junction, namely, that an electromagnetic wave performs both a rectilinear and a long ring-shaped vortex-like motion, which Lord Kelvin wrote about **in 1867** in his article.

It should be noted that the Möbius Pattern in the process of two-cycle spinning rotates **simultaneously** as One Whole. This is a very important characteristic for figurative

representation, based on which the **effect of quantum long-range action** can be explained. The eversion of the Möbius Pattern does not move along the tape like a pedestrian, but the entire tape rotates at the same time. Based on this, no matter how far apart the “objects” that make up one Möbius connection or the quantum entanglement of Möbius connections, **they are covered by one unified moment of movement and co-displacement.**

4. FIBRATIONS OF THE MOBIUS ENERGY PATTERN. FORMATION OF THE ATOM.

The next property of the Möbius Monopole is its ability to split – FIBRATE – into fibers. The existential projection of this property at the level of cell structure is the process of DNA fibration into two strands with obtaining its copy. The ability of the Möbius Monopole to fibrilate is the ability to reproduce according to the self-copying scheme through the process of doubling its initial minimal Info-Genome (“0” and “1”) and with the ability to form **dipole bipolar** structures of the “*proton-electron*” type, which by their nature have already **external polarity** and can interact, creating magnetoelectric molecular chains.

Through the property of quantum fibration, it can be explained the phenomenon observed in the **slit experiment** as the phenomenon of the passage of an emitted energy quantum, assumed as a corpuscle, through two or more slits in its open state in the form of a wave with the formation of an interference pattern on the screen. The space between the slots is a kind of "cutting tool".

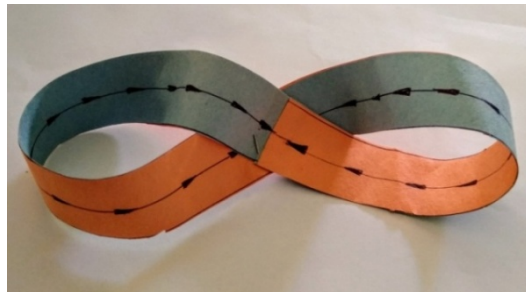
THE FIRST PHASE OF FIBRATION OF A CLOSED MOBIUS PATTERN.



Möbius Monopole.



1st phase of fibrilation.



Two-loop Möbius Dipole.

In the **first phase of fibrilation** of the Möbius Monopole, when its initial info-genome is doubled (doubling the polarity), the **Möbius Dipole** is formed and the Fundamental Gravitational Interconnection is actualized, which connects the two mirror asymmetric arms of the Möbius Dipole through the crossing of the **Line of Curvature**, is bipolar and acts on the principle of feedback through Möbius magnetoelectric tensor or Center of Tension and Balancing (CTB). At the stage of the first phase of fibrilation, two interconnections interact in the resulting structure: Complementary (magnetoelectric) and Gravitational as a derivative of it.

SECOND PHASE OF FIBRATION.

In the **second phase of fibrilation**, the next doubling of the Möbius info-genome occurs (bipolarity doubles), two Möbius Dipoles are already formed, connected to each other into a **topological knot** according to the principle of chain links, and the **Link quantum coupling** is actualized, which in the current paradigm of physics is called **Quantum entanglement**. At this

stage, in the resulting system formation, three Fundamental Interconnections act together: **Gravitational, Quantum entanglement and Complementary.**



Dipole.

2nd phase of fibraton.

Two coupled Möbius Dipoles.

TWO PHASES OF FIBRATION.



Monopole.

1st phase of fibraton – Dipole.

2nd phase of fibraton – link of two Dipoles.

Such a process of system formation through stepwise generation from within with the actualization of the necessary structural interconnections at each step – **gravity and quantum entanglement** – is the basis of the Atomic Structure. Here it is necessary to understand that the manifestation of **matter occurs from the inside out** and the **forces** that determine the interconnectedness of the components of system formation do not originate outside the elements, but inside them.

The article "Building up spacetime with quantum entanglement", published in 2010 by Mark Van Raamsdonk, who explores the interrelation between quantum mechanics and gravity, develops the idea of that quantum entanglement is a fundamentally important ingredient of nature, underlying the very basis of the Geometry that the space of the Universe has. The phenomenon of quantum entanglement, as it turned out, keeps the entire geometric fabric of space from breaking and disintegrating. As shown, the Möbius geometry of the FPC, which mediates the actualization of quantum entanglement in the second phase of fibraton, clearly illustrates and allows us to understand its property and its role.

In the process of subsequent vibrational fibrations, a series of Möbius Dipoles is formed, connected by Quantum coupling into a **topological knot**, which causes the **polarization orientation of the Möbius Dipoles in the radial direction** and the formation of the **Center-Periphery structure**. At the same time, some arms of the wave dipoles form the **Center**, and mirror asymmetric arms form the **Periphery**.

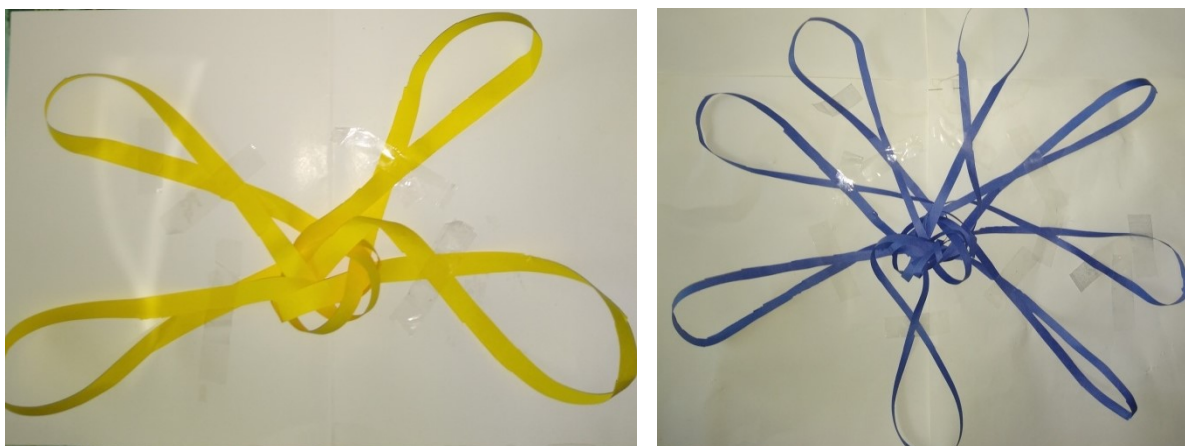
In the current paradigm of physics in the previously proposed Bohr-Rutherford model of the atom based on the "particles" approach, this is called "**nucleus**" and "**electrons**". The **nucleus** of an atom, according to the new proposed model based on Möbius Dipoles, is a **topological knot** that connects some of the arms of the Dipoles, and **electrons** are the arms of the same Dipoles asymmetric to them, but acting as a peripheral shell or a kind of **membrane** through which interaction with other dipoles takes place according to the type "**meshing of gears**" in accordance with a certain multiplicity of vibration levels.

The energy dynamics of the motion of the dipole (electron) loop energy antinode is a type of motion around **three axes**: rotation around the internal axis, a lemniscate-like trajectory through the CTB and orbital rotation around the "core" on a conditional gravitational "tether". This is consistent with what the Nobel Laureate R. Feynman once suggested: "An elementary particle must simultaneously rotate about two or three of its own internal rotation axes." [127]

Below are two illustrations of the quantum coupling of 4 and 8 Möbius Dipoles, which form the Center-Periphery interconnection during the phases of fibrations and the actualization of the system-forming interconnections listed above.

The third and subsequent phases of fibration with the subsequent doubling of the Info-Genome create a variety of dipole topological junctions and, accordingly, on this basis, a periodic system of atomic elements, depending on the algorithm of the fibration process, the filling of free vacancies by the elements of the Quantum Medium and the resulting levels of energy density.

THE THIRD AND SUBSEQUENT PHASES OF FIBRATION.



Quantum Entanglement of 4 and 8 Möbius Dipoles.

It is important to note that in the process of fibration, the Initial Info-Genome is doubling, and the sequences form a periodic system of combinations of this doubling. According to the selected algorithm, fibrations can be carried out in various combinations, certain rows of which will correspond to the Periodic System of atomic elements.

The phasing of the Möbius Dipole fibrations creates in their states a system of vibrational binary coding, i.e. elementary bits of information. At each stage of fibration, doubling of information occurs. The oscillatory system of the Universe, organized with the help of spinning granules of the space-time interactive network based on Möbius Geometry, provides a uniform plan for the structure of matter forms and a ONE rhythm of the oscillatory process, as well as its speech instrument of information exchange – the Universal Binary Code. And also the Quantum Medium structured by such granules is **calibrating** and **synchronizing**.

So, the general structural scheme "Center-Periphery" is obtained based on the fibration phases of the Möbius Monopole. It can equally be applied to the universe levels: micro-, macro- and mega-. The structural scheme is universal. In the application to the atomic structure,

according to the fibration algorithm, it is possible to obtain a general schematic representation of each of the atomic elements, which has its own individual vibrational characteristic.

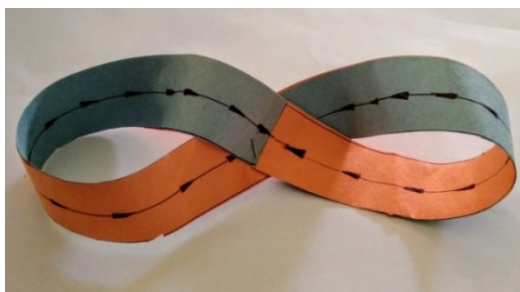
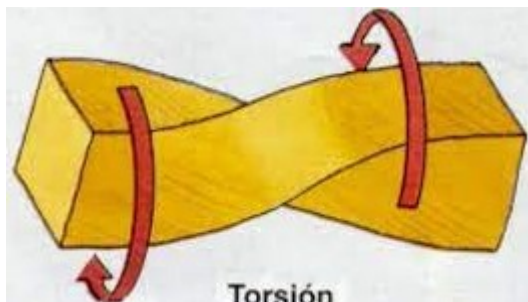
Below are several variants of vibrational fibrations based on the fibration of only one dipole from a dual bundle of two.



More details about fibrations in the work "The Periodic Table of Elements in the Format of the Möbius Typology Application" with a table of fibrations.

5. MOBIUS DIPOLE. CHARGES AND MASS.

Further. The Möbius Dipole is two mirror asymmetric vortices connected through the Curvature Line crossing tensor. To some extent, the Möbius Dipole has similarities with the type of torsion, however, the Möbius torsion of the two arms of the Dipole has its own features related to the process of mutually synchronized energy circulation, which in their dynamics differ significantly from the type of torsion torsion.



In the current paradigm of physics based on the structure of matter as consisting of "particles" these two arms as components of an atomic dipole are represented as separate particles – "*proton*" and "*electron*". The current paradigm of physics states the fact that the number of "*protons*" is always equal to the number of "*electrons*", but does not give an exhaustive explanation of this fact. On the basis of the Möbius-dipole structure of the atom, this fact is explained and illustrated.

The Möbius Dipole is that magnetoelectric **natural duality** that determines the process of functioning of mirror asymmetric loops (shoulders) of the Dipole for the implementation of internal binding interconnections and for the necessary external natural interactions. These asymmetrically opposite vortex loops of the Möbius Dipole in the current paradigm of physics are called *CHARGES*.

The crossing of the Line of Curvature in the Möbius Dipole allows creating such a magnetoelectric connection of mirror asymmetric vortex rotations through the Möbius tensor, which allows two mirror asymmetric opposites to coexist in one annularly closed structure.

In the language of the current paradigm of physics, if this phenomenon is explained through a "*particle*" and its "*antiparticle*", then in the Möbius Dipole as one essential object they are able to coexist peacefully without mutual annihilation, i.e. two opposite "*charges*" can be constantly present in the same essential unit in the form of different phases of its oscillations. In this regard, based on the new proposed model of the atom, the Möbius Dipole gives a clear and intelligible explanation of the "**peaceful coexistence**" of two opposite charges in an atomic structure consisting of a set of Möbius Dipoles.

Neither the classical nor the quantum theory of electromagnetism explain why in the hydrogen atom an "*electron*" never falls on a "*proton*", despite the constant mutual attraction of the particles. The explanation of this phenomenon of "non-coalescing" lies precisely in the mirror asymmetric way of connecting the two vortex loops of the Möbius Dipole. In this case, one loop of the Dipole plays the role of a *negative charge*, and a mirror-asymmetric loop will play the role of a *positive charge*.

The crossed interconnection tensor is the way of the magneto-electric interaction of two loops as opposite CHARGES, in which they "do not stick together", and also "do not fly apart", but are balanced in one bundle and interact in a balanced way through the CBT.

In the atomic structure *charges* and their signs are the characteristics of the dual vortex rotation as a result of the phenomenon of Bipolarity in one Möbius Dipole circuit, in which conditional "*pluses*" and "*minuses*" always belong to one structure as one physical entity, are connected through the crossing of the Line of Curvature and are balanced by magneto-electric forces. According to this logic, the number of "*pluses*" is always equal to the number of "*minuses*", which is equivalent to the fact that the number of "*electrons*" is always equal to the number of "*protons*". Based on this, the total electric charge of the Universe, due to its universal structure, stably and invariably remains equal to zero and is not broke.

It is important to emphasize the fact that *charges* are components of one system formation and cannot be in a free state independently of each other. They are interconnected by one vortex asymmetric rotational process of continuous torsion occurring in one entire dynamic structure. This balancing is carried out due to the fact that as a result of just such a crossing, the effect of creating a feedback on any change that occurs in such a connection method occurs, i.e. there is a back reaction in the form of a restoring force directed against any displacement, due to which a stable equilibrium is formed, regulated by the Bipolar Gravitational Interconnection.

