

Theory and practice of measuring the characteristics of physical vacuum and its importance for cold transmutation of nuclei

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The theoretical substantiation of the existence of pure vacuum EM fields, methods of their reception and generation, as well as experimental results on measuring the characteristics of these fields are presented. In the practical plane, the problem of generating pure vacuum EM waves is solved by reducing the inductive resistance of the radiating element. According to the reciprocity principle for linear electrodynamic structures, the receiving element should also be free of inductance.

1. On cavitation transmutation of nuclei in water reactors

At the Russian Cold Nuclear Transmutation Seminar on March 27, 2024, Robert William Grinyer, who leads the Martin Fleischmann Memorial Project, a collaboration of independent researchers, presented a paper [1] that examined samples obtained after the destruction of a water cavitation reactor.

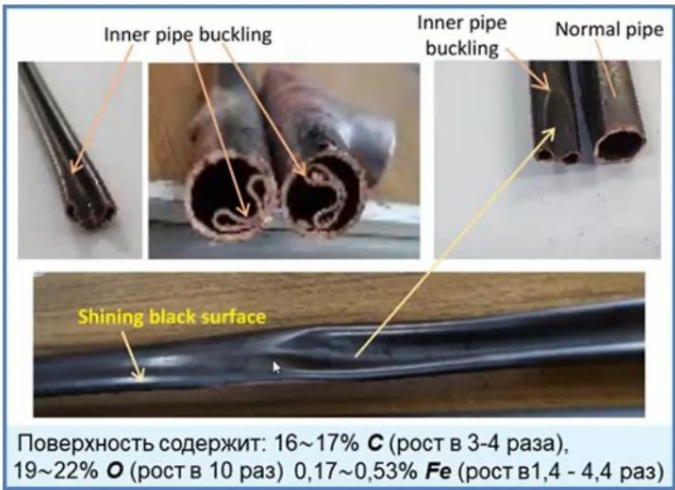


Fig.1 Fragments of the inner walls
copper pipe of one
from cavitation heat
reactors created by Bin-Juine
Huang-om, who underwent complete
destruction due to internal
reasons, which were further investigated in [1]
for the purposes of detection
products
nuclear transmutation.

In [1], visual evidence is given of the presence of frozen cavitation toroidal-ring structures, inside or near which nuclear transmutation products (new isotopes, initially absent in the reactor) were discovered (Fig. 2).

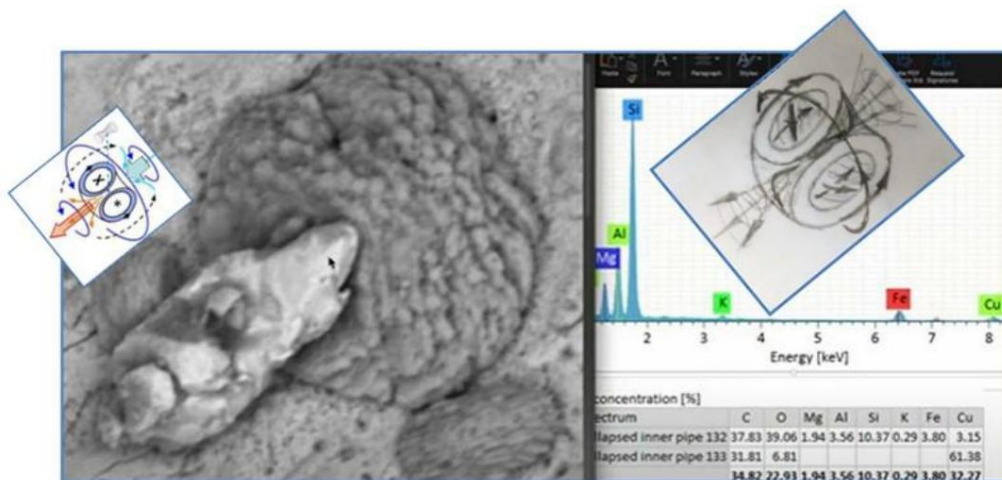


Fig. 2. Toroidal-ring structure, on the side of the outlet funnel of which conglomerates of new materials in very significant quantities (Carbon (C), Manganese (Mg), Aluminum (Al), Silicon (Si), Potassium (K), Iron (Fe)), which were *initially* absent in the water and in the walls of the reactor, were found. The inlet funnel of the toroid is immersed in a copper wall, from which it follows that the transmutation of the wall material (Cu) into the indicated elements occurs in the toroid. On the left at the top is a schematic representation of the toroidal-ring rotation, in the central part of which the transmutation of the nuclei of chemical elements occurs.

The cavitation process in the aquatic environment is a multiple process of the origin of microscopic toroidal-ring structures. These structures are characterized by a dense vortex flow (microtornado), which is ejected through a central channel that rotates like a solid body (Fig. 3). Without limiting the generality, we will call the toroidal-ring structures under consideration "objects", generally implying that they are composed of elementary $\ddot{\gamma}$ -objects rotating along circular trajectories.

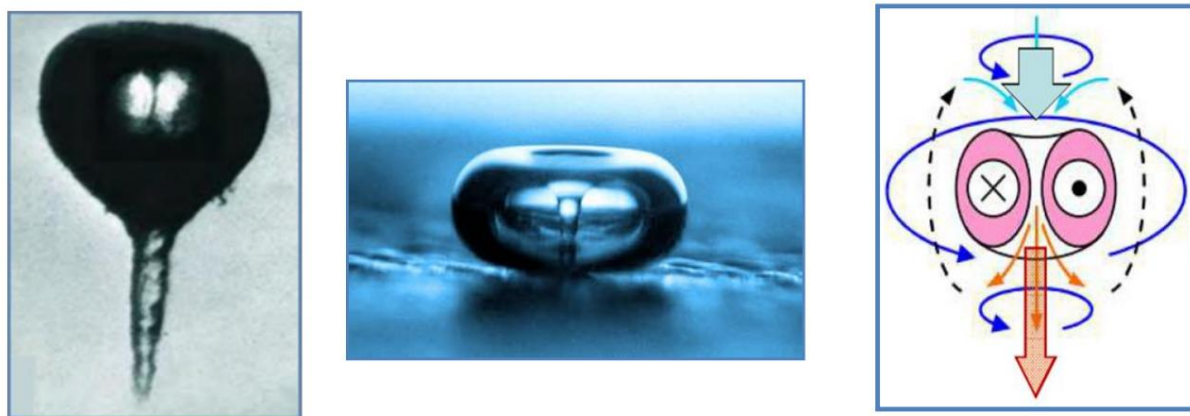


Fig. 3. A still from a film of a cavitation bubble (left) and its schematic representation (right).

A microtornado has a huge energy density, which is why when it collides with a solid surface it creates cavitation caverns. Without

energy that the microtornado transfers to the nuclei, the latter are not able to reach a sufficient energy level to carry out transmutation reactions.

The article [1] concludes that **during cavitation processes water can trigger a specific nuclear reaction and produce energy.**

In this paper, **the mechanism of interaction of toroidal-ring structures with nuclei is attributed to purely vacuum EM fields [2], which act as transmutation agents.** This conclusion is made on the basis of specific (non-classical) properties of these fields:

- properties of superpenetration through EM screens (through electron shells atoms or conducting macroscopic media);
- the ability to extract from the surrounding "super-dimensional structure" electromagnetic energy and transport it to the nuclei;
- as well as the method of their generation, which occurs during circular rotation charge, or electrically neutral particle, or Poynting vector (vector of the electromagnetic energy flux density).

2. Theoretical description of pure vacuum EM fields

2.1. On classical electrodynamics and attempts to revise it. The principle of real relativity

In his main work on special relativity [3], A. Einstein showed that the equations of classical electrodynamics retain their form (i.e. are invariant) under transformations of coordinates and fields between inertial

reference systems.

The revisionists of classical electrodynamics have always had a noble goal – to find equations of new electrodynamics (see [4] and the references therein) that would describe both classical and “anomalous” experimental data. There are many of the latter at the present time – from Faraday’s unipolar induction (1830) [5] to the superpenetrating fields of the physical vacuum [6]. But only some (K. Meyl, [7]) of the mentioned revisionists managed to reach the only correct conclusion: the new equations of electrodynamics must correspond to a new, broader principle of relativity.

A new principle of real relativity was put forward by one of the authors, E.A. Gubarev, in 2009 [8]. It corresponds to transformations of event coordinates between real (associated with real bodies) reference systems, which, as a rule, are non-inertial.

2.2. Equations of electrodynamics of an oriented point in four-dimensional form

The equations of the new electrodynamics must be invariant with respect to the transformations of real relativity, and must also obey the correspondence principle, that is, they must pass into the equations of classical electrodynamics [9] in the classical limit, which is understood as an approximation of the proper frame of reference associated with the charge to the state of the inertial frame of reference.

Taking this requirement into account, the equations of the new electrodynamics (electrodynamics of an oriented point) and the continuity equation in a general four-dimensional form are formulated in a unique way [10]:

—

The new equations are written for the electromagnetic field tensor F_{ab} and the four-dimensional current j_d and relate to the real frame of reference K' associated with a material object (charge, Poynting vector, electrically neutral particle consisting of an equal number of positive and negative charges). Their difference from the four-dimensional Maxwell equations [9] is the presence of non-zero right-hand sides, which represent vacuum sources (different from classical sources - charges and currents). The quantity

represents the Ricci rotation coefficients that take non-zero values in the K' system moving with translational or centripetal acceleration relative to a distant inertial reference frame [8].

Let us note the vacuum source on the right side of the continuity equation (3). Its presence means that under certain conditions in a closed (by classical standards) system, acts of birth/annihilation of charged matter are possible.

2.3. Circular non-relativistic motion of particle K'

The most interesting case from the point of view of observing "non-classical" effects is the realization of a real frame of reference associated with a material object during its rotation with an angular velocity \ddot{y} . In the non-relativistic approximation (for example, during orbital rotation of K' with a linear velocity much less than the speed of light), the system of equations of the new electrodynamics and the continuity equation take the following form [10]:

$$\begin{aligned} \text{rot } \mathbf{E} &= -\frac{1}{c} \frac{d\mathbf{H}}{dt} - [\ddot{y}\mathbf{H}], \\ \text{div } \mathbf{H} &= 0, \\ \text{rot } \mathbf{H} &= +\frac{1}{c} \frac{d\mathbf{E}}{dt} - [\ddot{y}\mathbf{E}], \\ \text{div } \mathbf{E} &= 4\pi\ddot{y}, \end{aligned} \tag{4}$$

$$\text{div } \mathbf{j} = 0. \tag{5}$$

where \mathbf{E} , \mathbf{H} are the vectors of the electric and magnetic fields, \ddot{y} , \mathbf{j} are the charge and current densities. In equations (4) and (5), vacuum sources of order $1/c$ are omitted and above.

In empty space, in the absence of classical sources $\ddot{y}=0$, $j=0$, in the right-hand sides of equations (1) there will remain only induction sources $\ddot{y}Z/c\dot{y}t$ and vacuum sources $[\ddot{y}Z]/c$, where Z is the field E or H . This is due to the global nature of the Ricci rotation coefficients in the non-inertial system K' associated with the rotating object, and the global nature of the induction source – it exists everywhere where there is a time variability of the emitted field.