What in physics is called free charges are the quanta emitted by the atomic structure, which can be right or left twisted.

Gravity regulates the balancing "attraction-repulsion" between the energy *masses* and *charges* of the Dipole's shoulders, providing "mutual support", which is the content of the root word "*gravity*". The fulfillment of such a condition ensures the preservation of a stable interconnection of material objects at all scale levels, from atoms to giant clusters of galaxies, as evidenced by the entire cosmos.

The fulfillment of such a condition ensures the preservation of a stable configuration of any material objects at all scale levels, from atoms to giant clusters of galaxies. Gravity is driven by magnetism, which acts through displacement and rhythm, as well as through the phenomenon of symmetry supported by the dynamics of mirror asymmetry, which are mediated by FPC's Möbius Geometry.

Gravitational interconnection is a substantial property inherent in everything. It operates on the principle of lever balances, the axis of which is movable and shifts in one direction or another in accordance with the changes that occur in the shoulders of the Dipole. If, for example, the planet is growing, then its balance point with the star will shift in accordance with the change in the parameters of the planet. The same is true for changes in the parameters of the star. Thus, all components of the star-planetary system will have degrees of displacement and co-displacement as an integral interconnected structure, which, as a rule, change by not so significant fractions over long periods of time. Each planet of our solar system is in a dual (dipole) connection with a star, and at the same time the star-planetary system itself is an element of a dipole connection with a part of the galactic structure.

6. NEWTON'S LAW AND COULOMB'S LAW.

So, the wave energy antinodes of the Möbius Dipole are both interconnected conditional "*masses*" due to the nature of their energy content, and interconnected "*charges*" due to their asymmetric opposition, while they are enclosed in one ring-shaped lemniscate geometry. Proceeding from this, the formula for describing the interaction of these "antinodes" both as "charges" in the Coulomb's Law, and as "masses" in Newton's Law of Universal Gravitation, will be the same in nature of dependences, since both laws describe the same essence, namely, the same geometric object.

At one time, the Nobel laureate R. Feynman pointed out the fact that "no one has yet managed to present gravity and electricity as two different manifestations of the same essence", and he was also looking for an answer why Newton's Law of Gravity formulas for "masses" and Coulomb's laws for "charges" are the same in their expression. As is obvious, in the new proposed format based on the Möbius Bipolarity, an exhaustive answer to this question can be obtained.

$$FN = G m1 m2 / r^2, (1)$$

$$FK = (4 \pi \epsilon_0) -1 q1 q2 / r^2, (2)$$

where: *FN*, *FK* – forces of interaction of Newton and Coulomb,

G, ϵ_0 – gravitational and electric constants,

m1, *m2* and *q1*, *q2* are the masses and charges of interacting bodies 1, 2,

r is the distance between them.

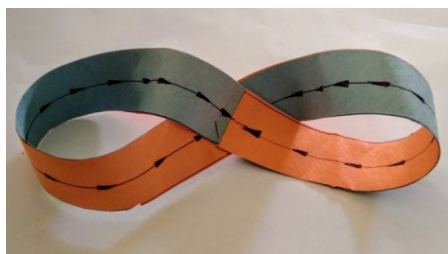
Using the apparatus of algebra, so far no one has succeeded at the theoretical level in a beautiful and convincing way to integrate gravity into quantum physics. As can be seen from the logic of the proposed new approach, Gravity is convincingly and beautifully laid out using Möbius Geometry in application to this question as well as to others.

In the history of theoretical physics, there have already been examples of a number of explanations based on the Möbius Geometry, and in particular they were used by the Nobel laureate Paul Dirac. At the initial stage of the formation of quantum theory and understanding of quantum phenomena, as well as in applying the mathematical apparatus to them, there were serious inconsistencies between quantum theory not only with classical physics, but also with elementary logic. In these absurdities that arose, Paul Dirac was the first to notice that the strange feature of the electron **spin** becomes a completely **natural geometric consequence** if the orbit of the electron is represented as a Möbius strip. Also, Möbius Geometry determines in physics the existence of a spinor frame of reference, which was first introduced by Paul Dirac **in 1928**.

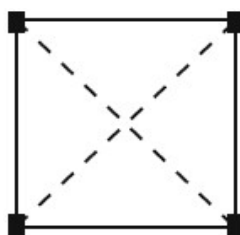
The Principle of Gravitational Balancing operates according to the One Unified General Scheme and similarly in all planes of beingness, regardless of the Fractal Level (micro-, macro- and mega-) and manifests itself not only in those areas where it is historically traditional to use the concept of "GRAVITATION", but also **everywhere**. When we talk about wisdom and correlate the search for a wise decision with the heart center, then we apply the same principle of Balancing Gravity, but only on the mental-thought plane. On this plane of being, our gravitational weighing consists in finding the point of application of the axis of Gravity between the "weight" of the intuitive feeling and the "weight" of the logic of the mind. These are the boundaries between which the **process of oscillation of our thinking takes place**. Gravity operates everywhere and on all planes. It is on this basis and with this approach that the Theory of Everything can be created.

So, the **actualization of the Gravitational Interconnection** in the first phase of the fibration of the Möbius Monopole provides a balanced and interconnected state of the growing system formation (atom, star-planetary system, galaxy, cell, bio-organism). Thus Gravity is a **system-forming interconnection** that is designed to hold the growing system formation together in the One Whole. Gravity holds the system from **the inside**, preserves its structure and exists as a **response to the development process**. The picture of the World in such a DIPOLE performance demonstrates **very powerful dynamics and amazing stability**.

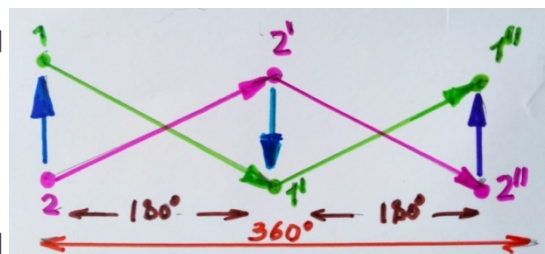
At one time, Nobel laureate W. Pauli was looking for this **correlation between stability and dynamism of the world**. When the scientist was thinking about the riddle of the phenomenon of **bifurcation** (dipole, duality) that he had already found and how nature manages to keep this highly dynamic system in a stable state, then as a clue he was shown in a dream a "dance pattern" – a square in which the vertices change each other diagonally. As it can be seen now, such a square is nothing but a schematic representation of the movement of the energy flow along the Möbius Pattern at the stage of development – DIPOLE.



Möbius Dipole.



Pauli Square.



Self-Copying Scheme.

Diagonal crossing in the Pauli square indicates Geometry, which organizes stability on the one hand, and dynamism on the other, as well as the constant change in places of pairs of opposite vertices, which forms the basis of the **principle of self-copying**, which is inherent in the FPC and illustrated through Möbius Geometry. With the help of just such an intersection, mediated by the FPC, a **stable dynamism** of the system is organized. The combination of symmetry and mirror asymmetry of FPC is the mechanism that moves space and time. This is the **fundamental compatibility of the Universal Principle of Complementarity**, which contains a unique **harmonious combination of symmetry and asymmetry**.

The topic of mirror reflections was also in the focus of attention of V. Pauli, who was in search of the main symmetries of Nature. **In 1954**, W. Pauli prepared an article on the role of mirror symmetry in physics and, in general, on those properties of symmetry that should be discovered in nature. In scientific circles, this work is called **CPT-theorem**. Pauli recognized that the topic of mirror symmetry is very important. **In 1957**, regarding this issue, Pauli has a specific expressive image – a **one-sided Möbius strip**, which he voiced in a letter to Carl Jung. Jung in his response to Pauli emphasizes asymmetry, which mediates movement and is associated with the dynamic elements of nature, setting the direction of the movement process.

Gravity and Quantum Entanglement are that pair of Fundamental Interconnections that plays a fundamental role in structures, both macro-cosmic and micro-cosmic. The interaction of the Gravitational Interconnection and Quantum entanglement is the way of **structural ordering of a growing system**, which in the subsequent phases of vibrational fibrations eventually leads to structuring according to the Center-Periphery scheme and to the formation of **stable blocks** (atoms, star-planetary systems, etc.), providing a fundamental mechanism for a **balanced retention of dynamic elements of the structure in the One Whole**, and in atomic structures causing stability, energy elasticity and the degree of energy compaction to the state of materiality, as well as intra-membrane preservation of stability and integrity.

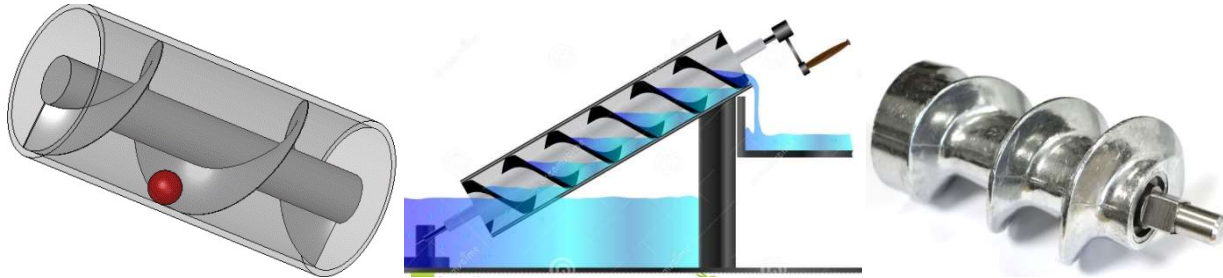
In 2015, D. Lin, M. Marcolli, H. Ooguri and B. Stoica, using the mathematics of holographic duality, obtained a result that was interpreted as proof of a certain connection between Quantum Entanglement and Gravity. [91]

The author of the article "Philosophical interpretation of modern approaches to the creation of a quantum theory of gravity" Karpenko I.A. gives the following interpretation of these results, that entanglement and gravity turn out to be dually related, namely: what appears as quantum entanglement in a space of low dimensionality becomes a gravitational interaction in a space of higher dimensionality. Then gravity and entanglement are expressions of the same thing, but in different scale worlds.

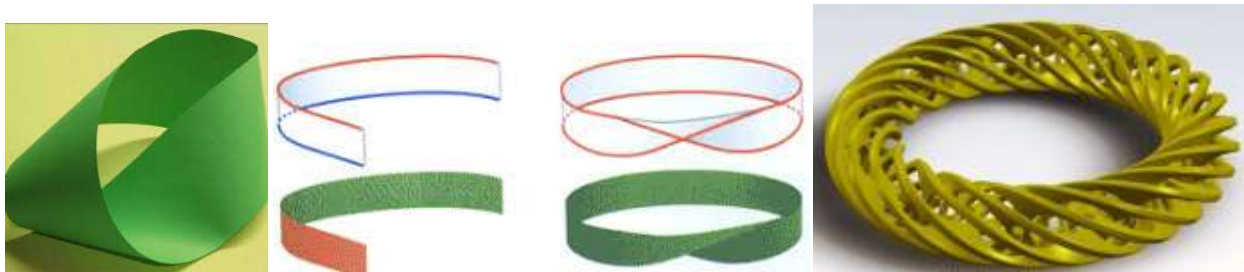
My comments. Regardless of the calculations and conclusions made using the mathematics of holographic duality, I make a strong statement that **Gravity and Quantum Entanglement are separate Fundamental Interconnections that belong equally to all worlds**: micro-, macro- and mega, as well as to all levels and spheres of Beingness. As shown above, they are actualized in different phases of Möbius Monopole fibrations, **are not interchangeable and perform different functions**. Mutually, they **determine the polarization orientation in the radial direction and form together the Fundamental Interconnection of the Center-Periphery**, which is a way of structural ordering of the growing system. Just as there is a quantum physics of micro-objects, we can talk about quantum physics of macro-objects.

7. MOBIUS DIPOLE AND ARCHIMEDE'S SCREW.

One of the fundamental characteristics of the new atomic model based on Möbius Dipoles is that the “proton-electron” bond is one indivisible whole, as well as the fact that the Dipole functions like an Archimedes screw, closed on itself and whose blades are spatial turns of 180 degrees.



Such atomic "blades" are non-stop energy converters, and under external influence – co-directional emitters of intra-material plasma. The substratum of the intra-material plasma is an atomic filling and the atom is in constant dynamic "symbiosis" (interexchange) with the Quantum Medium. This fact explains many phenomena that cannot be explained based on the Bohr-Rutherford atomic structure.



The entire system of the Fabric of space and its quantum filling is an inseparable cosmic SYMBIOSIS (joint life) and the Quantum Medium as a sub-micro-dispersed original generative plasma performs the role of a nurse and a mother's womb in this symbiosis.

As an example of co-directional radiation of an intra-material plasma with a certain type of influence on a matter, one can cite the phenomenon of an electric current. In fact, it is not “electrons” particles that, according to the proposed new model, are moving in a conductor in an integral dipole bundle with “protons”, but energy quanta emitted by atomic dipoles. Under the influence of an external voltage, atomic dipoles produce co-directional emitting of intra-material plasma quanta. It can be seen as a spark when bringing the ends of the wire together (short circuit). Therefore, in the new illumination and according to the dipole structure of the atom, the electric current can be formulated as follows.

Electric Current is a continuous co-directional energy flow of magnetoplasma quanta emitted by Möbius wave energy packets of the atomic structure under the influence of an external voltage.

In this example, the **type of impact is external voltage**, the **type of matter is metal**. An effect is an energy current in a conductor that can be transmitted over a distance.

The next example is the phenomenon of sonoluminescence, in which flashes of light occur when cavitation bubbles, generated in a liquid by a powerful ultrasonic wave, collapse. Here, **the type of impact is an ultrasonic waves**, **the type of matter is water**. The effect is the co-directional release of intra-material plasma by atomic dipoles of water in the form of flashes of light.