The question of the relative influence of induction and vacuum sources is solved using the expansion of equations (4) for $\ddot{y}=0$, $j=0$ in plane monochromatic waves

$$E = \text{Re}\{Ek\ddot{y}\}, H = \text{Re}\{Hk\ddot{y}\}, \quad (6)$$

where $Ek\ddot{y}$, $Hk\ddot{y}$ are the amplitudes of the monochromatic wave (constant complex quantities), the wave vector k and the circular frequency \ddot{y} are constant real quantities. In the particular case $\ddot{y}=\ddot{y}_0=\text{const}$, solutions are obtained for waves propagating along the OZ axis parallel to the angular velocity vector \dot{y} [10].

$$E = \text{Re}\{Ek\ddot{y}\}, H = \text{Re}\{Hk\ddot{y}\}, \quad (7)$$

where $k=\pm\ddot{y}/c$, and the sign $+$ or $-$ corresponds to the right or left helicity of the wave. We thus have a multiplication of a classical plane monochromatic wave with a phase velocity equal to the speed of light, and a standing wave with a spatial period $\ddot{y}=2\ddot{y}\ddot{y}/\ddot{y}_0$.

2.4. Quasi-static vacuum electromagnetic fields

Effects associated with vacuum sources become dominant in the quasi-static case, if \ddot{y} significantly exceeds the circular frequency \ddot{y} of the EM wave (in the case of the radio range, the rotation of the source must have a microscopic origin in molecular, atomic or nuclear systems), and, secondly, in the purely static case $\ddot{y}=0$.

For the given cases we can consider only the standing wave

$$E = \text{Re}\{Ek\ddot{y}\}, H = \text{Re}\{Hk\ddot{y}\} \quad (8)$$

An observer located at a distance z from the origin can detect only the stationary phase of the static field, but not the signal transmission associated with this field. The signal transmission can be associated with the modulation of the carrier frequency of the vacuum source [12]

$$\ddot{y} = \ddot{y}_0 + \ddot{y}(t), \ddot{y}_0 = \text{const}. \quad (9)$$

Then at point z we will have a quasi-static field

$$E(z) = \text{Re}\{Ek\ddot{y}\}, H(z) = \text{Re}\{Hk\ddot{y}\}, \quad (10)$$

where $F[\ddot{y}(t)]$ is the response function to the signal $\ddot{y}(t)$ [6, p.25–29]:

$$F[\ddot{y}(t)] = \quad (11)$$

Considering that at $t < 0$ the system with a vacuum source was in dynamic equilibrium at a constant rotation speed $\ddot{y}(t) = \ddot{y}_0 = \text{const}$, and at $t > 0$ modulation was switched on in the form of a constant step $\ddot{y}(t) = \ddot{y}_0$ (\ddot{y} is the modulation depth), the observer at $t > 0$ at point z will detect a quasi-static electric field:

$$E(z) = \text{Re}\{E_k \quad \} = \text{Re}\{E_k \quad \}, \quad (12)$$

with phase velocity $v_f = -\ddot{y}c$, where c is the speed of light. We see that we can control the phase velocity of the wave using the depth of the modulation step. In the case of switching the direction of rotation $\ddot{y}_0 \rightarrow -\ddot{y}_0$ we have $\ddot{y} = -2$ and $v_f = 2c$, **which means a superluminal signal transmission speed**. This theoretical consequence is confirmed by the experimental discovery of N.A. Kozyrev [11], which consists in receiving a double signal from some stars – a classical light signal and a signal propagating at a superluminal speed.

Let us consider the case of switching off (stopping) the vacuum source \ddot{y} at $t > 0$, which means $\ddot{y} = -1$. In this case, at point z , a residual field will be observed in the form of a pure harmonic at the frequency \ddot{y}_0 :

$$E(z) = \text{Re}\{E_k \quad \}. \quad (13)$$

This means that **a vacuum quasi-static field can exhibit a phantom effect: there is no source, but the field is there**. Experimental confirmation of this effect is contained, for example, in [13].

We note another important **property of the quasi-static field (10) - the property of superpenetration in conducting media** that are opaque to classical electromagnetic fields. Indeed, the electromotive force calculated in a closed loop in a plane perpendicular to the direction of wave propagation is identically equal to zero in the quasi-static case [10]:

$$- \quad - \quad . \quad (14)$$

This means that the electric field does not work on free charges, electromagnetic energy does not transform into thermal energy of the medium, and there is no wave scattering. This property is also confirmed in experimental works [see 2, 12].

3. Measurements of pure vacuum fields

In practical terms, the problem of generating purely vacuum EM waves is solved by reducing the inductive resistance of the emitting element. According to the reciprocity principle for linear electrodynamic structures, the receiving element should also be free of inductance. Therefore, the receiving element (antenna) in the vacuum EM field meter is a bifilar coil [14].

On each elementary section of the bifilar coil, all unbalanced fronts from all vacuum “objects \ddot{y} ” passing from different directions through each other are integrated (the property of superpermeability).

These unbalanced fronts, integrating along the entire spiral of the bifilar coil, create electric fields $E(t)$ at its free ends .

The signal of the electric field $E(t)$ received from one end of the coil is fed to the input of the “Avramenko fork”, which acts as a separator of the integral fronts of the field $E(t)$, relative to its average value, with the positive fronts directed towards the positive arm of the “Avramenko fork”, and the negative ones towards the negative arm of the “Avramenko fork”.

In this case, the dependence of voltage on time $V(t)$ [14] is removed from a low-capacity capacitor (1 nF or less) connected to the outputs of the “Avramenko plug” (the capacitor may be absent; the input capacitance of the electronic meter may act in its role).

From an electrical engineering point of view, the vacuum meter under discussion “objects \ddot{y} ” is a multi-loop integrating chain (Fig. 4).



Fig.4. Avsharov's meter on a straight bifilar antenna

Fig. 4 shows a bifilar coil degenerated into a twisted double wire, which confirms that even such a degenerated bifilar coil, connected only at one end to the “Avramenko fork”, is a meter with a highly directional sensitivity diagram, according to the effective area of the receiving bifilar part from different directions.

The meter shown in Fig. 4 has a drawback resulting from the fact that the bifilar coil in it is degenerate, and therefore is not able to record all types of vacuum “ \ddot{y} objects”.

Such a simple meter is a demonstration of the possibilities of measuring the characteristics of vacuum “ \ddot{y} objects” of the surrounding all-pervading vacuum environment, located in the space of the receiving bifilar coil and the detection system of the isolated potentials of the “Avramenko fork”.



Fig. 5. Avsharov's meter on a bifilar Cooper coil.

For full-fledged measurements it is necessary to use a volumetric bifilar coil, which reveals fronts well, especially steep ones, characteristic of all-penetrating vacuum “ γ objects”. The photo (Fig. 5) shows a meter with galvanic

isolation and autonomous power supply, presented in the mode of measuring oscillations of vacuum “ γ objects” located in the area of the detector head.

The meter with galvanic isolation has high sensitivity and the ability to connect to an oscilloscope to study the characteristics of the integral component of the field $E(t)$ in the frequency range from 0.1 Hz up to 1 MHz. At higher frequencies, the limitation is introduced by the electronic components of the detector head circuit of the meter, and not the measurement principle itself!

The vacuum “ γ object” meters developed by one of the authors, E.M. Avsharov, have proven themselves well in a number of studies of “strange radiation” in gas-discharge installations, which had not previously been recorded by any standard electromagnetic measuring devices [14].

4. Conclusion

The paper presents a number of experimental facts that speak of the decisive role of toroidal-ring structures in the process of nuclear transmutation in cavitation reactors. The mentioned structures are generators of a purely vacuum electromagnetic field, which is the agent of nuclear transmutation.

From the standpoint of the electrodynamics of the oriented point, the main properties of purely vacuum EM fields (superpenetration through the atomic shells of nuclei and the ability to extract energy from “superspace” and transfer it to nuclei) are described, which are sufficient to maintain transmutation reactions.

The properties of pure vacuum fields described by the electrodynamics of an oriented point formed the basis for the justification of the first hardware method for measuring the characteristics of these fields, which is carried out by the Avsharov meter.

LITERATURE

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Theory and practice of measuring the properties of physical vacuum and its significance for the cold transmutation of nuclei

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The report presents a theoretical justification for the existence of purely vacuum EM fields, methods for receiving and generating them as well as experimental results on measuring the characteristics of these fields. In practice, the problem of generating purely vacuum EM waves is solved by reducing the inductive resistance of the radiating element. To reciprocity principle, there should also be no inductance in the receiving element for linear electrodynamic structures.

Etherodynamic Vortex Mechanism of Toroidal-Cavitation Transmutation - EVTCT

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"Gradient Etherodynamics" presents an integrated approach to understanding one of the main types of movement of the etheric medium - the Toroidal-Ring formation, which manifests itself on all scales - from the femto-world to the Universe, with the "Spin-Jet", which is not taken into account by outside researchers as an integral part of such an etheric formation, but which determines the behavior of many processes of the material world in the etheric medium.

The author applied an engineering approach – "Reengineering" – to the reconstruction of highly complex systems based on their behavior, i.e. creating a model etheric objects based on the results of the interaction of these objects with the surrounding etheric-material environment, the mathematical apparatus for such a reconstructed model does not exist and still requires its own creation.

The model of the "Toroidal-Ring Ether Flow with Spin-Jet" made it possible to answer many questions, including the question of the mechanism of transformation of the nuclei of atoms of chemical elements during cavitation processes, and not only.

Etherodynamic Toroidal Model from Proton to Galaxy

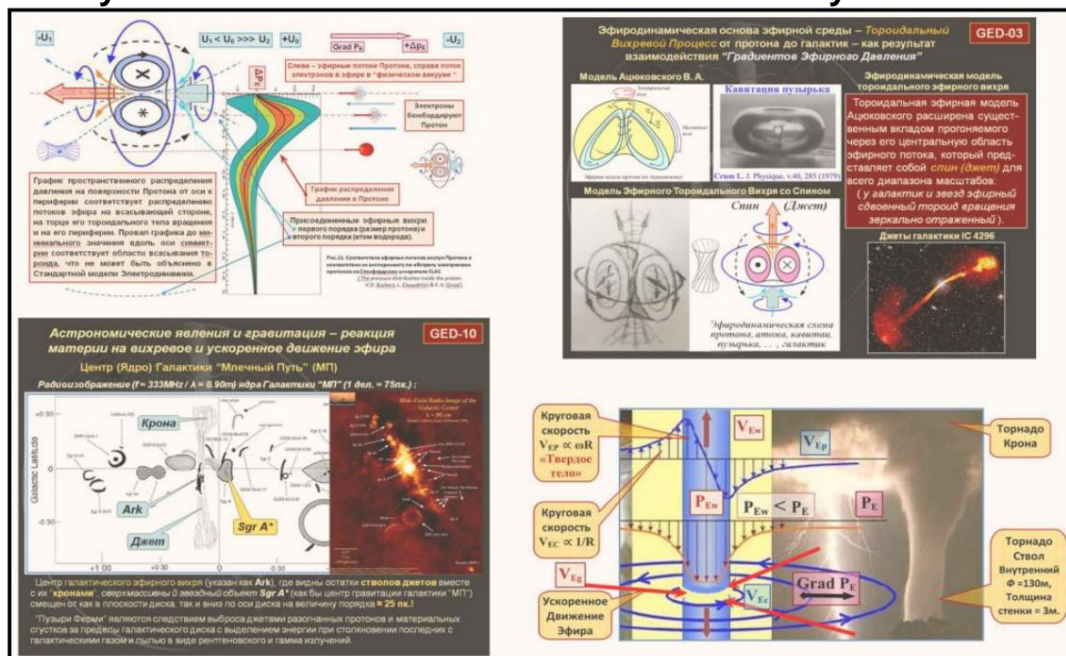


Fig. 0. Review of applications of the etherodynamic model to various physical processes.

Over the period 2017-2022, the author proposed two main basic models of ether movement that can arise from the interaction of etheric flows in space and time:

1. Longitudinal etheric wave.

1.1 Longitudinal ether shock wave

Longitudinal Shock Ether Waves (LSEW) occur in processes such as collisions of comets and asteroids with planets, collisions of stars or supernova explosions, nuclear explosions, described in the work: "X-ray radiation as a longitudinal shock ether wave"

- http://www.course-as.ru/AEM_GE/AEM_X-Ray.pdf .

Seminars on this topic were held: at RUDN on "Chemical Yas and SM",

- http://www.course-as.ru/AEM_GE/AEM_GED.html#X-Ray-R

and seminar on temporology named after A.P. Levich (MSU),

- http://www.course-as.ru/AEM_GE/AEM_GED.html#X-Ray-T .

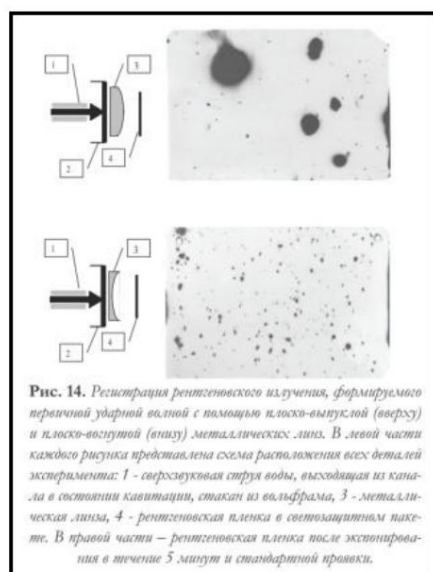


Fig. 1. X-ray (cavitation) ether shock wave. ("X-RAY RADIATION DURING CAVITATION OF A FAST LIQUID JET" Vysotsky V.I., Kornilova A.A., Sysoev N.N.).

Formed by primary cavitation
Using ultrasonic shock waves with the help of plano-convex (top) and plano-concave (bottom) metal lenses, the following were created: - a strongly diverging (top) and - a strongly converging (bottom) etheric X-ray shock wave! ("Gradient Etherodynamics").

1.2 Longitudinal ether shock wave

Longitudinal Etheric Non-Shock Waves (LESW) occur during an electrical discharge in the entire volume of interaction in material media – gases, liquids and solids, as well as in plasma, during "radio emission". "Electromagnetic radiation" of the radio range as a longitudinal non-shock etheric

wave – presented in three articles: - "Etheric Electro-Magnetism. Part 3. Dynamics..." (pp. 13-17):

- http://www.course-as.ru/AEM_GE/AEM_EI-p3.pdf .

- "Hertz and Tesla. Who is right, who is wrong" (pp. 4-8):

- http://www.course-as.ru/AEM_GE/AEM_GED.html#Hertz&Tesla

- "Light and Radio emissions are different ethereal entities!":

- http://www.course-as.ru/AEM_GE/AEM_GED.html#Light&Radio

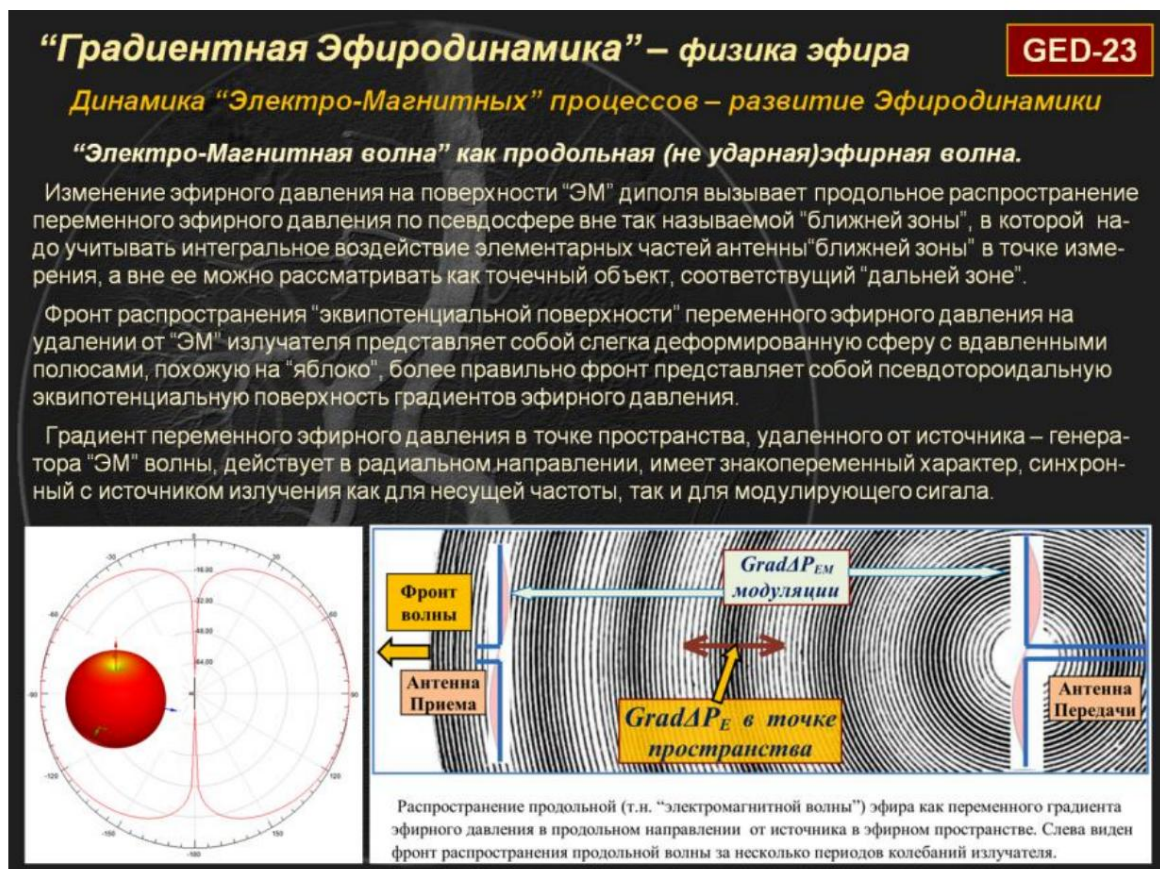


Fig.2a. Longitudinal non-shock etheric “Electromagnetic wave” ($V = C$).

There is an imbalance in the integral of the gradient of the variable ether pressure at each point of the ether space surrounding the antenna in the direction of its propagation for each period of its complete oscillation - the integral of the gradient of the ether pressure directed toward the source slightly exceeds the integral of the gradient of the ether pressure directed away from the source (Fig. 2).

The etherodynamic cause of the emergence of the following physical processes: 1. The leading edge of the longitudinal propagation of the alternating gradient of ether pressure in the etheric medium, taken as an “electromagnetic wave”, with the speed of disturbance of the ether of this medium c , with the corresponding pressure and density, in a given etheric spatial region.

2. The effect of pressure on the surface of a material body, the so-called “electromagnetic wave” – which is explained by the non-zero integral of the variable gradient of etheric pressure at any point in space, directed toward the source of disturbance, and creating a force directed from this source onto the material body.

FAR (phased active antenna) directly implements the specified principle of superposition to create a directional characteristic of ether radiation with a rapidly changing beam direction due to a change in the phase of each radiation element separately according to pre-calculated values.

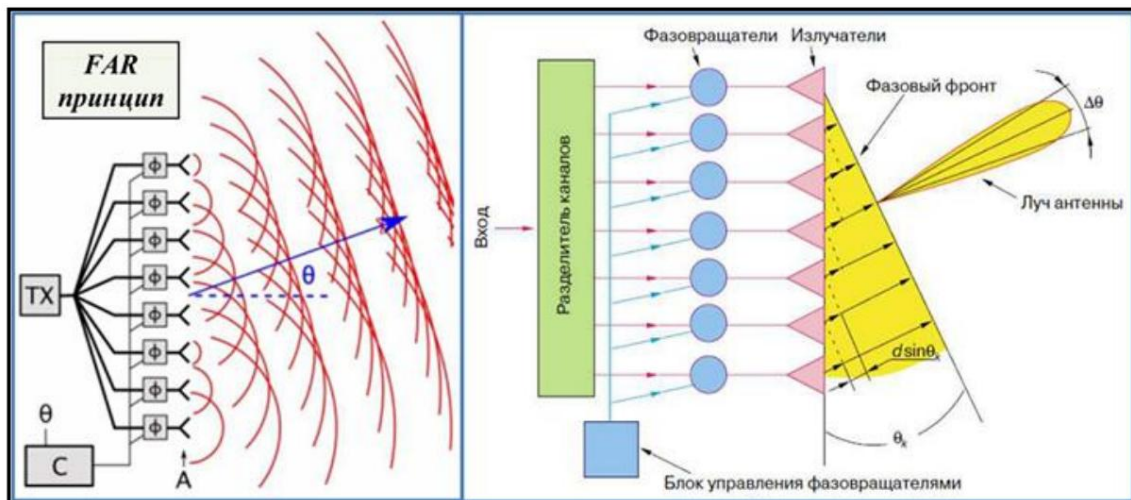


Fig.2b. The principle of radiation and control of the direction of propagation and shape of the ether-dynamic wave by changing the phase for each radiation element of the FAR antenna.

1.3 Ether Pressure Gradient Meters

Longitudinal etheric waves, as well as vortex etheric formations are recorded by "variable Ether Pressure Gradients meters":

http://www.course-as.ru/AEM_GE/AEM_GED.html#Measure



Fig. 3. Avsharov's etherodynamic meter with galvanic isolation

2. Toroidal-ring etheric formation with Spin-Jet. Characterized by pumping through

the central zone of the toroidal-ring etheric flow, as well as material media that will be drawn in by the input etheric funnel, accelerated, twisted and thrown out through the output etheric funnel beyond the etheric body of the torus. There are two options for implementing the etheric toroidal-ring movement with Spin-Jet:

2.1 Single Etheric Toroid of Rotation

An example is a tornado, which is based on an etheric vortex, shown conditionally in Fig. 4, spinning an atmospheric vortex (see Fig. 5), in this case the etheric (and air) vortex is strongly pressed to the surface of the Earth and deformed.