The next example is the collision of pieces of silicon. **The type of impact is friction**, **the type of matter is silicon**. The effect is the cutting out of the intra-material plasma in the form of a spark.

Making a fire with a dry wooden stick and a hole in a dry tree. **The type of impact is friction**, **the type of matter is wood**. The result is the release of low-temperature intra-material plasma in the form of fire.

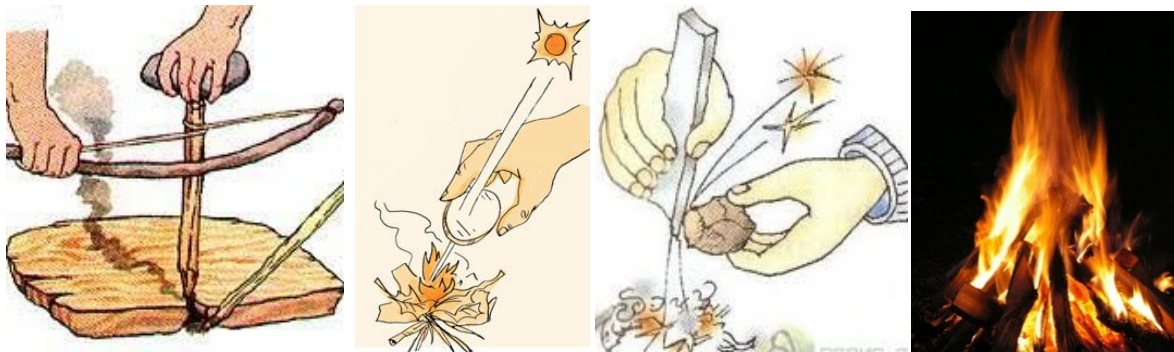
The phenomenon of radiation by any solid and liquid bodies, as well as dense gases heated to a high temperature. **The type of influence is the temperature heating** of the matter. The effect is radiation with a continuous spectrum.

The phenomenon of heating food in a microwave oven. The type of exposure is microwave radiation, the type of matter is food.

It is the essence of the process of radiation of intra-atomic plasma quanta in the format of the application of Möbius Geometry to the structure of the atom and on the basis of this intra-atomic energy dynamics, as well as finding the atom in symbiosis with the ethereal quantum medium, that allows us to draw the following fundamental conclusion that **the act of transferring heat from one body to another as such has no place, it is ABSENT!** The matter itself and the factor of influence on it take place. Depending on the combination of the contacts – the type of matter and the type of impact – their interaction causes one or another degree of actualization of their own co-directional intra-atomic plasma radiation in the matter and, accordingly, a temperature change.

Therefore, HEAT is a temperature effect as a result of one or another intensity of the co-directional release of sub-micro-doses of plasma by the internal atomic structure of a matter under a certain impact on it. In other words, **heat** is a measure of the intensity of the co-directional movement of the intra-material plasma generated by atomic dipoles when exposed to them.

With various types of impact on matter: intense friction, impact, sound vibration, light or other electromagnetic radiation, external high-voltage etc., we **extract plasma from matter** in one form or another (i.e., we excite its co-directional atomic radiation) and we obtain its directed energy CURRENT in the form of continuously emitted discrete plasma sub-microscopic portions, in other words, in the form of co-directional radiation of energy quanta.



Radiation can be of a different nature and intensity depending on the type of matter and the type of effect produced. In this case, almost all unexplained phenomena are explainable, and a ***new way of extracting energy from an atom that can be controlled becomes understandable.***

Bearing in mind the inseparability and indivisibility of the atomic dipole structure and the ability of the atom to emit and absorb energy quanta, one should return to experiments more than a hundred years ago, revise them and give them an appropriate interpretation based on a new view of the structure of the atom as consisting of Möbius Dipoles and being in symbiosis with Quantum Medium. These are the experiment of J. Thomson and his discovery of the "electron", as well as the experiment of E. Rutherford on the scattering of alpha particles and the proposal of a planetary model of the atom based on the interpretation of the experiment.

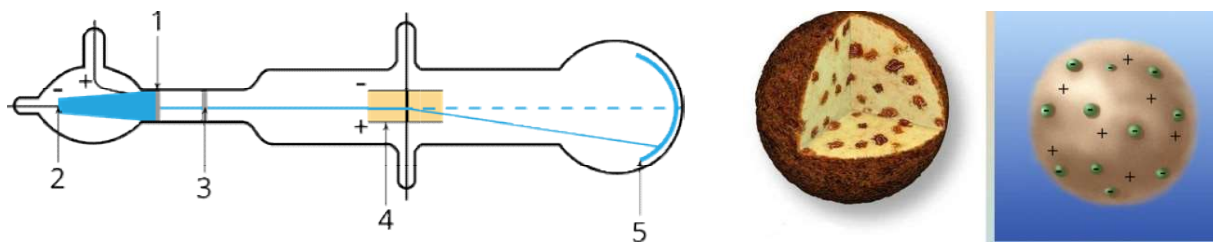
In accordance with the concept of the proposed new approach based on Möbius Geometry, the phenomenon, which historically has been called the "electron", receives a fairly clear explanation.

8. EXPERIMENT OF J. THOMSON. THE "ELECTRON" PHENOMENON IN A NEW APPLICATION.

At the beginning of the 20th century, the philosophical categories "***phenomenon***" and "***essence***" became the cause of numerous paradoxes and contradictions in physical theories. It was about them that Mach, Avenarius, Einstein and other physicists "stumbled". Among such examples, one can cite the conclusions of J. Thomson in his experiments on the study of cathode rays.

In 1897, Joseph J. Thomson of Trinity College, Cambridge, discovered a quantum of energy, which, when interpreted as a particle leaving an atom, was called an "***electron***" and this name was attached to a figurative representation of a part of an atomic structure capable of leaving an atom. So, according to the experiment of J. Thomson, he observed a certain phenomenon of radiation. Let's consider this experiment and give its existing interpretation directly from physics textbook:

"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.



Schematic of the experimental setup used by Thomson. Pudding atomic model.

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.

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 scientists faced the question of how the atom is actually arranged.

So, the quantum of energy emitted by the atomic structure was interpreted by Thomson as a particle separated from the atom and called "**electron**". Thomson was later awarded the Nobel Prize for the discovery of the electron.

Note that Thomson observed the phenomenon and gave an interpretation of the essence of things in accordance with the concept of the structure of matter as consisting of particles. At that time, and in accordance with this logic, the discovery of the "**electron**" allegedly proved that the atom is not an indivisible unit of matter, although the concept "A-Tom" means "Indivisible". Thomson himself suggested that the atom is a positive charge uniformly distributed throughout the entire volume of the atom in the form of a "cloud", which contains small negatively charged electrons located randomly. The total charge of electrons is equal in modulus to the charge of the "cloud", so the atom as a whole is neutral. This model of the atom is called the "**pudding model of the atom**".

According to the current paradigm of physics, the "**electron**" is part of the structure of the atom and is in its own specific orbit, moving at high speed around the nucleus. And the atom is a stable block, on the basis of which we operate with matter, and the number of "**protons**" in the atom is always balanced by the number of "**electrons**", which is inscribed in the cells of the Periodic System of Atomic Elements.

According to Thomson's interpretation, "**electrons**" leave the atom intensely and destroy this balance. There is a contradiction. What answers can physicists offer today according to this? Due to what forces can "**electrons**" leave the level at which they rotate around the nucleus at the highest speed and form a partnership with protons, being attracted to them, but not falling on them? And due to what, then, the stability of the atom and its zero charge are preserved, if the electrons leave it en masse? Nobody seems to notice this contradiction, or it is simply omitted.

Let us analyze the phenomenon observed by J. Thomson in the application to it of a new wave model of the atom based on Möbius Dipoles. Yes, indeed, J. Thomson observed energy quanta emitted by an atomic structure under the influence of an external voltage. Such directed quantum radiation from impact is an essential property of the structure of the atom based on Möbius Dipoles, which are quantum emitters. I.e. in the observed phenomenon, Thomson observed the quantum radiation of intra-atomic plasma, portions of which were registered by the equipment as corpuscles, called "**electrons**". It could be photon or other emitting. The electron, however, as a component of the Möbius Dipole, did not leave anywhere and remained in its place, being indivisibly connected with the nucleus.

It turns out that in the case of J. Thomson's interpretation of this phenomenon, two essential concepts were superimposed in the formation of the concept of "**electron**" and its place, namely, the concept of atomic quantum emitting and the concept of one of the components of the dipole bond of the atomic structure. As a result of the previous interpretation of the phenomenon, it turned out that the emitted energy quantum and the component of the atomic dipole were identified as the same essential unit, which was called the "**electron**".

In fact, the atomic structure of matter produced plasma portions of energy without changing the stable "nucleus-electron" bonds. Based on this new interpretation of Thomson's experiment, when observing the phenomenon of flashes on the screen, it is necessary to

distinguish between an "*electron*" as an essential constituent element of an intra-atomic Dipole that does not leave an indivisible atom, and an energy quantum emitted by an atomic Dipole under the influence of an external voltage. This emitted energy quantum left traces on the screen, and the "*electron*" as a partner to the "*proton*" invariably remained in its place in their dipole bundle.

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 observer to separate these two essential factors. Due to such a conceptual overlay, the "*electron*" simultaneously acquired the status both as a part of the atomic structure and as a portion of the emitted energy, but in essence they are different essential units. The emitted quantum is a portion of plasma radiation, and the "*electron*" is a component of the atomic Dipole, which belongs to the peripheral region of the atom, it is conventionally assigned the sign "-" and it does not leave the atomic structure, the total charge of which is balanced and equal to zero: the number of "*protons*" is always equals the number of "*electrons*". In addition, the dipole energy bond "*proton-electron*" is a unified Whole and rotates as a whole in the rhythms of vibrational characteristics. It is possible to separate them only conditionally for a certain degree of understanding of the essence of the dynamics of the process and a certain convenience in explaining the phenomenon.

Therefore, based on the new approach and the proposed new wave model of the atom, it is possible to give a clear interpretation of the observed phenomenon in the experiment of J. Thomson and put the essential characteristics in their places.

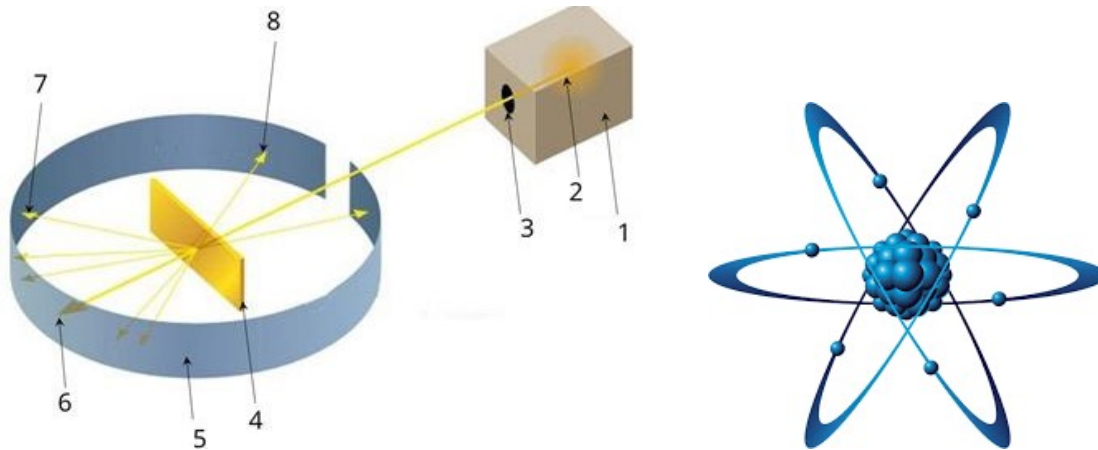
At this point, one should emphasize a very important aspect in the study of the phenomena of the micro-world and the interpretation of the results of observations in ongoing experiments. The explanatory part in the ongoing experiment when observing phenomena will directly depend on the presentation of the atomic model. The way the observer imagines, respectively, he sees, therefore, he explains it this way, while the mathematical apparatus of algebra is able to confirm any idea, even creating a non-existent virtual reality. This is confirmed by historical examples, ancient and modern – this is the geocentric model of the mathematician Ptolemy with the inclusion of artificial crystal spheres, and the modern Standard Model based on the divisibility of the atom into "particles".

The quote given below reflects the same idea regarding the integral connection and indivisibility of the atomic structure, which, as can be seen from the application of Möbius Geometry, is clearly illustrated.

"... the nucleus cannot be considered separately from the electron: the "nucleus-electron" system is an indivisible whole, which cannot be considered in terms of composite particles. The proton and electron should not be considered as independent units, but as inseparable parts of the whole. That is, the nucleus and the electron moving around it are one whole, they are interconnected by a common vortex flow... One cannot exist without the other. And if this is so, then it is illegal from a physical point of view to consider, as it is done now, the movement of an individual particle (electron) around another individual particle (proton of the nucleus)!" [97]

9. EXPERIMENT OF E. RUTHERFORD. PLANETARY MODEL OF THE ATOM IN A NEW APPLICATION.

Now let's give an interpretation of E. Rutherford's experiment on the scattering of alpha particles. E. Rutherford conducted 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 (changing the direction of motion) of alpha particles in matter.



A thick-walled lead case (1) contains a radioactive substance (2) 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 collides, a flash is observed on the screen.

Experiment has shown that the majority of alpha particles fly through the metal plate (6) unhindered. 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).

Now some additional information about alpha particles.

“To detect alpha particles with energies characteristic of radioactive decay, it is necessary to provide a low surface density of the screen separating the sensitive volume of the detector from the environment. For example, in gas discharge detectors, a mica window with a thickness of several microns, transparent to alpha particles, can be installed.

When an alpha particle moves through a matter, it creates a strong ionization of the surrounding atoms, and as a result, it loses energy very quickly. The energy of alpha particles resulting from radioactive decay is not enough even to overcome the dead layer of the skin, so there is no radiation risk with external exposure to such alpha particles. External alpha-radiation is hazardous to health only in the case of high-energy alpha particles (with energies above tens of MeV), the source of which is the accelerator.

Thus, α -particles with energies of 10 MeV and higher, sufficient to overcome the dead stratum corneum of the skin, can pose a danger to a person during external irradiation. At the same time, most research alpha particle accelerators operate at energies **below 3 MeV.**” [Wikipedia].

After analyzing the information about alpha particles, we note the following. An alpha particle, penetrating into a matter and creating a strong ionization of the surrounding atoms, quickly loses energy. For its passage through the matter, its low surface density is needed, which does not correspond to the density of gold or platinum.

The energy of alpha particles resulting from radioactive decay is not enough even to overcome the dead layer of the skin. An alpha particle penetrates the skin at energies above tens of MeV, which can only be obtained in accelerators. So only an alpha particle with an energy of **10 MeV and above can penetrate the skin**. Most research alpha particle accelerators operate at energies below **3 MeV**. In the description of Rutherford's experiment, it is noted that elements of alpha particles with an energy of **4.05 MeV** were used, which were emitted by the nucleus of uranium or radium.

Questions: can an alpha particle with the energy of **4.05 MeV**, indicated in E. Rutherford's experiment, and with the property of quickly losing it, and also passing only through a matter with a low density, eventually completely pass through the foil, reach the screen and produce scintillation, even if it penetrates the matter itself? And if only an alpha particle with an energy above 10 MeV can penetrate the skin, then how can an alpha particle with an energy of 4.05 MeV in this experiment pass through gold foil, the density of which, by definition, is greater than that of the skin?

These questions put before the fact that the obviously observed phenomenon, which in the experiment was regarded as the passage of alpha particles through the foil and their scattering in the matter, should have a significantly different interpretation according to the essential process occurring in the atomic structure, which is the intra-atomic quantum plasma radiation, which becomes directional under a certain type of impact.

Now, let me provide the interpretation of the experiment in accordance with the proposed new wave model of the Atom based on Möbius Dipoles, according to which the atomic structure works as an emitter-absorber, and when the atomic structure is acted upon, co-directional intra-material plasma radiation will take place. Then, by acting on the foil with alpha particles, one can in fact observe the effect of cutting (producing) plasma radiation from the atomic blocks of the foil bombarded by alpha particles. It is this radiation that could spark from the reverse side of the foil (from the emitter side), i.e. be emitted both in the opposite direction and towards the screen at different angles and, getting on the screen, leave traces there.

Most likely, a combination of two phenomena was present in the experiment. The phenomenon of the alpha particle being thrown back could have taken place. However, flashes on the screen and sparks from the reverse side are the result of plasma radiation from the atomic structure of the foil as a result of alpha particles impact.

According to the new proposed atomic model based on wave Möbius Dipoles, which are in symbiosis with the Quantum Environ and in a constant dynamic process of generating portions of energy (intra-atomic plasma "breathing"), I made the following conclusion regarding what effects can be observed as a result of bombardment of a metal foil by alpha particles:

1). In this experiment, the author of this article questions the very process of the passage of alpha particles with an energy of 4.05 MeV through a foil whose surface density is quite high and where energy of alpha particles is rapidly lost if even they penetrate through, and states that the scintillations on the screen are caused by a different radiation produced by the atomic structure of the foil under the influence of alpha particles. 6 and 7 is a screen fixing of portions of directional certain type of plasma emitting produced by the atomic structure of the foil under the

influence of alpha particles emerging from the emitter. It is this plasma radiation that hits the screen.

2). 8 – possible deflection of alpha particles plus sparking from the reverse side, which is also a kind of emission by the atomic structure of the foil of micro-doses of intra-material plasma upon collision with alpha particles, which are the influencing factor that leads to the "cutting out" of intra-material plasma, similar to the collision of two pieces of silicon.

Only a repetition of the experiment under modern conditions and in the presence of output radiation detectors can give an exhaustive answer to this question.

If such radiation takes place, then, consequently, a new interpretation of the Rutherford experiment (the Geiger-Marsden experiment) substantiates not only a new atomic model, the structure of which is proposed and described in the monograph and subsequent articles, but, accordingly, substantiates a new unified paradigm based on Möbius Geometry as well as a new controlled way to extract energy from the atom.

The author of this article is looking for the possibility of repeating the experiment of E. Rutherford on the scattering of alpha particles with the installation of detectors at the output as confirmation of the proposed paradigm and the new atomic structure.

Based on the interpretation of the ongoing experiment on the scattering of alpha particles, E. Rutherford proposed a planetary model of the atom. Despite the fact that, according to the Law of Unity and the Law of Analogy, the scientist made the correct conclusion about the planetary model, based on the fact that the structure of the micro-macro- and mega-worlds are similar, the scientific paradigm that existed at that time about the structure of matter as consisting of particles, and also, knowledge in cosmology did not contribute to the discovery of that internal structural order of interconnections, due to which dynamic atomic stability is ensured.

The **planetary model of the atom by E. Rutherford based on particle paradigm** was not able to explain the very fact of any prolonged existence of the atom, i.e., its stability. According to the laws of classical electrodynamics, an accelerating charge radiates energy-carrying electromagnetic waves. According to the planetary model of the atom proposed by E. Rutherford, when moving around the nucleus, electrons have centripetal acceleration, so they must continuously radiate electromagnetic waves. As a result of the loss of energy for radiation, the radius of the electron orbit must continuously decrease and, in the end, the electrons must fall on the nucleus, i.e., from the point of view of classical physics, an atom in the form of a planetary system cannot exist at all. It is believed that this contradiction was resolved with the help of the proposed postulates by N. Bohr on the basis of de Broglie waves.

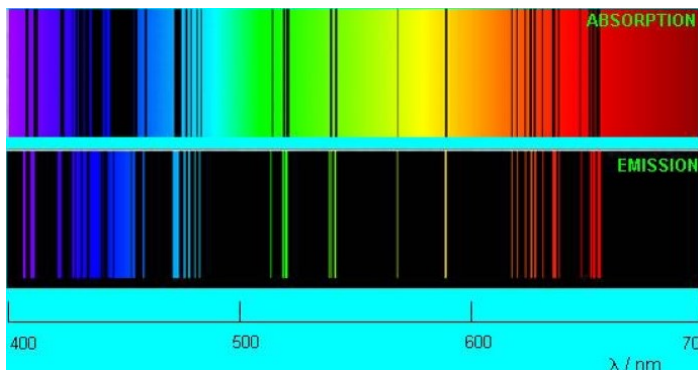
This contradiction is resolved quite easily in the application of a new atomic model based on Möbius Dipoles. The atomic model in the new application remains essentially planetary, but the new model gives an idea of the **intra-atomic interconnections** of the "**nucleus**" and "**electrons**" and the way they coexist, and also illustrates the essence of the constituents of the atom, which are energy converters, being in an inextricable symbiosis with the Quantum Medium and exchanging energy with it. The dipole energy package is like an Archimedean screw, closed in a lemniscate manner, and produces energy conversion in the "radiation-absorption" mode with its inverted blades, constantly transporting energy. The dipole bond "**proton-electron**" illustrates the way of energy dynamics in the atom, which preserves its stability and explains the essence of the dynamics of the motion process and the interconnectedness of atomic components.

Another contradiction of E. Rutherford's glider model of the atom from the point of view of classical physics: the radiation frequency of an atom must coincide with the frequency of electron circulation and also contain frequencies that are multiples of this fundamental frequency. During radiation, the radius of the electron orbit changes continuously, as a consequence, the frequency of radiation must also change, and also in a continuous way. This character of the emission spectrum of an atom is in complete contradiction with the observed regularities of atomic spectra, which are linear. The line spectrum consists of a number of regularly arranged spectral lines of a certain frequency (wavelength).

Some information about continuous and line emission and absorption spectra. If sunlight is passed through a glass prism or diffraction grating, then the well-known continuous spectrum will appear, in which all wavelengths of the visible range are present – from the red border to the violet in the form of a continuous band. Any solid and liquid bodies, as well as dense gases heated to a high temperature, give radiation with a continuous spectrum.



The situation changes qualitatively when the glow of rarefied gases is observed. The spectrum ceases to be continuous: discontinuities appear in it, increasing as the gas is rarefied. In the case of a strong rarefaction of the gas, the atomic spectrum becomes a line, i.e. consisting of separate thin lines.



Absorption and emission spectra for sodium.

These coinciding line spectra of emission and absorption of a rarefied gas indicate that the internal structure of the atom must be such that it could provide a mechanism for the emission and absorption of light of a strictly defined set of frequencies, which will be individually inherent in each atomic element.

Since the gas is rarefied and the atoms interact little with each other, it can be logically concluded that, according to the line spectrum, the **atoms should produce radiation by themselves**. This fact is fundamental in the proposed new model of the atom based on Möbius Dipoles. Therefore, this model is in full agreement with the nature of the line spectra. Each atom is characterized by a discrete, strictly defined set of emitted light wavelengths, and each chemical

element has an individual set, since it has its own individual set of lemniscate-shaped Möbius Dipoles and their corresponding vibration-frequency characteristics.

Because the stepwise fibrations of the original Möbius Monopole are carried out by the method of doubling the InfoGenome, the frequencies of all formed Dipoles will be multiple and, accordingly, this multiplicity is preserved in all vibration-frequency characteristics of the atom. An atomic Möbius Dipole not only radiates, but also absorbs at the same time, i.e. transports in a balanced way like an Archimedes screw. Based on this, the radius of the “electron” orbit does not change continuously, but remains stably constant and its spectrum is in full accordance with the observed patterns of atomic spectra, which are line.

Thus, in the application of the new atomic model, the indicated contradiction regarding the correspondence of the atomic model to line emission-absorption spectra is also resolved.

Based on the new dipole model of the atom and using the concepts of classical physics, it turned out to be possible to explain both the stability of atoms and the nature of atomic spectra.

Arguing over the Bohr-Rutherford atomic model, at one time the Polish physicist M. Gryzinsky concluded that such a model of the atom is “a mistake that greatly contributed to the cessation of work on the dynamic theory of the atom ... and modern physical Theory faces a global task of rethinking one's ideas about the atomic world and the world as a whole, with all the ensuing consequences”. [99]

The proposal by Rutherford of the planetary model of the atom was a certain step towards understanding the atomic structure, which in essence is planetary, i.e. micro-, macro- and mega-worlds are built in a fractal-like manner and the structure is based on the same General Structural Scheme and its basic Triplet of Interconnections. However, the idea of a planetary model of the atom based on particles has led to a certain kind of misconception and has had its consequences for the formation of subsequent theories, including the construction of the Standard Model, in which there is a sufficient set of contradictions. The introduction of postulates by N. Bohr into the planetary atomic model of E. Rutherford can be the same artificial investment as the introduction of crystal spheres by the mathematician Ptolemy to explain the geocentricity of the solar system, while Ptolemy brilliantly coped with the task, using a mathematical apparatus that can describe any model, but sometimes very far from reality.

Such a historical fact is a prime example of what can be achieved with the mathematical apparatus of algebra, even if the starting point in its application includes an error of judgment. The mathematical way of describing phenomena using algebra can create a number of virtual patterns that are either not observed in nature at all, or do not correspond to them, but at the same time are elegant and logical in themselves. Therefore, there must be an intermediary between the apparatus of algebra and reality, which helps to geometrize the representation and connect it with what is observed in reality.

“Geometry is that field of knowledge that is, as it were, between abstract (“pure”) mathematics and reality. She is the mediator who resolves the contradiction between knowledge and error. But if it is completely algebraic, then “such geometry takes a person beyond the limits of the spatial perception of concrete reality and immerses him in an abstract-virtual reality, in which literally everything is possible, including what is actually impossible.” [122]

10. PROPERTIES OF THE GEOMETRY OF THE MÖBIUS DIPOLE.

Let's return to the original structure of the Möbius Monopole (the simplest Möbius strip with one turn by 180 degrees), which is essentially the original Universal template and a single

vortex formation of a quantum medium, which is in the dynamics of helical radiation-absorption of energy quanta. This is a kind of quantum breathing of outer space, which is the essence of the process of Life at any level. Such initial templates, with their tight geometric fit, form a kind of quantum sub-micro-plasma liquid (quantum ether), which obeys the laws of hydrodynamics.

The simplest Möbius strip is a non-orientable surface. In the first phase of fibrillation and the formation of the Möbius Dipole, when the InfoGenome is doubled, the non-orientable Möbius construction is transformed into an orientable one, which has two geometric presentations.

The first one is a lemniscate-shaped Möbius Dipole in the shape of a figure eight with two arms balanced by gravitational interconnection and connected through the magneto-electric tensor CTB (Center of Tension and Balancing).

The second is the Möbius pseudo-ring (“Afghan” double ribbon).

Both presentations are the same phase of the development of the Möbius Monopole, however, depending on a number of factors, the Möbius Dipole can be in two states, which are orientable surfaces.



Möbius Dipole.



Geometric transformation.



Möbius pseudoring.

1. **The lemniscate Möbius Dipole** is active for interactions, since it has a bi-polarity as its shoulders are mirror asymmetric and play the role of opposite charges. Such Möbius Dipoles can interact with similar Dipoles of other atoms and form molecular chains, depending on their fibrillation rank.

2. **A double Möbius pseudoring** or “Afghan Ribbon” is a state of Möbius geometry, when the arms of the Möbius Dipole are embedded into each other and form a two-brane neutrality, which can be an illustration of the well-known in mathematics two-brane with chirality flip.