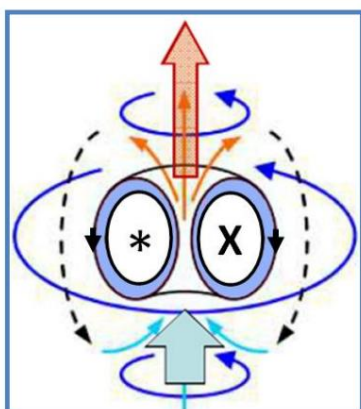
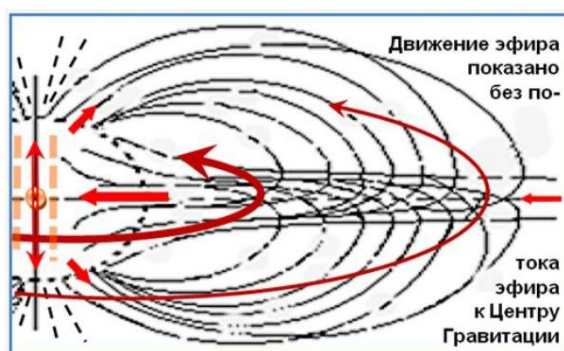


Fig. 4. Etherodynamic Toroid with Spin-Jet in free ether – schematic designation.

Fig. 5. Etherodynamic drive of Tornado in the atmosphere.



2.2 Dual Etheric Toroid of Rotation



The suction sides of the Dual Etheric Toroid of Rotation are directed towards each other, as shown in Fig. 6.

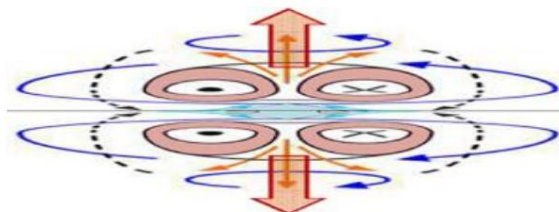


Fig. 6. Etheric double toroidal vortex of stellar or Galactic type, including Quasars. On the right is a diagram of a toroid.

An example of a double etheric toroid of rotation is the discovered etheric Galactic vortex with two Jets and "Crowns" located inside the stellar disk of our Milky Way galaxy.

The etherodynamic drive of the Milky Way Galaxy is shown in Fig. 7 and Fig. 8).

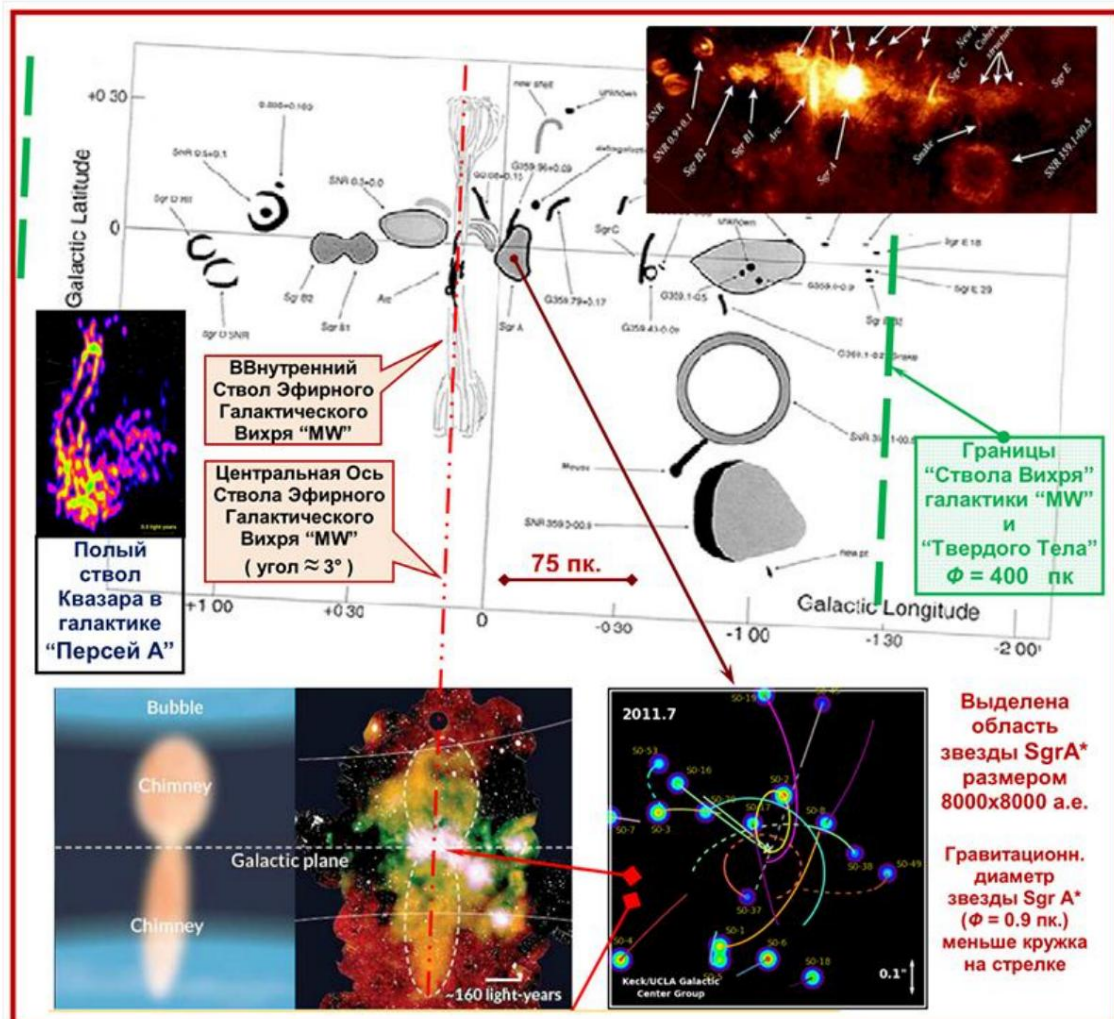


Fig. 7. Etherodynamic Double Toroidal-Ring Vortex with Jets of the Milky Way Galaxy.

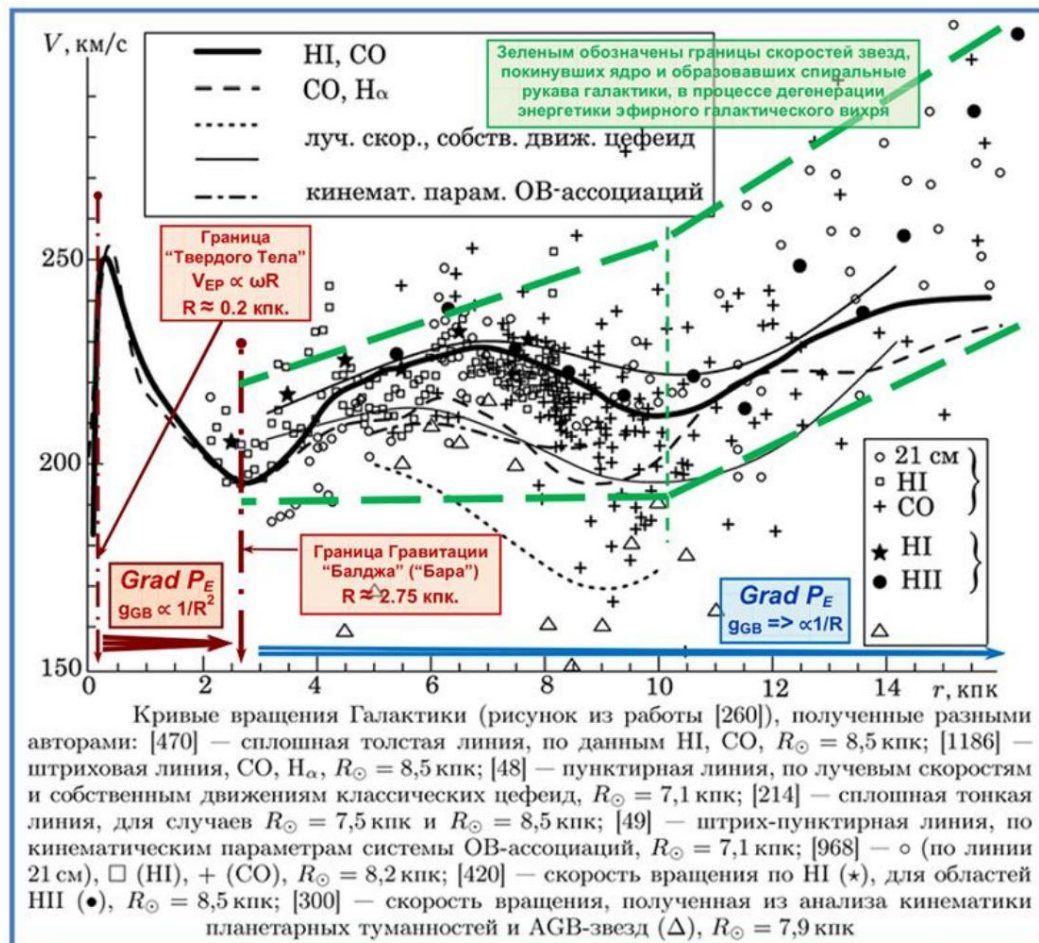


Fig. 8. Rotation curves of stars in the Milky Way Galaxy.

The above is described in the work "Astronomical phenomena as a reaction of matter to the vortex motion of the ether", 2021:

http://www.course-as.ru/AEM_GE/AEM_GED.html#Astro-T

The characteristics of the Ethereal Environment near the Earth are fundamentally different from the Standard Model

The toroidal-ring organization of the movement of the etheric medium with emissions in the form of Spins-Jets is the main type of stable ether-dynamic object on all scales - from the Proton to Galaxies, which is due to the maximum high speed of pumping ether through the central region with a minimum cross-section, and, consequently, the drop in etheric pressure in the central region can reach ten orders of magnitude (10^{10}) or more in relation to the magnitude of etheric pressure in the environment outside the etheric toroid.

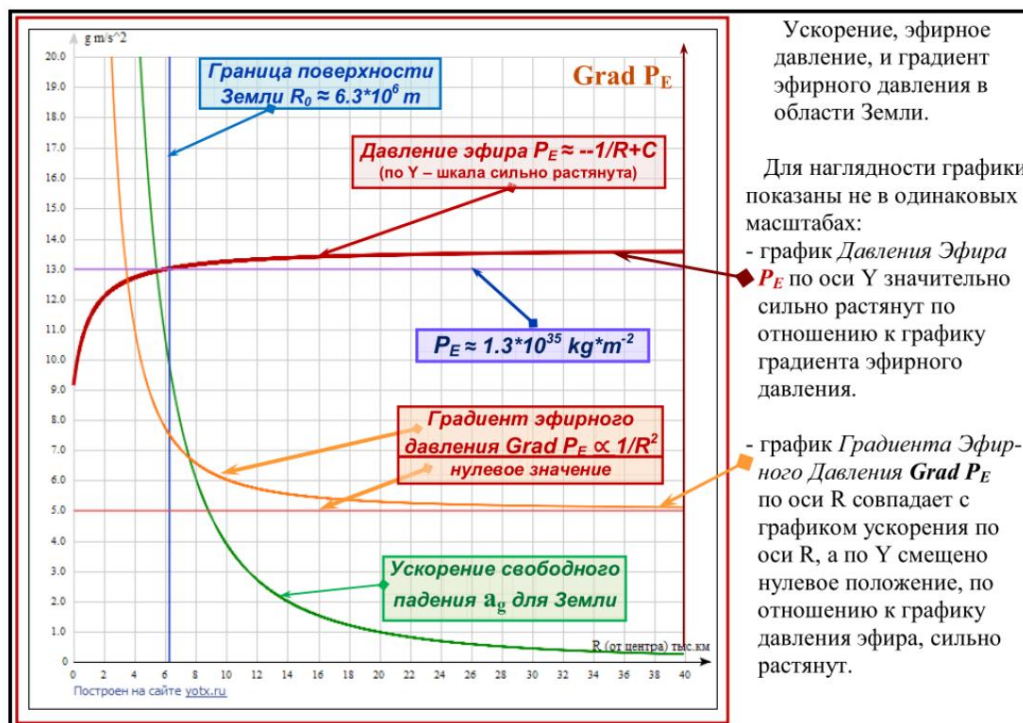


Fig. 9. Graphs of Etheric pressure, Etheric pressure gradient, and acceleration in the area of the Earth's surface inside and outside it. (The blue vertical line is the boundary of the Earth's surface).