Taking into account the property of the Möbius Dipole to be in **two states** and applying this property of the new atomic model to the already existing terminology in the Bohr-Rutherford planetary model, it becomes obvious that the lemniscate-shaped Möbius Dipole can illustrate and geometrically describe the state of the “*proton-electron*” bond, and the Möbius pseudoring the same bond but in the state of “*neutron*”.

These states are those intra-atomic transformations that make it possible to increase and, accordingly, decrease the number of “*neutrons*” and “*protons-electrons*” under a certain influence, in which either energy is released and new matter appears, which were not observed before the experiment, or energy is absorbed, with the reverse transformation, in this case, the Möbius Dipole passes either from the state of “*neutron*” to the state of “*proton-electron*” or vice versa.

Based on the essence of this transformation, we can conclude that it is possible to select the type of matter on which it is necessary to produce a certain type of impact in order for the atom to give off energy through the co-directional radiation of the intra-material plasma or due to

the intra-atomic transformation – **CAT (Cold Atomic Transmutation)** without the presence of an uncontrolled explosive effect.

As it becomes clear, based on the proposed new wave model of the atom and through the properties of the Möbius Dipole, it is possible to obtain a fairly clear explanation of the phenomenon of CAT. The method of CAT is used by nature for its own needs, and the time has come to use this method of extracting atomic energy for the human community. CAT is comprehended at this stage of the development of science as a phenomenon, which, as it can be found in various sources, has not yet been explained, however, studies proving the occurrence of nuclear transmutations in biological systems deserve special attention:

- 1). In many experiments, heat release has been registered, which far exceeds heat release in chemical reactions;
- 2). In the process of CAT, matters that do not have radioactivity are predominantly formed.
- 3). During the CAT process, neutrons and electromagnetic radiation are emitted mainly in the X-ray range. However, the intensity of the emitted radiation is several orders of magnitude lower than in "ordinary" nuclear reactions.
- 4). CAT is characterized by the burst nature of the process and unpredictable changes in intensity.
- 5). In the process of CAT, "strange radiation" appears.

The process of intra atomic transformations of Dipoles, as well as their intraatomic fibrations, gives an explanation for the phenomenon of CAT.

If we apply these property of Möbius geometry to the Usherenko effect, discovered in 1974, then all the effects accompanying the experiment become quite understandable and explainable.

11. USHERENKO EFFECT. CONTROLLED METHOD FOR EXTRACTING ENERGY FROM ATOM.

At one time, the phenomenon observed in the Usherenko effect was classified as anomalous. To date, there are about 20 attempts at a theoretical explanation of the Usherenko effect, but they are quite contradictory. This effect can be explained with sufficient clarity based on the energy dynamics of Möbius Dipoles and their properties, applying aspects of the proposed wave model of the atomic structure, which makes it possible to understand with sufficient clarity where the allegedly anomalous amount of energy is released and new elements appear that were not present before the experiment.

The phenomenon is essentially not anomalous, but normal, if we consider it from the standpoint of the presence of co-directional radiation of intra-material plasma with a specific type of influence on a certain kind of matter used in the experiment, and those atomic transformations that were observed in this case. In his practical experiment, Usherenko managed to find a combination of just that kind of matter and the type of impact on it in order to obtain the release of atomic energy with a high coefficient at a fairly low cost for this.

“In 1974, the young Belarusian scientist Sergei Usherenko experimentally discovered the effect of ultra-deep penetration of finely dispersed solid micro-particles with a diameter of 1-1000 microns into solid metal barriers (targets) with anomalous energy release, $10^2 \dots 10^4$ times greater than the kinetic energy of the particle at the moment of its impact about an obstacle with a speed of about 1 km / s. The energy effect was estimated from the energy of burning a filamentous channel in the thickness of the target by a micro-particle. The length of the

filamentary channel in steel reached up to 200 mm and even more. Calculations showed that the kinetic energy of the particle is sufficient to penetrate the target to a depth of no more than 6-10 diameters of the particle itself.

The discovered effect **cannot be explained** from the positions of modern thermodynamics, electrodynamics, relativity theory and quantum theory, including quantum chromodynamics (QCD). **The source of the colossal energy in the Usherenko effect has not been established [1,2,3,4].**

The energy release in the target channel is estimated at $10^9 \dots 10^{10}$ J/kg per particle. This far exceeds the energy field related to chemical processes. In addition, according to Usherenko, spectral analyzes of sections and thin sections of channels formed by the occurrence of micro-particles in the thickness of targets made it possible to detect the appearance of new elements.

The targets subjected to bombardment of micro-particles in the mode of superdeep penetration also revealed the presence of radon gas, which was not originally present in the samples under study. The X-ray film installed in the target area turned out to be illuminated. In some experiments, the nature of the illumination turned out to be linear. This indicates that the phenomenon of ultra-deep penetration of micro-particles into barriers is associated with complex synthesizing and unexplored high-energy processes that are characteristic of the physics of elementary particles and the atomic nucleus.

There is no doubt that the Usherenko effect is the greatest fundamental discovery in the history of natural science, comparable to the discovery of the effect of electromagnetic induction by Faraday and radioactivity by Becquerel.

Usherenko used in his experiments rather cheap disposable explosive accelerators of the cumulative type. But the results obtained are unique. Such an effect is practically impossible to obtain even on super-powerful elementary particle accelerators. Undoubtedly, the fundamental aspect of Usherenko's discovery lies in the field of fundamentally new energy technologies, perhaps the main technologies for generating energy in the 21st century.

It is gratifying that micro-particles with sizes of 1-1000 microns of any solid materials can be used as fuel in nuclear reactors of a new type, including ordinary sand (silicon), the reserves of which in the earth's crust are disproportionately large compared to uranium reserves, and its extraction is not difficult. . To do this, micro-particles must be accelerated to a speed of about 1 km / s and hit a solid heat-releasing barrier (target)." [93]

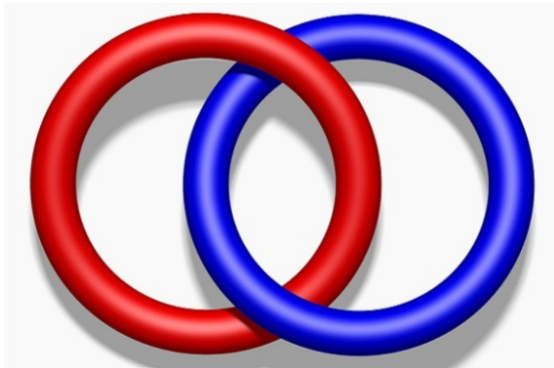
It should be especially emphasized that the type of matter that was affected in Usherenko's experiment was solid metal barriers (targets), and the type of impact was finely dispersed solid micro-particles of silica (silicon dioxide) with a diameter of 1-1000 microns, practically ordinary sand. If we recall the effect of the collision of two silicon stones, which is illustrated above, then it is in it that we observe sparks of the released intra-material plasma, i.e. Silicon gives off plasma quite easily on impact and metal is a good conductor of electricity.

Then the conclusion logically suggests itself that for metal targets, silica is an "ignition" mechanism, a kind of "candle", which, working from its internal atomic silicon "accumulator", ignites with its spark an intra-atomic "fuel", on which the energy-supplying quantum generator of target atoms operates.

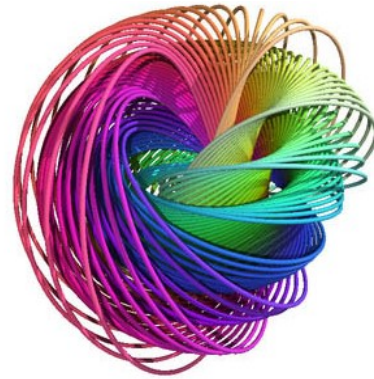
Such an analogy with the ignition process in an internal combustion engine of a car helps to understand both the Usherenko effect itself and the fact that it is the use of silica that opens up wide opportunities for extracting atomic plasma and transforming it as a new controlled method for obtaining energy from an atom.

12. HOPF FIBRATION AND FIBRATION OF THE MOBIUS ENERGY PACKAGE. THE ORIGINAL UNIVERSAL ELEMENT OF THE WORLD ORDER.

In mathematics, the simplest non-trivial "Hopf link" is known, which formed the basis of subsequent mathematical transformations. "Hopf link" as an abstract mathematical formation is the simplest non-trivial link with components linked once. Based on the "Hopf link", a topological structure known as the "Hopf fibration" is obtained. This structure was discovered in pure mathematics at the turn of the 1920s and 30s and has since been studied by mathematicians in the same way as the Maxwell equations in physics.



Hopf link



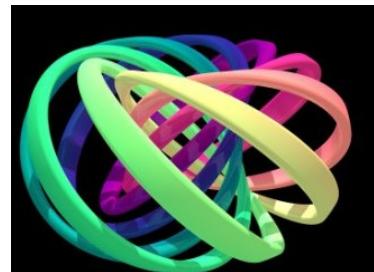
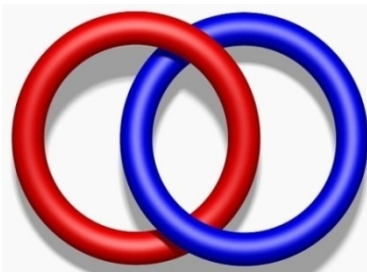
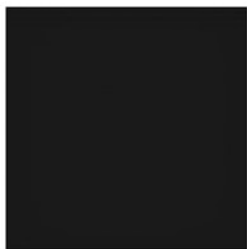
Hopf fibration

By 2020, "Hopf fibration" was most often mentioned in connection with the theory of solitons, where for stable wave phenomena with the properties of a quasiparticle and a specific topology of a three-dimensional knot, a separate class of objects appeared under the general name "Hopfions", that is, topological solitons having Hopf fibrillation structure.

There is an opinion in science that "Hopf fibration" could well be considered as an "element of the architecture of our world", in other words, the Universal Element of the Universe, which, as the practice of observations shows, is quite clearly detected at all scale levels of the Universe: micro-, macro-, and mega-.

Let us make a comparative characteristic of the results, obtained based on the Möbius Pattern as a geometric analog of the FPC and the phases of its fibrations, with the "Hopf fibration" structure, obtained in mathematics based on the "Hopf link".

"HOPF LINK" and "HOPF FIBRATION".

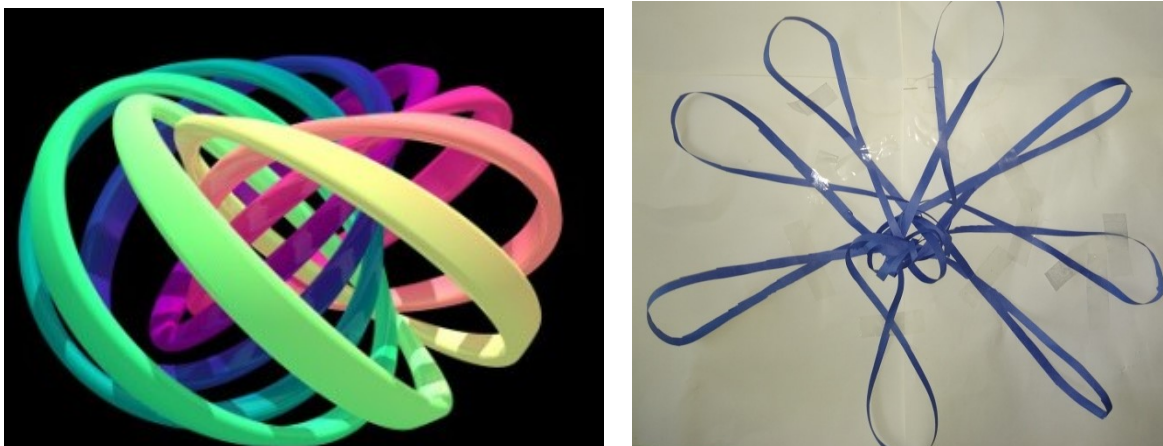


PHASES OF FIBRATION OF THE MOBIUS PATTERN.



To carry out a comparative characteristic, we use the Hopf fibration structure of eight links and a similar Quantum Link Interconnection of eight Möbius Dipoles.

The difference between each link of the "Hopf fibration" and the link of the Möbius fibration is that the link of the "Hopf fibration" is a purely abstract mathematical formation, and does not include the FPC aspect, which is observed everywhere in the nature, and, accordingly, does not reflect its Möbius Geometry either. In this regard, both a separate link of the "Hopf fibration", and its structure as a whole, do not illustrate and do not explain the Gravitational Interconnection, which is a natural consequence of the fibration process of a generative element and the actualization of which is illustrated in the first phase of the Möbius Monopole fibration process. In addition, the "Hopf link" does not explain the method of formation of the interconnection between two links of the simplest initial non-trivial knot, which can be compared with the Nature of things, while this is reflected in stages through the fibration phases of the Möbius Pattern, which is a geometric analog of the FPC.



Hopf fibration of 8 links and quantum coupling of 8 Möbius Dipoles.

It is the presence of the Universal Triplet of Fundamental Interconnections as a natural consequence of the fibration process of the Möbius type energy pattern (FPC) that creates that fundamental difference between the image of the fibration of the Möbius Monopole as a geometric analog of the physical generative granule of space-time based on the FPC and the illustration of the “Hopf fibration” as a reflection of the results of algebraic transformations based on the “Hopf link”.

The presence of Gravity in the micro-level has not yet been revealed with the help of the apparatus of algebra and so far it has not been possible to “squeeze” it into it, but its illustration can be obtained with the help of Möbius Geometry.

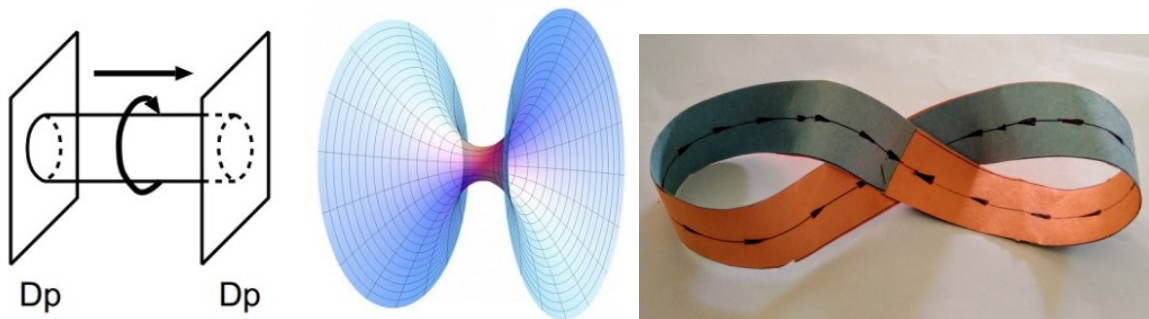
It should be emphasized that in mathematics in general and in mathematical physics in particular, it has long been established that a great many problems that are considered extremely difficult to solve or even generally unsolvable can be solved quite easily if one finds an equivalent description for them in another system. The same patterns, phenomena, etc. can be described using different tools. The same problem can be solved algebraically or geometrically.

In the author's monograph and, accordingly, in this work, the format of the general geometric schemes of the Möbius connection was chosen because the trend of algebraization in physics plunged theoretical thought into the virtual sphere of formulas that generate the next generations of virtual particles, and to some extent moved it away from natural interrelations and to they need to return on a new round of reasoning.

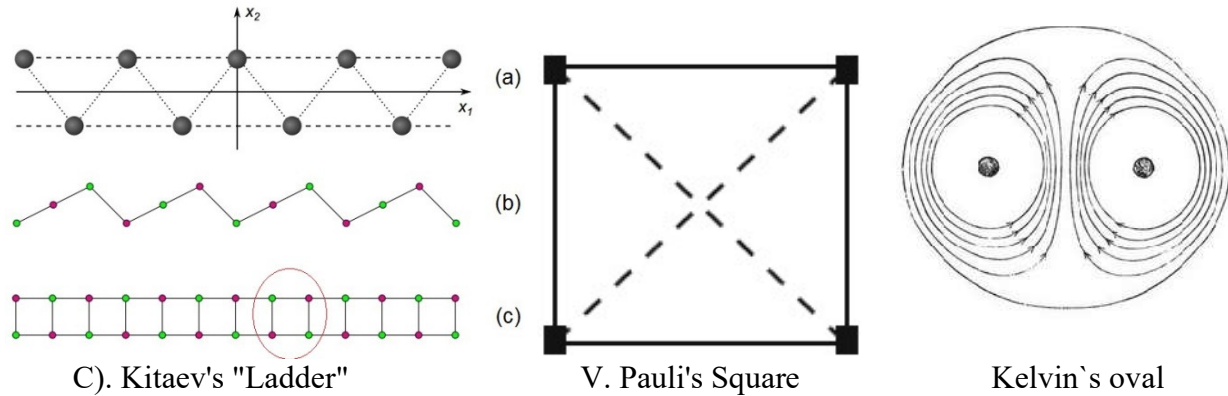
Geometry is the basis of figurative and model representation, and Möbius Geometry is the thread of Ariadna in matters of the World Order.

A number of illustrations are offered below, which are historically presented in theoretical and mathematical calculations in an attempt to display the structure of the initial element of the World Order or its elementary Unit. Drawing models: "Kelvin oval", "EPR bridge", "Horava-Witten scheme", "Hopf fibration", "Kitaev's ladder" contain a set of elements that can be connected on a common basis. It should be noted that all of them do not contain a fragment of the crossing of the Line of Curvature as an element of the first stage of development of the Möbius Configurativity, since the Universalism of the Möbius Geometry, although it had a number of conjectures in the science of thought in the past, was not considered with sufficient attention as an application for a number of reasons to real natural phenomena and structures.

The geometrical essence of the "bridge of ER (EPR)" looks like a short jumper tube connecting two parallel sheets of space. This geometry practically coincides with the drawing geometry of the "Horawa-Witten scheme".



Horava-Witten (XW) diagram for open and closed string duality. Einstein-Rosen Bridge (ER, EPR). Möbius Dipole.



As noted above, the "Pauli Square" contains a clue to the way of cross-connection, which belongs to the Geometry of the Möbius Dipole. In each of the drawing geometries of a number of authors proposed above, a certain facet is reflected. You can put these faces together on the basis of Möbius Geometry.

Description and illustration of the Natural Generator of Reality with the help of Möbius Geometry and actions with it demonstrate the fact of how the Fundamental Interconnections – Complementary, Gravitational Interconnection and Quantum Entanglement mediate the process of development of Natural Formations and what place they occupy in the formation of structures, regardless of the fractal level: micro-, macro-, and mega-.

It should be specified and emphasized that forces are manifested in interactions, and interactions are due to Interconnections. Based on this logic, the author's monograph concludes that the creation of a Unified Theory of Everything must be started not "from the tail" and squeezing into one harness the currently known forces or interactions, but "from the head", i.e. **initial Interconnections** that determine **interactions** and **forces** in them. And it is in Interconnections that the source of Energy is sealed.

And it should also be noted once again that the forces that connect the components of system formation do not come from outside to collect its Parts into one Whole. Forces are the result and derivative of the formed Interconnections, which are manifested in the process of multiplication and generation from the inside and are intended to hold and streamline the generated parts that make up the structure of One Whole.

"Natural scientific theory is a generalization of the results of concrete practice. The fundamental nature of the theory is due to the degree of penetration into the secrets of nature. Ultimately, it is not man who imposes his ideas about nature on nature, but nature reveals its secrets to inquisitive researchers. The fundamental nature of a theory is determined not by the bulkiness of its mathematical apparatus, but by the degree of connection with materialistic philosophy and proximity to the boundaries of the knowable". Kuligin V.A.

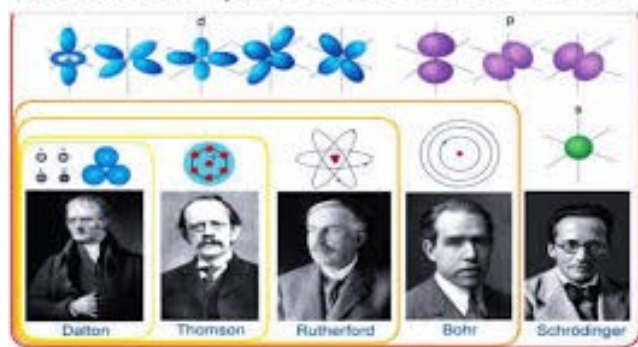
The proposed new wave Model of atom eliminates the contradictions of the previous Bohr-Rutherford model and can give not only an influx of fresh thoughts, but also completely reformat the views of both theoretical and practical physics, as well as fill in the gaps with those missing links and elements that were not enough to create a complete and clear picture of the structure of the atom. Also, on the basis of the new model, clearer interpretations of the phenomena listed as anomalous can be given, since they were inexplicable on the basis of the Bohr-Rutherford model.

13. CONCLUSION.

Conclusion. In the history of the development of a figurative representation of the atomic structure, the following **basic models of the structure of the atom** were proposed, which are shown in the illustration below on the left; on the right – the proposed wave model of the atom based on Möbius Dipoles.

As possible to see, on the historical path of development, the figurative pictures of Atomic models and their geometry are different and have significant differences. But, interestingly, for each of them, there is a chain of reasoning and the corresponding reinforcing formulas of the mathematical apparatus. Each image can be translated into the language of exact algebra. And with the help of this language, an appropriate interpretation of the results obtained, for example, experiments at colliders, which in their essence are not a fact of direct observation of those occurring phenomena that are artificially created and not present in nature, can be derived.

Evolution of Atoms 400BC - 2020



Atomic models



New Atomic model based on Möbius Dipoles

As for the wave model of the atom based on Möbius Dipoles, it should be emphasized that it has an ontological basis of the Fundamental Principle of Complementarity (FPC), which is observed in nature everywhere at the level of all cosmos. The new model eliminates the contradictions of the previous one and gives fairly clear explanations of the nature of phenomena, resolving intractable theoretical issues.

With the help of the Möbius geometric analogue of the FPC, one can understand not only the energy dynamics of the atom, but also the Uniformity of the structure of the Universe as UNI-VERSE – ONE UNIFIED TORSION. Solitons, oscillons, torsions, hopfions, tachyons, photons, gravitons, fermions, electrons, protons discovered by science... and under the general name anyones are wave modifications of ONE Initial Principle – FPC and its Geometry in its various natural manifestations. Thus, the Universe is a unified oscillatory system from the microcosm to the macro- and mega-, organized by a hierarchy of memory structures based on the Universal Binary Coding and according to ONE typological and topological pattern of the two-cycle Möbius torsion – UNI-VERSE.

Despite the extreme SIMPLICITY of its Geometric Construction, the Möbius connection has the same packed POTENTIAL as the Universal binary code, the potential of which is revealed in the experience of technologies using binary coding. Binary coding is based on the Principle of Complementarity, therefore FPC is the author of both the Universal Binary Code

and the Möbius geometry. Proceeding from this, just as with the help of binary coding it is possible to create and transmit information blocks that can encode EVERYTHING and expand it on a computer display, by the same analogy, with the help of a binary volumetric Mobius Pattern, the observable Universe is arranged and unfolds on the fractal-holographic Display of Existence. This generative generator of reality is the basis on which the Unified Theory of Everything can be created.

A. Einstein intuitively felt the essence of the basic principle of natural constructions and expressed the idea that: “The highest task of a physicist is the search for such extremely **universal laws** ... from which, with the help of pure deduction, one can get a picture of the world. **There is no logical path leading to such... laws.**

They can only be obtained with the help of intuition based on a phenomenon similar to intellectual love for objects of experience”. Speech on the occasion of the sixtieth birthday of M. Planck (1918).

The description of the atomic structure and the phenomenon of intra-material plasma as an essence in the structure of matter, as well as its various manifestations, is proposed in the author's monograph and subsequent articles as a category of a priori knowledge obtained with the help of intuition and consistently developed based on the latest scientific achievements and theoretical views.

14. THE SIMPLICITY OF NATURAL GENIUS.

“Today, a fundamentally new, revolutionary methodology is needed ... We think that **two provisions** should be taken as the basis for such searches. The **first position** is that nature is arranged not simply, but **ingeniously simple**. The challenge is to understand this simplicity. The **second position** is nature, **the universe has only one single law**, one principle of its existence ... The basics of research should be obvious, simple, and accepted without proof, there should be few of them”. [Sokolov Yu.N. "The cycle as the basis of the universe"]

"... nature is the realization of the simplest mathematical elements."

Nobel Prize winner **A. Einstein**

"It would be ideal to summarize all laws in a single Law, a universal formula."

Nobel Prize winner **M. Born**

"It would be truly a miracle to discover the common foundations of all sciences."

Nobel Prize winner **I.R.Prigozhin**

"Everything should be based on simple ideas. As soon as we come to this discovery, it will seem so beautiful, so unique to us, that we will say to each other: "Could it have been really different before ?!"

John Wheeler is a physicist.

"The fractal view of the universe implies that everything - from a single atom to the entire cosmos - is formed from several natural patterns or patterns."

Gregg Braden is a scientist and researcher.

“The experience of thousands of years of knowledge of reality teaches us to look for this or that truth in the hidden principle of its natural simplicity.”

Pyotr Sergienko is the author of the harmonious principles of fractal metageometry.

“There is only one law in the world or at least a limited group of primary laws that “work” at any of the levels, although the form of their implementation varies from level to level”

Bondarenko O.Ya.

“But there is a fundamental process that is the same for all levels of being. His interpretation has found its private reflection in the world's esoteric schools. This process has been known since time immemorial and is described in various ways in the ancient manuscripts”.

S.I. Yakushko is a chemist and researcher.

“The laws of nature cannot be not only accidental but, on the contrary, must be expressed by expediency through a small set of typical initial principles. Everything complex is not needed by nature, but everything necessary is simple and therefore brilliant, as many wise people note”.

Petrov N.V. - Academician.

“If there is the same characteristic feature in all things, then it follows that one simple set of laws applies to the whole variety of manifestation. Moreover, any impulse communicated to the Macrocosm (or the Majority) is ultimately transmitted to all the Microcosms dependent on that Macrocosm.”

Manly P. Hall - writer, philosopher.

From the ancient source of the **Rig Veda**:

"All things exist because 'the one manifests itself in many.'"

In the time of **Parmenides**: *"Being is one", "As above, so below", and "The same is thought and that about which thought exists."*

"The whole world is subject to one law." Marcus Aurelius

"Life and the entire universe are engaged in a 'sacred dance' with its foundation." - Irwin Laszlo is a philosopher.

"It is possible to correctly interpret the complex if the simple underlying the complex is known".

Kulak L.A. (pseudonym - Antoniya Ilyinskaya).

LIST OF REFERANCES.

For this article, literature is given, which is selected from the full list attached to the author's monograph "Substance. Atom. Theory of Everything".