A significant drop in ether pressure in the center of the torsion-ring etheric vortex is the source of gravity of astronomical objects (starting only with some planetary satellites), with accelerated movement of ether to the center of gravity (http://www.course-as.ru/AEM_GE/AEM_Gravy.pdf). The main mechanism of energy and stability of the Toroidal-Ring vortex etheric formation generates an attached —

etheric vortex, which has dimensions more than an order of magnitude larger, and the same number of times less energy, for example:

- Galactic Etheric Vortex

(Primary) with an external diameter of ~ 5 (kiloparsec), PDA inside which the laws of gravity operate, has an attached galactic etheric vortex with a diameter of ~ 150 kpc, which is ~ 2.5 times larger than the diameter of the visible part of the MP Galaxy with a diameter of ~ 60 kpc, and ~ 30 times larger than the diameter of the primary galactic etheric vortex.

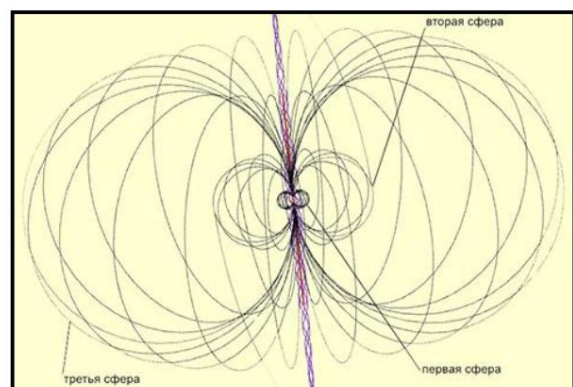


Fig. 10. Etheric Galactic fractal vortex in the zone between the boundary of gravity and the boundary of the galaxy, ether is sucked towards the center of the galaxy.

The diameter of the trunk of the galactic etheric vortex is ~ 0.4 kpc, which is more than 12.5 times smaller (more than an order of magnitude) than the primary galactic etheric vortex, and more than ~ 375 times smaller than the attached galactic etheric vortex. The first sphere (in Fig. 9) is the *core of the galaxy* with a diameter of ~ 1 kpc. This is the upper level of the toroidal-ring etheric formation with Jets (Spins), described in more detail in the work: http://www.course-as.ru/AEM_GE/AEM_Astro.pdf.

We will not consider the intergalactic etheric vortex due to insufficient the inaccuracy and incorrectness of data and observations.

- **The Etheric Vortex of the Proton** has an attached etheric vortex 5 orders of magnitude larger than the size of the proton, i.e. it has the size of a hydrogen atom, which in the Standard Model is taken as the orbital of the "electron" (if a real etheric object of the "electron" type arises, then only in a physical vacuum, for example, in an X-ray tube. The author has serious evidence for this). External etheric pressure compresses and spins the ring and toroidal flows of the etheric toroid - the neutron,

turning it into a proton, which is extremely resistant to external influences - it is maximally pumped up with the energy of the ether moving in it. The Spin Jet is the true (real) **Spin** of elementary particles and atoms as etheric vortex formations, starting with the Proton, the properties of which determine all the

properties in NMR processes and in chemical reactions, in which everything is determined by the spin architecture of molecules.

In all material objects that have a stable Etheric Toroidal-Ring organization, from the Proton to the Galaxy, including ethereal vortices of the Tornado type and atmospheric cyclones, ethereal drives of planets and stars (there will be a more detailed discussion of ethereal cavitation formations later), ethereal flows in the Spin-Jet represent predominantly high-speed longitudinal movement of the ethereal mass in the direction from the center of the vortex in one direction (or in both directions with a double ethereal toroid), simultaneously with the rotation of the entire ethereal mass as a "Solid Body" - the speed of ring rotation in the Spin-Jet

proportional to the distance to the axis of rotation.

Coming out of the body of the Toroidal-Ring Etheric Vortex, the longitudinal velocity in the Spin-Jet decreases somewhat with the expansion of its diameter. The Spin-Jet extends over significant distances, for example, the Spin-Jet of some Galaxies is an order of magnitude or more larger than the size of the galaxy itself, or, for example, beyond the Proton limit, otherwise the NMR process of hydrogen atoms could not be realized in NMR tomographs!

Etherodynamic model of the basic elements of the material world

“Etheric Electro-Magnetism. Part 1. Statics. Electrostatics.” 2019

- http://www.course-as.ru/AFM_GE/AFM_GED.html#FM-p1

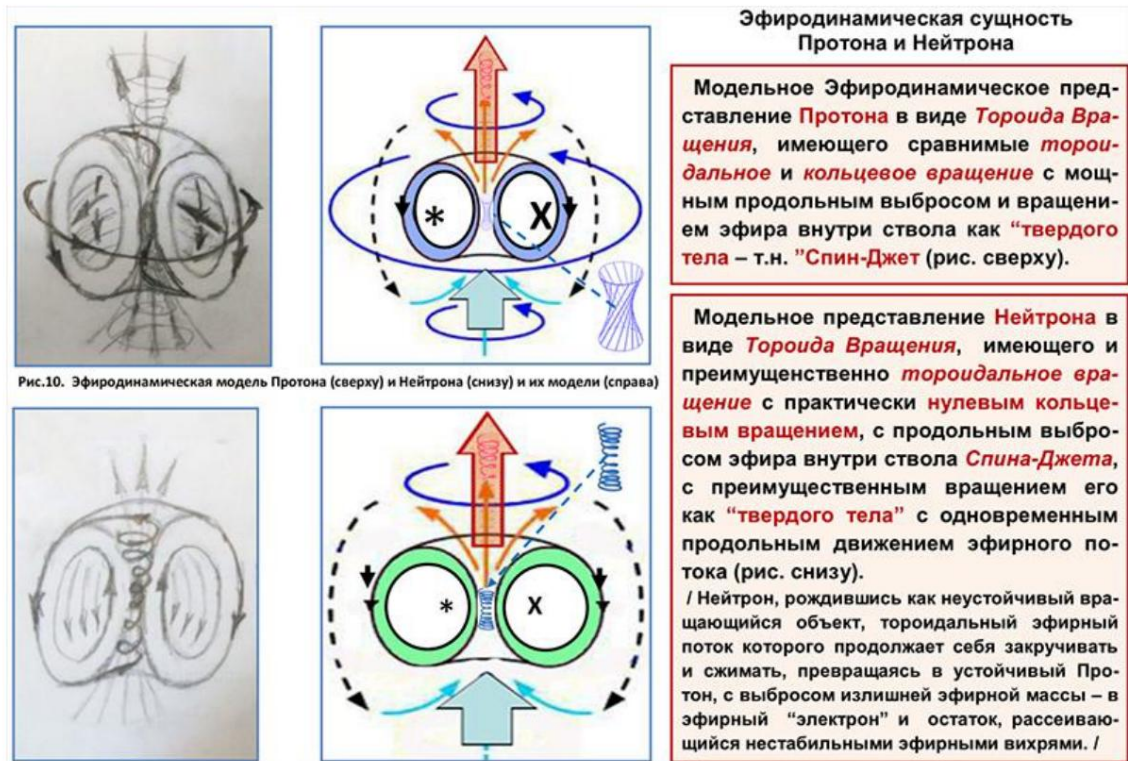


Fig. 11. Protons being bombarded with electrons at the Stanford SLAC accelerator, V. D. Burkert & Co, “The pressure distribution inside the proton”:
<https://doi.org/10.1038/s41586-018-0060-z>

Distribution of ether pressure on the surface of the Proton in the SLAC experiment in accordance with the concepts of “Gradient Etherodynamics”.

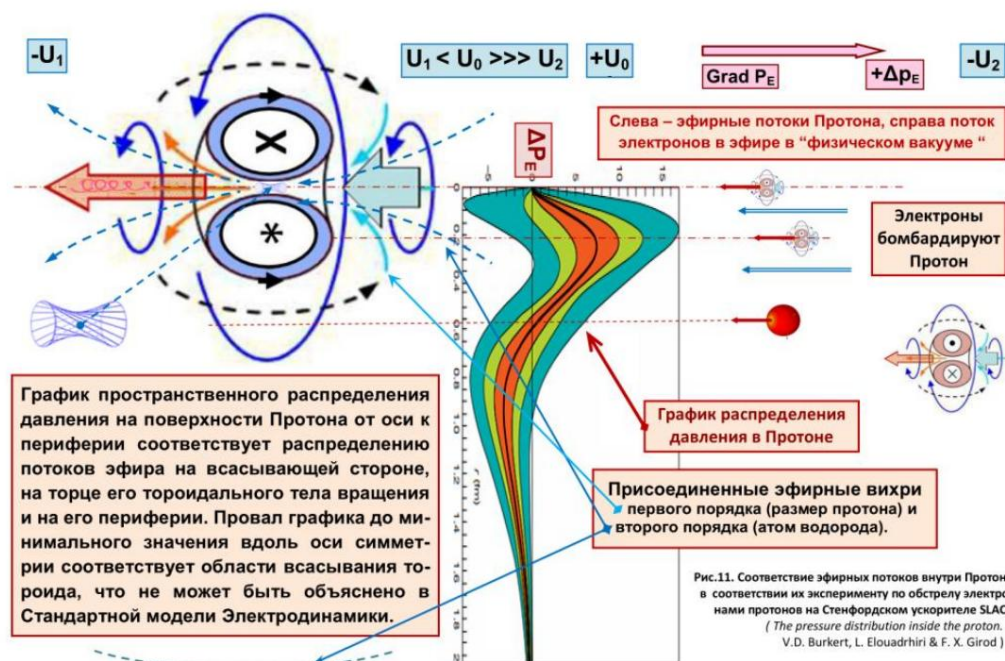


Fig. 11. Correspondence between the SLAC experiment and the toroidal-ring with Spin-Jet. Representation of the distribution of the ether pressure along the section along the Proton axis in accordance with the concepts of "Gradient Etherodynamics".