1. Charlotte Gils, Simon Trebst, Alexei Kitaev et al. "Topology driven quantum phase transitions in time-reversal invariant anyonic quantum liquids", Nature Physics 5, 834 (2009). [[arXiv:0906.1579](#)]
2. Juan Maldacena and Leonard Susskind. "Cool horizons for entangled black holes", [[arXiv:1306.0533](#)]
3. Y. Couder, E. Fort, C. Gautier, and A. Boudaoud, "From bouncing to floating: Non-coalescence of drops on a fluid bath," Phys. Rev. Lett. 94, 177801 (2005).
4. Couder Y, Protière S, Fort E, Boudaoud A. "Dynamical phenomena: Walking and orbiting droplets". Nature 437:208.(2005).
5. Oskar Klein, "The Atomicity of Electricity as a Quantum Theory Law", Nature 118 (1926) 516
6. M.F. Atiyah, "The Dirac Equation and Geometry", in "Dirac. The Man and His Work", 1998.
7. Hermann Weyl, "The Theory of Groups and Quantum Mechanics", pp. 263-4 and preface, Dover, NewYork.
8. P. Horava, E. Witten, Nucl. Phys. B 460, 506 (1996), arXiv:hep-th/9510209
9. Jiannis K. Pachos, Agapitos Hatzinikitas, and Michael Stone, "Zero modes of various graphene configurations from the index theorem", Eur. Phys. J. 148, 127 (2007), [[arXiv:quant-ph/0701203](#)]
10. Russell, "Report on Waves", XIVth meeting of the British Association for the Advancement of Science, York, September 1844 (London 1845), pp. 311-390
11. A. Kitaev, "A Simple Model Of Quantum Holography", talks at KITP, April 7, 2015 (<http://online.kitp.ucsb.edu/online/entangled15/kitaev/>) and May 27, 2015
12. Majorana, E. "Teoria simmetrica dell'elettrone e del positrone", Nuovo Cimento, 1937, v.5, pp. 171-184
13. Frank Wilczek, "Majorana returns", Nature Physics 5, 614 – 618 (September 2009)
14. Mark van Raamsdonk, "Building up spacetime with quantum entanglement", Gen. Rel. Grav. 42, 2323 (2010)), [[arXiv:1005.3035](#)]
15. Roger Penrose, "The Road to Reality. A Complete Guide to the Laws of the Universe", J.Cape (2004).
16. A.Yu. Kitaev, "Fault-tolerant quantum computation by anyons", Annals Phys. 303 (2003) 2-30, [[arXiv:quantph/9707021](#)]
17. Richard P. Feynman, Albert R. Hibbs, "Quantum mechanics and path integrals".
18. Joseph Polchinski and Vladimir Rosenhaus, "The Spectrum in the Sachdev-Ye-Kitaev Model", [[arXiv:1601.06768 \[hep-th\] 25 Jan 2016](#)].
19. Vadim Kaplunovsky, Dmitry Melnikov, Jacob Sonnenschein, "Holographic Baryons and Instanton Crystals", [[arXiv:1501.04655 \[hep-th\] 19 Jan 2015](#)]
20. Juan Maldacena and Douglas Stanford, "Comments on the Sachdev-Ye-Kitaev model", [[arXiv:1604.07818 \[hep-th\] 26 Apr 2016](#)]
21. Antal Jevicki, Kenta Suzuki, Junggi Yoon. "Bi-Local Holography in the SYK Model". [[ArXiv:1603.06246 \[hep-th\] 20 Mar 2016](#)]

22. J. M. Leinaas and J. Myrheim, “*On the Theory of Identical Particles*”, *Nuovo Cimento* 37B, 1-23 (1977)
23. F. Wilczek, “*Magnetic Flux, Angular Momentum, and Statistics*”, *Phys. Rev. Lett.* 48, 1144 (1982)
24. D. C. Tsui, H. L. Stoermer, and A. C. Gossard, “*Two-Dimensional Magnetotransport in the Extreme Quantum Limit*”, *Phys. Rev. Lett.* 48, 1559, May 1982
25. R. B. Laughlin, “*Anomalous Quantum Hall Effect: An Incompressible Quantum Fluid with Fractionally Charged Excitations*”, *Phys. Rev. Lett.* 50, 1395, May 1983
26. F. E. Camino, Wei Zhou, and V. J. Goldman. “*Realization of a Laughlin Quasiparticle Interferometer: Observation of Fractional Statistics*”. *Phys. Rev. B* 72, 075342 (August 2005) ;
27. Eun-Ah Kim, M. Lawler, S. Vishveshwara, and E. Fradkin. “*Signatures of Fractional Statistics in Noise Experiments in Quantum Hall Fluids*”, *Phys. Rev. Lett.* 95, 176402 (October 2005)
28. J. P. Kossin and WH Schubert, “*Mesovortices in Hurricane Isabel*”, *Bulletin of the American Meteorological Society*, February 2004, pp 151-153
29. R. Hide, “*Geomagnetism, ‘vacillation’, atmospheric predictability and ‘deterministic chaos’*”, *Pontifical Academy of Sciences Acta*, 18, 257-274, 2006
30. A. Kitaev, “*Anyons in an exactly solved model and beyond*”, *Ann. Phys.*321(1), 2–111 (2006)
31. Einstein A. *Letter to Carl Seelig*, February 19, 1955. Quoted in the book *Abraham Pais, “Subtle is the Lord: the science and the life of Albert Einstein”*, Oxford University Press, 2005.
32. S. Sachdev and J. Ye, “*Gapless spin-fluid ground state in a random quantum Heisenberg magnet*”, *Phys. Rev. Lett.* 70 (May, 1993) 3339-3342.
33. J. Maldacena, “*Eternal black holes in anti-de Sitter*” [[arXiv:hep-th/0106112](#)]
34. P. Horava and E. Witten, “*Heterotic and Type I String Dynamics from Eleven Dimensions*”, [[arXiv:hep-th/9510209](#)]
35. P. Horava and E. Witten, “*Eleven-Dimensional Supergravity on a Manifold with Boundary*”, [[arXiv:hep-th/9603142](#)].
36. J. Polchinski, L. Thorlacius. “*Free Fermion Representation of a Boundary Conformal Field Theory*”, [[arXiv:hep-th/9404008](#)].
37. S. Sachdev and J. Ye, “*Gapless spin-fluid ground state in a random quantum Heisenberg magnet*”, [[arXiv:cond-mat/9212030](#)]
38. Edward Witten, “*An SYK-Like Model Without Disorder*”, [[arXiv:1610.09758](#)]
39. W.Fu, D.Gaiotto, J.Maldacena, S.Sachdev, “*Supersymmetric SYK models*”, [[arXiv:1610.08917](#)].
40. Banchoff, Thomas F. (1990). “*Beyond the Third Dimension*”. Scientific American Library
41. Wheeler J.A. (1998) “*Geons, Black Holes & Quantum Foam: A Life in Physics*”. New York, W.W. Norton & Company, pp. 63-64.
Feynman R P (1982) “*Simulating physics with computers*”, *Int. J. Theor. Phys.* 21 467-488 ;
42. Feynman R P (1986) “*Quantum mechanical computers*”, *Found. Phys.* 16 507-531.
43. Deutsch D (1985) “*Quantum theory, the Church-Turing principle and the universal quantum computer*”, *Proc.Roy. Soc. Lond. A* 400 97-117

44. G. 't Hooft, «*Dimensional reduction in quantum gravity*,» in “*Conference on Particle and Condensed Matter Physics (Salamfest)*”, edited by A. Ali, J. Ellis, and S. Randjbar-Daemi (World Scientific, Singapore, 1993) [[arXiv:gr-qc/9310026](#)].
45. Jacob D. Bekenstein, “*Information in the Holographic Universe*”, Scientific American, August 2003 [<http://www.modcos.com/articles.php?id=61>]
46. L. Susskind, “*The World As A Hologram*”, J. Math. Phys. 36, 6377 (1995) [[arXiv:hep-th/0203101](#)].
47. R. Bousso, “*The holographic principle*”, Rev. Mod. Phys. 74, 825 (2002), [[arXiv:hep-th/0203101](#)]
48. Juan Maldacena, “*The Illusion of Gravity*”, Scientific American, November 2005. [<http://elementy.ru/lib/430191>]
49. Edward Witten, “*Anti-de Sitter Space and Holography*”. Advances in Theoretical and Mathematical Physics, Vol. 2, pages 253–291; 1998 [[arXiv:hep-th/9802150](#)].
50. A. Einstein, B. Podolsky and N. Rosen, “*Can quantum mechanical description of physical reality be considered complete?*” Phys. Rev. 47, 777 (1935).
51. A. Einstein and N. Rosen, “*The Particle Problem in the General Theory of Relativity*”. Phys. Rev. 48, 73 (1935).
52. B. Swingle, “*Entanglement Renormalization and Holography*”, <http://arxiv.org/abs/0905.1317>
53. Kristan Jensen and Andreas Karch. “*Holographic Dual of an Einstein-Podolsky-Rosen Pair has a Wormhole*”, Phys. Rev. Lett. 111, 211602 (2013), <http://arxiv.org/abs/1307.1132>
54. Julian Sonner. “*Holographic Schwinger Effect and the Geometry of Entanglement*”, Phys. Rev. Lett. 111, 211603 (2013), <http://arxiv.org/abs/1307.6850>
55. Kachru, E. Silverstein. “*Chirality Changing Phase Transitions in 4d String Vacua*”, 25 Apr 1997 [[arXiv:hep-th/9704185](#)].
56. Gabriel Molina-Terriza, Jaume Recolons, Juan P. Torres, Lluís Torner, and Ewan M. Wright “*Observation of the Dynamical Inversion of the Topological Charge of an Optical Vortex*”, Physical Review Letters, vol 87, 023902 (Issue 2 – June 2001)
57. A. Adams, X. Liu, J. McGreevy, A. Saltman, E. Silverstein. “*Things Fall Apart: Topology Change from Winding Tachyons*”. JHEP 0510, 033 (2005) [[arXiv:hep-th/0502021](#)].
58. Geoff S. Baldwin, Nicholas J. Brooks, Rebecca E. Robson, Aaron Wynveen, Arach Goldar, Sergey Leikin, John M. Seddon, and Alexei A. Kornyshev. “*DNA Double Helices Recognize Mutual Sequence Homology in a Protein Free Environment*”, Journal of Physical Chemistry B, 23 January 2008.
59. Mark Morris, Keven Uchida, Tuan Do “*A magnetic torsional wave near the Galactic centre traced by a ‘double helix’ nebula*”, Nature 440, 308-310 (16 March 2006)
60. V N Tsytovich, G E Morfill, V E Fortov, N G Gusein-Zade, B A Klumov and S V Vladimirov. “*From plasma crystals and helical structures towards inorganic living matter*”, New Journal of Physics 9 (2007) 263 ;
61. V.N. Tsytovich, “*Development of physical ideas about the interaction of plasma flows and electrostatic fields in dusty plasma*”, Uspekhi fizicheskikh nauk, vol. 177, no. 4, April 2007. (В.Н.Цытович, “*Развитие физических представлений о взаимодействии плазменных потоков и электростатических полей в пылевой плазме*”, Успехи физических наук, том 177, № 4, апрель 2007).

62. Tiberiu Barbat, Nasser Ashgriz, Ching-Shi Liu “*Dynamics of Two Interactive Bubbles in An Acoustic Field*”, Journal of Fluid Mechanics (1999), 389: 137-168 Cambridge University Press
63. D. Felipe Gaitan, Lawrence A. Crum, Charles C. Church, and Ronald A. Roy. “*Sonoluminescence and bubble dynamics for a single, stable, cavitation bubble*”, Journal of the Acoustical Society of America, June 1992, Volume 91, Issue 6, pp. 3166-3183
64. Moran M.J., Haigh R.E. et al. “*Direct observations of single sonoluminescence pulses*”, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, Volume 96, Number 3, May 1995 , pp. 651-656(6)
65. J.D. Cheeke. “*Single-bubble sonoluminescence: bubble, bubble toil and trouble*”. Canadian Journal of Physics, Volume 75, Number 2, February 1997
66. Claudia Eberlein, “*Sonoluminescence as quantum vacuum radiation*”, Phys. Rev. Lett. 76, 3842 (1996) [[arXiv:quant-ph/9506023](#)]; “*Theory of quantum radiation observed as sonoluminescence*”, Phys. Rev. A 53, 2772 (1996) [[arXiv:quant-ph/9506024](#)].
67. M. Levin, Xiao-Gang Wen, “*Fermions, strings, and gauge fields in lattice spin models*”, Phys.Rev. B 67, 245316 (2003) [[arXiv:cond-mat/0302460](#)].
68. M. Levin, Xiao-Gang Wen, “*String-net condensation: A physical mechanism for topological phases*”, Phys. Rev. B 71, 045110 (2005) [[arXiv:cond-mat/0404617](#)].
69. M. Levin, Xiao-Gang Wen, “*Photons and electrons as emergent phenomena*”, Rev. Mod. Phys. 77, 871-879 (2005) [[arXiv:cond-mat/0407140](#)].
70. M. Levin, Xiao-Gang Wen, “*Quantum ether: Photons and electrons from a rotor model*”, Phys.Rev.B73:035122 (2006) [[arXiv:hep-th/0507118](#)].
71. “Carl Anton Bjerknes: Sein Leben und Seine Arbeit” von Dr. V.B. Bjerknes, Springer Verlag 1933.
72. Umbanhowar P. M., Melo F., and Swinney H. L., “*Localized excitations in a vertically vibrated granular layer*”, Nature 382 (1996): 793.
73. D. S. Hall, M. W. Ray, K. Tiurev, E. Ruokokoski, A. H. Gheorghe, and M. Mottonen “*Tying Quantum Knots*” [[arXiv:1512.08981](#), 30 Dec 2015]
74. H.K. Urbantke. “*The Hopf fibration – seven times in physics*”, Journal of Geometry and Physics 46 (2003) 125–150
75. W. T. Irvine and D. Bouwmeester, “*Linked and knotted beams of light*”, Nature Physics, vol 4., 716-720 (2008)
76. M. Atiyah, “*Geometry, topology and physics*”, Q. J. Roy. Astron. Soc. 29, 287-299 (1988), p 287.
77. M. Atiyah, “*The Geometry and Physics of Knots*”, Cambridge Univ. Press, 1990.
78. A. F. Ranada and A. Tiemblo. “*A Topological Structure in the Set of Classical Free Radiation Electromagnetic Fields*”. [[arXiv:1407.8145v1](#) [[physics.class-ph](#)] 29 Jul 2014
79. B. Julsgaard, A. Kozhkin, and E. S. Polzik, “*Experimental long-lived entanglement of two macroscopic objects*”, Nature 413, 400 (2001)
80. Richard K.Guy, Frank Harary. “*On the Möbius ladders*”. Canad. Math. Bull. 10: 493-496 (1967)
81. Richard L. Davis, “*Non-Inductive Electrical Resistor*”, US Patent # 3 267 406, August 16, 1966
82. George Forbes, “*Hydrodynamic Analogies to Electricity and Magnetism*”, Nature, 15 August 1881