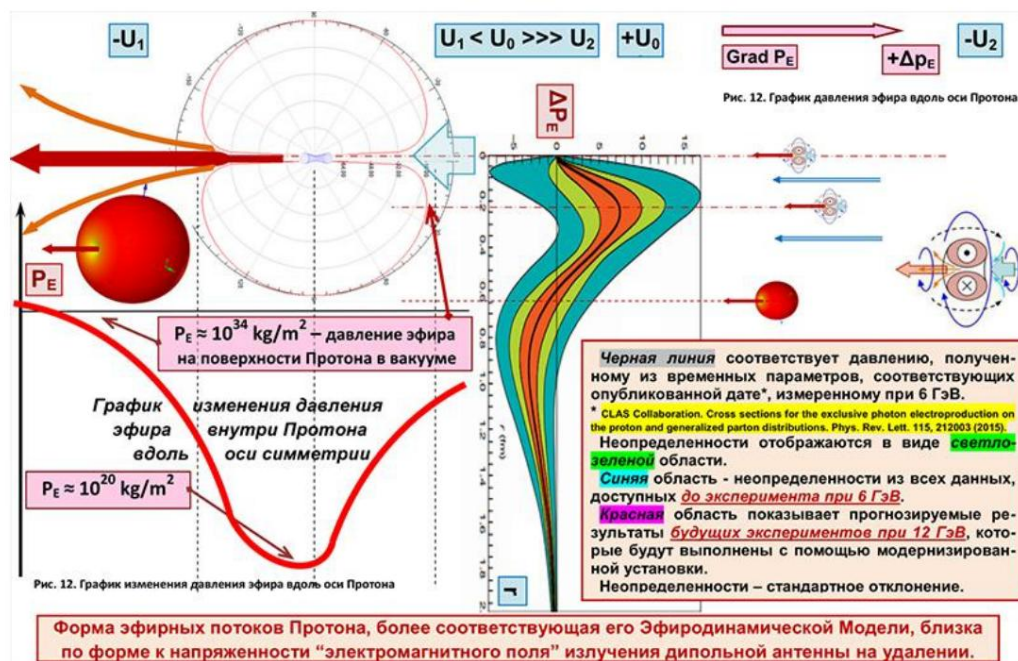


Fig. 12. Change in ether pressure along the Proton axis.

Representation of the distribution of ether pressure along a section perpendicular to the Proton axis in accordance with the concepts of "Gradient Etherodynamics".

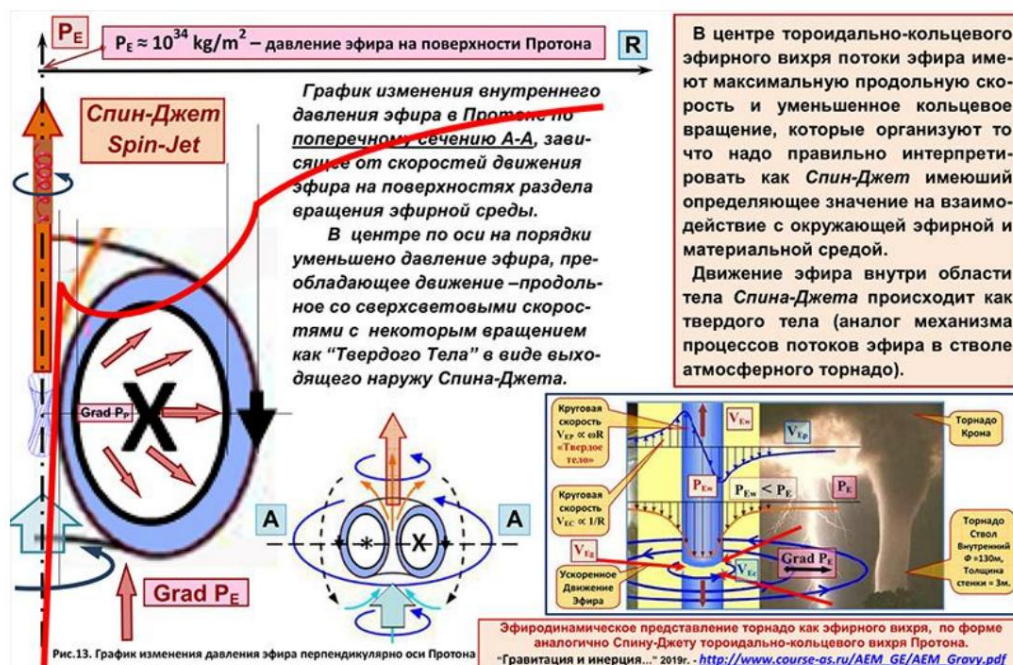


Fig. 13. Change in ether pressure perpendicular to the axis through the center of the Proton.

“Electric” Current in a conductor is a flow of Ether with rotation as a “Solid Body”

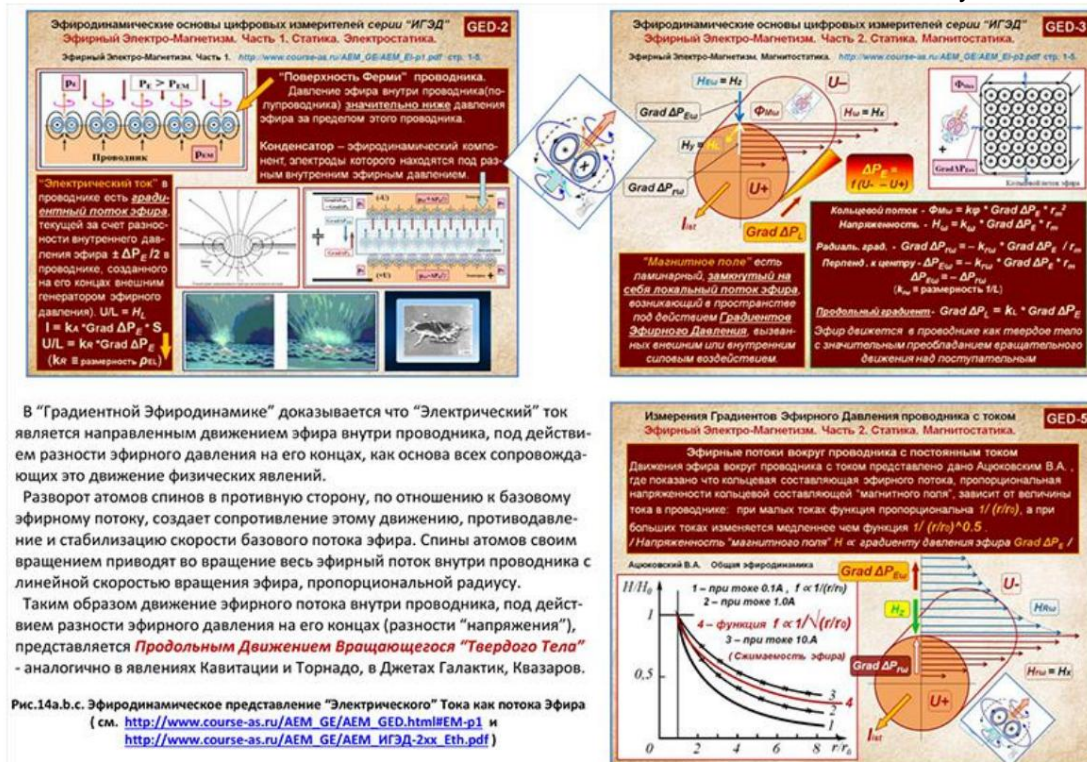
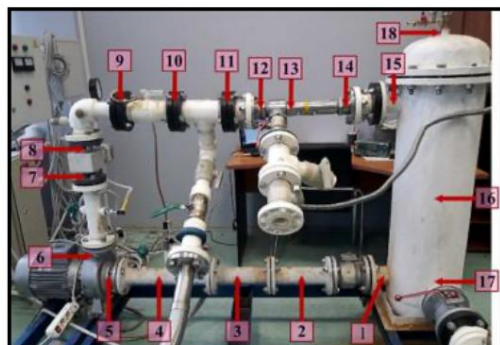


Fig. 14. Etherodynamic representation of the flow of ether in a conductor as an “electric” current.

Cavitation Processes, Etherodynamic Measurements and Nuclear Transmutation

1. Etherodynamic measurements during cavitation.

The author has investigated all-pervading etheric radiations on the iWET cavitation water installation (Fig. 15a) - measuring the values of Ether Pressure Gradients



Avsharov's etherodynamic meter with galvanic isolation at various points of the device when it is in working and non-working condition, as well as in the room where it is located

installation at a distance of more than 3 meters from the operating elements of the installation, heated to 40°C: <http://www.course->

[as.ru/AEM_GE/AEM_GED.html#MGEP-CAV](http://www.course-as.ru/AEM_GE/AEM_GED.html#MGEP-CAV).

Fig. 15a. iWET water cavitation system with measuring points.

Fig. 15b. Cavitation bubble with screwed Spin-Jet.



The measurements of the values of the ether pressure gradients were made at 19 points on the device, which were made by the meter at the above-mentioned points perpendicular to its surface at a distance of 45 mm from the surface. The ether-dynamic meter "IGED-2gr" is shown below, Fig. 16.:

- http://www.course-as.ru/AEM_GE/AEM_GED.html#Measure

During operation, induced vortex oscillations of the etheric environment occur around the installation, exceeding the background state of the etheric environment by 2 to 4 times, with a tendency to increase the excess over the background, with a long period of operation of the installation. It should be noted that the measurement on the radiator, which was not connected to the installation for more than 2 days during operation of the installation, was ~ 110 mV, an increase of up to +50% and indicates phantom etheric vortices inside the radiators.

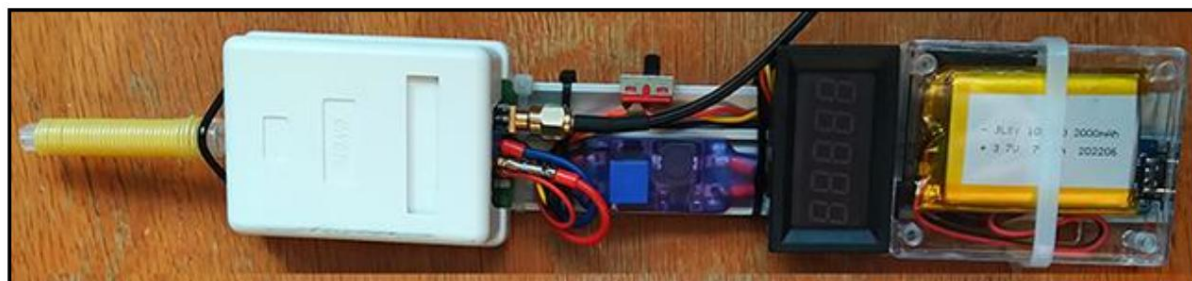


Fig. 16. Etherodynamic meter of variable ether pressure gradients "IGED-2gr".

The cavitation process in an aquatic environment, based on the concepts of Etherodynamics, is a multiple process of the generation of microscopic toroidal-ring vortex formations (Fig. 15b) with an intense release through the central channel of the Cavitation Bubble (CB).