83. Pauli to von Franz, 30 Okt. 1953 [appendix to 1667], PLC IV/2; Pauli to Jung, 7 Nov. 1948 [35P], PJJ; Pauli to von Franz, 12 Nov. 1953, [1672], PLC IV/2.
84. Peter W. Higgs. “*Broken Symmetries and the Masses of Gauge Bosons*”, Physical Review Letters 13: 508-509. (1964)
85. F. Englert and R. Brout, “*Broken Symmetry and the Mass of Gauge Vector Mesons*”, Physical Review Letters 13: 321-323. (1964)
86. Guralnik G.S., Hagen C.R., and T. W. B. Kibble, “*Global Conservation Laws and Massless Particles*”, Physical Review Letters 13: 585-587. (1964)
87. Littlewood P.B. and Varma C.M. “*Gauge-Invariant Theory of the Dynamical Interaction of Charge Density Waves and Superconductivity*”, Phys. Rev. Lett. 47, 811–814 (1981)
88. Goudsmit S.A., “*Die Entdeckung des Elektronenspins*”, Phys. Blatter 21, 445 (1965).
89. Paul G. Kwiat, Klaus Mattle, Harald Weinfurter, Anton Zeilinger, Alexander V. Sergienko and Yanhua Shih “*New High-Intensity Source of Polarization-Entangled Photon Pairs*”, Phys. Rev. Lett. 75, 4337 — 4341 (Issue 24 — December 1995)
90. Yuri D. Ivanov¹, Tatyana O. Pleshakova¹, Ivan D. Shumov¹, Andrey F. Kozlov¹, Irina A. Ivanova¹, Anastasia A. Valueva¹, Vadim Yu. Tatur², Mikhail V. Smelov², Nina D. Ivanova³ & Vadim S. Ziborov^{1,4}, “*AFM Imaging of Protein Aggregation in Studying the Impact of Knotted Electromagnetic Field on A Peroxidase*”, www.nature.com/scientificreports/ Scientific Reports | (2020) 10:9022 | <https://doi.org/10.1038/s41598-020-65888-z>
91. Jennifer Lin, Matilde Marcolli, Hiroshi Ooguri, and Bogdan Stoica Phys. Rev. Lett. 114, 221601 – Published 2 June 2015
92. Belyaev M.I. "Unified Periodic System of Chemical Elements"]. <https://pubhtml5.com/bookcase/nhro>
93. Leonov V.S. "Cold fusion in the Usherenko effect and its application in the energy sector" ego-primenenie-v-energetike.html
94. Kireev K.V., It is logical to consider photons as the basis of the universe - 2 // "Academy of Trinitarism", M., El No. 77-6567, publ. 26772, 09.11.2020
95. Krivitsky V.A. “The paradoxes of transmutation and the development of the earth. Non-obvious evidence. M.: Research Center "Akademika", 2016. - 239 p.
96. Mikernikov N. G. "Ether of the Universe and modern natural science", Moscow, Amrita-Rus, 2009. - 272 p.
97. Yakushko S.I. "How are atoms formed and what is a nucleus?" // "Academy of Trinitarism", M., El No. 77-6567, publ. 24849, 10/13/2018
98. Yakushko S.I., Fundamental code of Nature. Volume 1 // "Academy of Trinitarism", M., El No. 77-6567, publ. 24665, 07/28/2018
99. Gryzinsky M. "On the nature of the atom" // Search for mathematical laws of the Universe: physical ideas, approaches, concepts
100. Isaev P.S. "Some Problems of Elementary Particle Physics in the High-Energy Region". <https://iphras.ru/page51873363.htm> Philosophy of Science, issue 7.
101. Rubashkin V.Sh. "Particle Physics - Logical-Philosophical Commentary", http://vphil.ru/index.php?option=com_content&task=view&id=1161&Itemid=52
102. Akhkozov Yu.L. "The physical form of the quantum phenomenon" // "Academy of Trinitarism", M., El No. 77-6567, publ. 19643, 08.10.2014 <http://www.trinitas.ru/rus/002/a0202010.htm>

103. Karpenko I.A. "Philosophical interpretation of modern approaches to the creation of a quantum theory of gravity", National Research University "Higher School of Economics", Russian Federation. Candidate of Philosophy, Associate Professor.
104. Fedosin S.G. "Problems of Fundamental Physics and Possible Ways to Solve Them", Consciousness and Physical Reality v.9, 2004.
105. Gindikina S.G. "Tvistor", http://femto.com.ua/articles/part_2/3988.html
106. "What are twistors and how do they create the world?" <https://futurist.ru/articles/1246-vot-nakrutili-chto-takoe-tvistori-i-kak-oni-sozdayut-mir>
107. Kazakov Dmitry, "Unsolved problems in elementary particle physics", <https://postnauka.ru/video/47955>
108. Results of research using the Atomic Force Microscope https://elementy.ru/nauchnopolulyarnaya_biblioteka/433604/Vzglyani_na_atomy_prikosnis_k_molekule
109. "Phase portraits, or what can be learned about the differential equation without solving it." <https://habr.com/ru/post/268507/>
110. "Background system-wide pattern or background principle", <http://www.market-journal.com/voprosiupravleniya/28.html>
111. Prangishvili I.V., Garyaev P.P., Tertysny G.G., Leonova-Garyaeva E.A., Mologin A.V., "Genetic structures as a source and receiver of holographic information" // "Academy of Trinitarianism", M., El No. 77-6567, publ. 13305, 12.05.2006
112. Yukhimets A.K. "A new approach to electromagnetic phenomena", <http://new-idea.kulichki.net/pubfiles/090417151036.pdf>
113. Etkin A.G. "Emergent Theory of Gravity", <http://etkin.iri-as.org/>
114. Etkin V.A. "The Bipolar Law of Gravity", <http://etkin.iri-as.org/>
115. Etkin V.A. "On the unified nature of all interactions", <http://etkin.iri-as.org/>
116. Petrov N.V. Vitacosmology, Beresta Publishing House, St. Petersburg, 2013
117. Petrov N.V. "Living Space", Beresta Publishing House, St. Petersburg, 2011
118. Tatur V.Yu., Substance-Matter-Thinking // "Academy of Trinitarianism", M., El No. 77-6567, publ. 24520, 05/26/2018
119. Tatur V.Yu., Harmony as the principle of the existence of the Whole // "Academy of Trinitarianism", M., El No. 77-6567, publ. 10167, 23.12.2002
120. Bugaev A.F., "Notes on string theory: topological modeling of quantum reality" // "Academy of Trinitarianism", M., El No. 77-6567, publ. 18277, 26.10.2013
121. Bugaev A.F. "Topological modeling of reality" // "Academy of Trinitarianism", M., El No. 77-6567, publ. 18258, 10/17/2013
122. Sergienko P.Ya. "Metageometry of a Harmonious World Order", LAP Lambert Academic Publishing, 2015
123. Sergienko P.Ya., "Generative model" of the Universe // "Academy of Trinitarianism", M., El No. 77-6567, publ. 27355, 07.10.2021
124. Sergienko P.Ya., Say a word about the formula for the magnetic moment of an electron // "Academy of Trinitarianism", M., El No. 77-6567, publ. 27049, 03/22/2021
125. Pakulin V. "The structure of matter. Vortex model of the microcosm." <http://spkurdyumov.ru/uploads/2013/08/pakulin.pdf>
126. Klenitsky D.V. "Physics. Structure and properties of matter", Minsk, 2019 (texts of lectures for students of engineering and technical specialties).

127. Feynman R. Feynman lectures on physics: in 10 volumes / R. Feynman, R. Leighton, M. Sands. - Moscow: Mir, 1966. - T. 5-7. – S. 715-837
128. Kuligin V.A. "Materialistic theory of knowledge of scientific truth" (textbook for physicists), May 2018.
129. Kuligin V.A. Mathematical blunders in physical concepts Voronezh: Quarta, 2021. - 420
130. Parkhomov "Cold transmutation of nuclei",
<http://www.trinitas.ru/rus/doc/0016/001f/00163774.htm>
131. Smelov M.V. "Practical application of electromagnetic vacuum solitons". Institute of Noospheric Natural Science. Moscow 2001,
<http://www.trinitas.ru/rus/doc/0202/007a/02020003.pdf>
132. Mandelbrot Benoit, "The Fractal Geometry of Nature",
<https://coollib.net/b/423957-benua-mandelbrot-fraktalnaya-geometriya-prirody/read>
133. Shipov G.I. "The physical field that physicists missed." // "Academy of Trinitarism", M., El No. 77-6567, publ. 22656, 10/26/2016
134. Shipov G.I. "The quantum mechanics that Einstein dreamed of". // "Academy of Trinitarism", M., El No. 77-6567, publ. 27232, 07/09/2021
135. Shipov G.I. "Physical vacuum - the paradigm of science of the XXI century". // "Academy of Trinitarism", M., El No. 77-6567, publ. 26851, 25
136. Shipov G.I. «Theory of Physical Vacuum. Main theoretical and experimental.results» 19.10.21 <https://www.youtube.com/watch?v=Cbg6iWUOud0>
137. Shipov G.I. "Theory of physical vacuum", Moscow, "Nauka", 1997
138. Antoniya Ilyinskaya (Kulak L.A.), "Substance. Atom. The Theory of Everything", monograph, Altaspera Publishing & Literary Agency, Toronto, Canada, January 2020
139. Antoniya Ilyinskaya (Kulak L.A.), "Möbius Typology and Theory of Everything", New Physics, Altaspera Publishing & Literary Agency, Toronto, Canada, January 2020
140. Kulak L.A. (Ilyinskaya A.), "Physical point of space – the starting point for building a theory of everything", report at the IIS conference "Theory of Everything", June 6, 2022 Israel, Haifa. <https://www.youtube.com/watch?v=4lkMuUeDuzQ>
141. Kulak L.A. (Ilyinskaya A.), "From ether, gravity and quantum cohesion to the atom", report at the IIS conference "Aether and Gravity", February 6, 2022, Israel, Haifa. <https://www.youtube.com/watch?v=fX9uChn63WY>
142. Kulak L.A. (Ilyinskaya A.), Intra-atomic nature (physics). A new model of the atom // "Academy of Trinitarism", M., El No. 77-6567, publ. 27822, 04.29.2022
143. Kulak L.A. (Ilyinskaya A.), Hopf Fibration and Mobius Energy Pattern Fibration. Energy dynamics of the atom based on the Möbius dipole. Physics issues in the applications of the new atomic model // "Academy of Trinitarism", M., El No. 77-6567, publ. 27501, 12/28/2021
144. Kulak L.A. (Ilyinskaya A.), Fibration of the Mobius energy pattern and Hopf's fibration // "Academy of Trinitarism", M., El No. 77-6567, publ. 27298, 08.23.2021
145. Kulak L.A. (Ilyinskaya A.), Aspects of plasma, heat, magnetism, energy flow and atomic transmutation in new applications // "Academy of Trinitarism", M., El No. 77-6567, publ. 27357, 08.10.2021
146. Kulak L.A. (Ilyinskaya A.), Periodic system of elements in the format of the Möbius typology application // "Academy of Trinitarism", M., El No. 77-6567, publ. 27188, 06.06.2021

147. Kulak L.A. (Ilyinskaya A.), Aspects of entropy and the big bang in the format of new applications // "Academy of Trinitarism", M., El No. 77-6567, publ. 27150, 18.05.2021
148. Kulak L.A. (Ilyinskaya A.), Wave mechanism and energy dynamics of a granule of a space-time spin network // "Academy of Trinitarism", M., El No. 77-6567, publ. 27161, 05/23/2021
149. Kulak L.A. (Ilyinskaya A.), The wave mechanism of the atom // "Academy of Trinitarism", M., El No. 77-6567, publ. 27107, 04.27.2021
150. Kulak L.A. (Ilyinskaya A.), "Gravity wheel and how to turn it", report at the correspondence conference "Gravity", December 1, 2020, Moscow, https://yadi.sk/d/y1hq7j3_jCjT2Q?w=1
151. Kulak L.A. (Ilyinskaya A.), "Wave mechanism of the atom", report at the correspondence conference "Atomic nucleus", June 2021, Moscow. https://disk.yandex.ru/d/0Y41VhrQs_dsFg?w=1
152. Kulak L.A. (Ilyinskaya A.), The theory of everything based on the Möbius typology // "Academy of Trinitarism", M., El No. 77-6567, publ. 26933, 01/25/2021
153. Kulak L.A. (Ilyinskaya A.), Fundamental Principle of Complementarity, Fractal Synthesis and Theory of Everything // "Academy of Trinitarism", M., El No. 77-6567, publ. 26573, 07.28.2020
154. Kulak L.A. (Ilyinskaya A.), The simplicity of natural genius or the Grail of science – Substance // "Academy of Trinitarism", M., El No. 77-6567, publ. 26512, 06/28/2020
155. Kulak L.A. (Ilyinskaya A.), A different approach to creating a Unified Theory of Everything // "Academy of Trinitarism", M., El No. 77-6567, publ. 26489, 06/20/2020
156. Kulak L.A. (Ilyinskaya A.), From a mathematical point to a physical one, or is it the other way around? // "Academy of Trinitarism", M., El No. 77-6567, publ. 26442, 06/02/2020