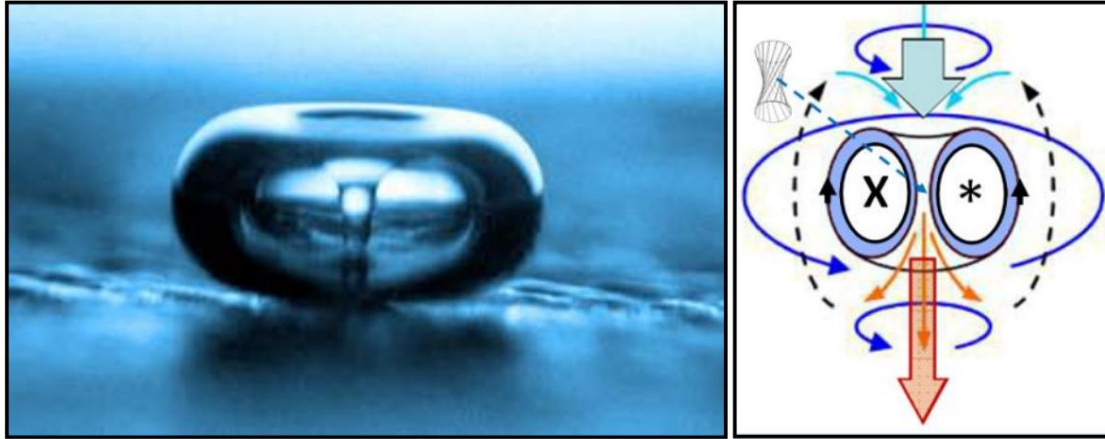


Fig. 17. Crim LJ Physique, V.40, 285, 1979., KP and Etherodynamic model of KP.

A swirling etheric and water flow (Spin-Jet in terms of Etherodynamics – Fig. 17), possessing enormous energy, which, when colliding with a solid surface, creates “cavitation caverns”. This is

revealed the measurement of radiation from radiators not connected to the installation on the day measurements were taken and several days earlier, exceeding the room background of **70.0 mV** by 1.5 times, which is due to the activity of the surrounding etheric environment.

Small fluctuations in the surrounding etheric environment support etheric phantom and cavitation processes inside the installation due to the all-pervasive ability of the etheric environment; in rooms located at a considerable distance from the subject, the fluctuations in the etheric environment were ~ **55 mV**.

The etherodynamic drive of the water cavitation bubble is the leading one in the symbiosis of the etheric toroidal-ring with the Spin-Jet and the water vortex of the cavitation bubble, which is the consequence, and the cause

occurrence is the collision of water flows created by the generator of cavitation processes in the ether and water environment.

In this case, mechanical sound shock waves arise, generating both water and, first of all, etheric vortices, which are compressed, spinning up to the maximum energy density in a minimum volume, with the release of a Spin-Jet in the direction of their movement.

2. Etheric Vortex Mechanism of Toroidal-Cavitation Transmutation -

EVTCT At the Klimov-

Zatelepin seminar on Cold Transmutation of Nuclei (**CTN**) from

On March 27, 2024, researcher Robert William Greenyer provided a link to his research on samples obtained after the destruction of a third-party

cavitation installations, which have direct evidence of the presence of toroidal structures formed when the etherodynamic drive captures a cavitation bubble of a material medium, in this case the wall of a pipe made of copper (**Cu**).

Links to films created by R. Grinier: - <https://youtube.com/live/RnQxSASCRPU?feature=share> , O-Day - Flux capacitor, 2024-03-17; -

<https://youtube.com/live/LAL1t9pSO-o?feature=share> , O-Day - The "Great Work", 2024-03-21;

- <https://youtube.com/live/aToDXB7a7UE?feature=share> , O-Day - °, 2024-03-25;

Below are some drawings taken from the films linked above.

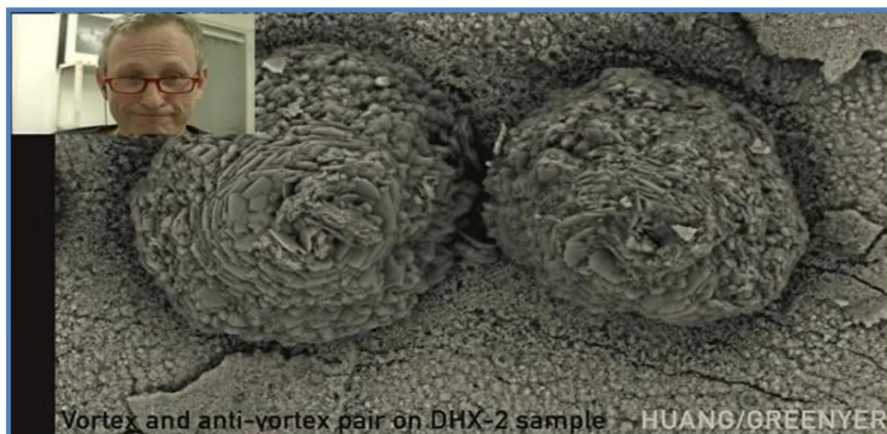


Fig. 18. R. Grinier presents toroidal structures on the surface of a copper pipe, obtained by capturing a “cavitation bubble” of the copper pipe wall material by an ether vortex (obtained using an electron microscope).

The process of Nuclear Transmutation has been documented in cavitation and in other processes leading to cavitation, including biological ones occurring on cellular double membranes in mitochondria, in the transmutation of oxygen from water into carbon during photosynthesis (the name is fundamentally incorrect - photosynthesis is not a synthesis, but a transmutation **CO₂** , carbon (**C**) ! downwards from oxygen (**O**) into the release of carbon from

This material was just what was missing for a complete and reliable description of the etherodynamic process of disassembling and assembling atoms of matter as they pass through the center of the etheric toroidal-ring formation with a Spin-Jet, as an evidence base for the correctness of the model of the toroidal-ring organization of etheric motion with the distribution of etheric pressure according to the graphs in Fig. 12 and Fig. 13. What do we see in Fig. 18? On the right is a fragment of the surface of a copper pipe, into which the etheric vortex of the “cavitation bubble” crashed with its lateral

surface, the axis of rotation of which is located at an angle to the surface, and the suction funnel of the vortex is partially immersed in the material of the wall.

The material of the copper wall is involved in the rotation cycle, so the toroidal structure is revealed, fragmented into small fractions, not

completely filling the volume of the toroid, the rest of which was previously partially filled with water.

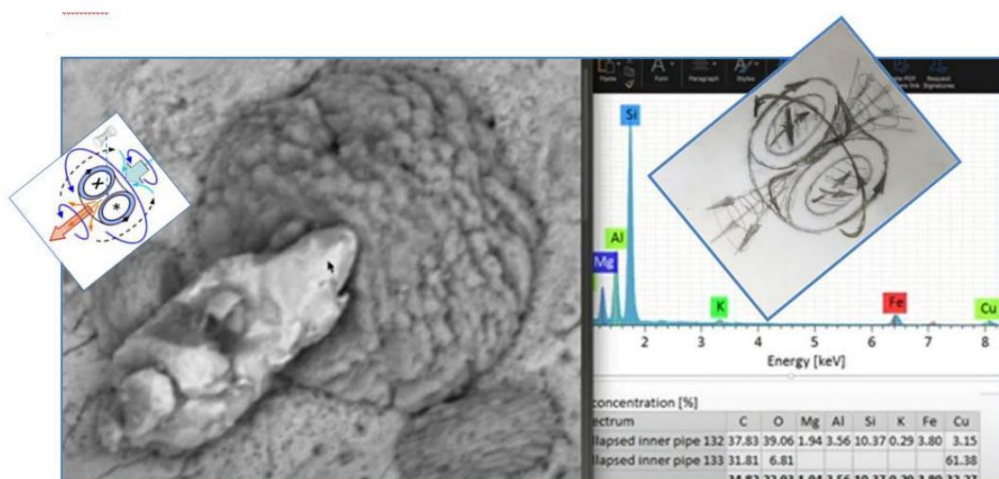


Fig. 19. Spin-Jet of the toroidal structure of the "cavitation bubble" from R. Grinier's materials.

Due to the incomplete filling of the toroid, the directions of the etheric flows are visible in the outlet funnel, which, when released into the aquatic environment, carry out (throw out) the material that has undergone transformation, having passed through the central region; apparently, when the installation was destroyed, the transformed material itself was torn off.

But in Fig. 19, the Spin Jet was successfully recorded, which has a different composition of chemical elements (see table) from the pipe wall, the angle of inclination of the toroid is greater, the Spin Jet is powerful, its size exceeds the size of the toroid.

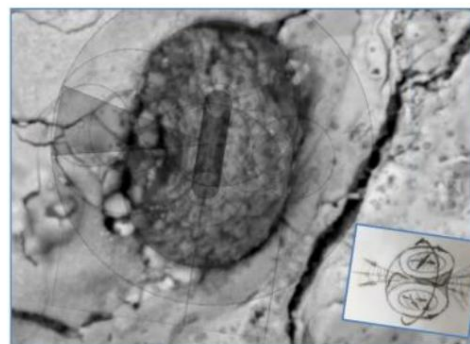


Fig. 19a. Toroidal reactor on Sacred Geometry, proposed by Grinier.

The author does not fully agree with R. Grinier in terms of his explanation of the mechanism of transmutation in a strong connection with sacred geometry, but in general we have similar approaches and main conclusions about what is the reason for the appearance of a line of atoms in the process of cavitation, which were not previously present in the original material.

The slight discrepancy in the results of the studies is due to the fact that we, as engineers approached the understanding of transmutation processes from different angles:

– the author from the side of Etherodynamics, and R. Grinier from the side of Sacred Geometry! Here is an interpretation of the toroidal construction of the cavitation process of transmutation, proposed by R. Grinier from the position of Sacred Geometry, based, in the author's opinion, on proportions related to the stability of real geometric objects, which work perfectly well in the microworld (see Fig. 19a).

The discovered conglomerates of materials that could not have been in the initial state of the cavitation installation, and those discovered by R. Grinier

sides of the outlet funnels of toroidal formations confirm their involvement in transmutation.



Fig. 20. Emission of carbon mass by the “Ethereic Vortex Toroidal-Cavitation Transmuter”.

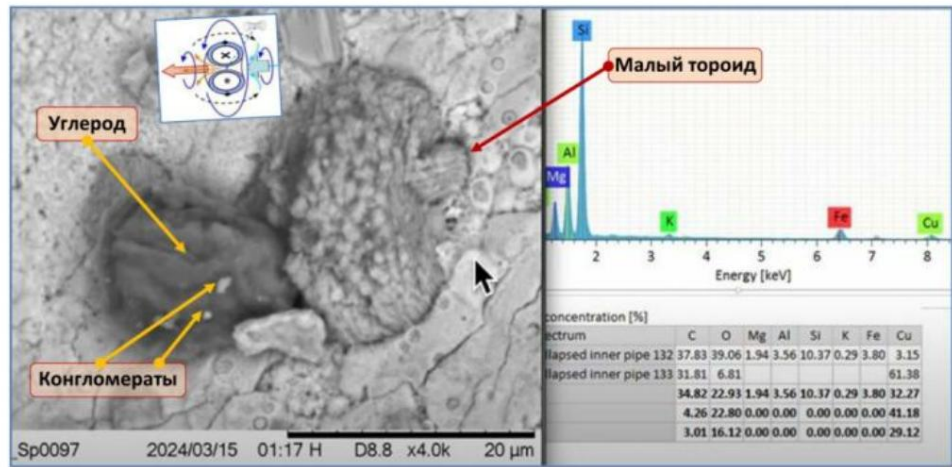


Fig. 21. Emission of carbon by a cavitation toroid and conglomerates with the composition indicated in the table.

On the right is another cavitation toroid, frozen with captured copper wall material, with a significant release of carbon (C), since the toroid's inlet funnel was almost entirely in an aqueous medium (the toroid's axis has an inclination to the surface from right to left), the presence of conglomerates is confirmed by the table of chemical elements shown in the right part of Fig. 21.

Small toroids, shown in Fig. 20 and Fig. 21, have smaller dimensions, and therefore lower energy of the etheric vortex toroid, a significantly smaller drop in etheric pressure in the center of the toroidal vortex, which apparently does not provide transmutation. That is, desynthesis in the core of the toroidal-ring cavitation bubble does not occur, the synthesis of new chemical elements becomes impossible - near small toroids, new formations are clearly not observed in the presented films.

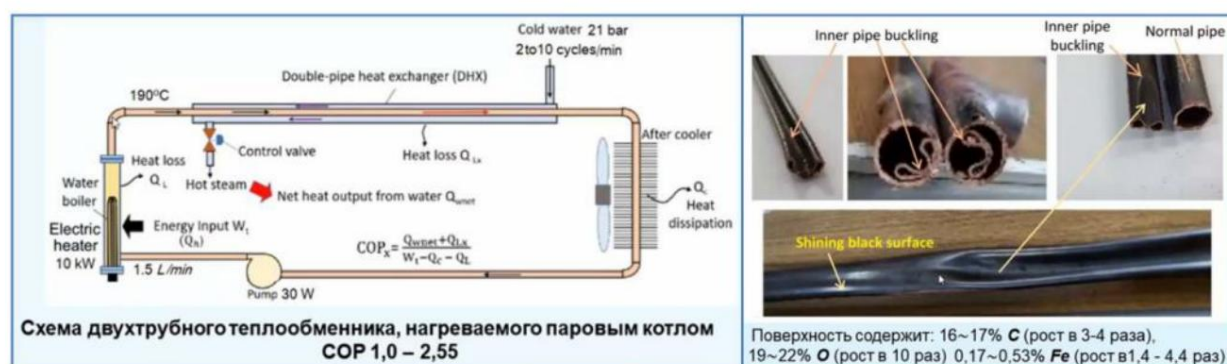


Fig. 22. Double-pipe Cavitation Reactor - left. Deformation of the reactor's inner pipe - right.

Fig. 22 shows one of the cavitation thermal reactors developed by *Bin-Juine Huang*, which was destroyed, from which samples of the walls of the inner copper tube were obtained, which were examined by R. Grinier for the presence of nuclear transmutation processes.

Etherodynamic mechanism of nuclear transmutation during cavitation processes.

The description of the results given above, from the standpoint of "Gradient Etherodynamics", which is a continuation and development of "Etherodynamics" by V.A. Atsyukovsky, allows us to understand the mechanism of transmutation of nuclei of chemical elements in the aqueous medium of the cavitation installation. To create the process of transmutation of input components down by atomic

numbers, it is necessary to significantly weaken the compressive external pressure of the ether

environment on primary atoms, which keeps the atoms from disintegrating. Apparently

there is some threshold of ether pressure below which the atoms fall into an unstable state and can be broken into different fragments.

This is the first part of the transmutation process, creating the necessary conditions for its occurrence. Many authors of theoretical etherodynamics accept that the charge of protons and electrons does not exist, but there is an interaction of the etheric vortex flows of the latter in the etheric medium, obeying the laws for continuous media, and therefore **there is no Coulomb barrier!**

In cavitation installations, regardless of the type of cavitation generator, researchers of the cavitation processes themselves, such as:

- LA Crum ("SURFACE OSCILLATIONS AND JET DEVELOPMENT IN PULSATING BUBBLES", Oxford University 1979, see Fig. 16-17);
- Van Dyke M. ("Album of Liquid and Gas Flows", Translation, Moscow "Mir", 1986); C. E. Brennen
- ("CAVITATION AND BUBBLE DYNAMICS", Oxford University Press 1995); - Pershin S. M. ("Cavitation increases the ratio of ortho/para-H₂O isomers in water and reduces its viscosity", Prokhorov Institute of the Russian Academy of Sciences);

Everywhere one can see a toroidal-ring organization of "cavitation bubbles" with the release of a screw structure in an aqueous medium.

The toroidal water structure visible in the light range is only secondary, the primary structure is the etheric vortex of the same configuration, which spins the water toroid, possessing many times greater energy and all-pervading properties, proven by many observations. ***The energy of the cavitation bubble is the energy***

the ethereal vortex that created it!

For example, a tornado is an ethereal vortex of a different scale in the air environment - the passage of which through a material object changes its physical and chemical properties, due to the previously described mechanism of a strong decrease in etheric pressure in the center of the etheric toroid, in the trunk of the Tornado there is a movement of the etheric medium, with captured bodies of the material medium, as a **"Solid Body"**.

The second part of the transmutation mechanism is the ejection of the accelerated "solid-state formation" from the outlet funnel of the toroid with high energy, during which it collides with the surrounding water or solid medium, a transition to the area of the medium with normal etheric pressure occurs, a monstrous compression and synthesis of various atoms occurs, which are maximally stable in this process.

Thus it was possible to describe the process of **Desynthesis** and **Synthesis** - (transmutations) of the atoms of the environment as it is seen from the engineering point of view and the positions of "Gradient Etherodynamics".

A consistent design of the etheric vortex is presented as the driving force of the creation of the world material environment, which is born in the centers of toroidal-ring etheric toroids with the ejection of "newborn" Spins-Jets into the surrounding space of the etheric-material environment.

The confirmation is the birth of new stars and diffuse matter in the Galactic Jets, discovered by the academician of the USSR Academy of Sciences Viktor A. Ambartsumian in the emissions of the radio galaxy M87, who put forward the revolutionary idea of the hierarchical division of the "Pre-Stellar Hadron": ***In the fifties***

of the last century, V.A. Ambartsumian established and irrefutably proved the presence of a completely opposite process in the Universe - the ubiquitous formation of stars and galaxies from super-dense matter, which catastrophically explodes and disintegrates. <http://vambartsumian.org/lib/pdf/ambartsumian.pdf>

According to the author's evidence, Protons are born in the centers of gravity created by a toroidal-ring etheric vortex (etherodynamic drive of planets, stars and galaxies) in an etheric environment with a gigantic reduced etheric pressure, which are ejected into the external material environment by the Spins-Jets of the corresponding etheric vortices (references are listed on page 4).

Similar processes of transmutation occur in biological cells of plants during the so-called "Photosynthesis", which is in fact the process of **Desynthesis** of the nucleus of an oxygen atom (**O2**), taken from a water molecule, into the nucleus of a carbon atom (C), by taking away the nucleus of an atom (**He**), proven in experiments on growing plants in inert gases, feeding only water, although, however, infrared radiation of a certain wavelength is required,

for each plant individually:

- "Study of the absorption of carbon dioxide from the air by plants. Chapter 3", I. N. Galkin, A. V. Shestopalov;

which completely refutes the official theory of photosynthesis. Similar processes occur in biological cells of the animal world –

for example, the transmutation of Potassium into Calcium, which is necessary for birds, necessary for the creation of eggshells, but absent in the diet, which is replaced by Potassium - for this, it is enough to add only two protons to Potassium during biological transmutation - and where is the Coulomb barrier! Where this process occurs has not yet been reliably determined (most likely in the mitochondria of cells, the double layer of membranes of which is a proton supercapacitor). It is necessary to reveal and describe how and where this transmutation mechanism occurs, and how the etheric vortex toroidal works

Potassium to Calcium transmuter, there is no other explanation for such an energy-consuming process!

Epilogue

Gradient Etherodynamics represents an integrated approach to understanding one of the main types of movement of the etheric medium - the Toroidal-Ring formation, which manifests itself on all scales - from the nanoworld to the Universe, with a Spin-Jet, which is not taken into account by outside researchers as an integral part of such an etheric formation, but which determines the behavior of many processes of the material world in the etheric medium.

The author has applied an engineering approach to the creation of highly complex systems - "Reengineering" - i.e. reconstruction and creation of a model of objects based on the results of interaction of these objects with the surrounding etheric-material environment, the mathematical apparatus for such a model still requires its development. - AEM.

I live only by death, but I do not hide that I am happy with my unhappy lot; He who fears to live by death and bondage, - Enter the fire in which I burn. Michelangelo Buonarroti

Conclusion

Etheric Vortex Mechanism of Toroidal-Cavitational Transmutation - **EVTKT** is a generalization of the idea of "Toroidal-Ring Formation of Ether with Spin-Jet" - this universal *Form of Movement (Life) of Ether-Dynamic Flows*, in which the birth of a Proton in a Gravitational Ether Flow, described earlier, occurs, the creation of chemical elements in the Spins-Jets of toroidal etheric vortex formations, for example - during cavitation, as well as during the birth of stars in the Jets of Galaxies, seen in the middle of the last century by Academician of the USSR Academy of Sciences V.A. Ambartsumyan, and confirmed by the latest astronomical observations.

Key findings

1. For the first time, a comparison was made between the ether-dynamic model of the Proton with Spin-Jet and the results of bombarding protons with electrons at the SLAC accelerator (Stanford), and a complete agreement between the model and the experiment was demonstrated.
2. For the first time, the distribution of the Ether pressure along the Proton axis and in its cross section is shown, characteristic of any ether-dynamic process of toroidal-ring flow with a pronounced Spin-Jet, independent of the fractal scales of ether processes - from Proton to Galaxies.
3. For the first time it was possible to describe the process of Desynthesis and Synthesis (transmutation) of atoms as it is seen from the engineering point of view and the positions of "Gradient Etherodynamics". A consistent design of the etheric vortex is presented as the driving force of the creation of the world material environment, which is born in the centers of toroidal-ring etheric toroids with the ejection of "newborn material objects" by Spins-Jets into the surrounding space of the material environment.

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The Etherodynamic Vortex mechanism Toroidal Cavitation Transmutation – EVTCT

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“Gradient Etherodynamics” represents an integrated approach to understanding one of the main types of motion of the ethereal medium - a Toroidal-Ring formation with a “Spin-Jet”, manifested on all scales - from the nanosphere to the Universe.

“Spin-Jet” is not taken into account by outside researchers as an integral part of such an ethereal formation, but which determines the behavior of many processes of the material world in the ethereal environment, the mathematical apparatus for such a model does not exist and still requires its development.

The author applied an engineering approach to the reconstruction of highly complex systems based on their behavior – “Reengineering” - ie, reconstruction and creation of a model of ethereal objects based on the results of the interaction of these objects with the surrounding ethereal-material environment.

The model of the “Toroidal-Ring flow of Ether with a Spin-Jet” allowed us to answer many questions, including the question of the mechanism of transformation of atomic nuclei of chemical elements during cavitation processes, and not only.