

New Energy Technologies

Research on advanced propulsion systems and new energy sources

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*Vortex propulsion drive
for aerospace systems
Dr. Poliakov, Moscow*



*Antigravitation system
by V.Grebennikov*

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- * 1000% effectiveness of plasma electrolysis
- * Torsion fields, Dr. Akimov and Dr. Shipov
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- * Axion (spin) field generators from Alexander Shpilman
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Introduction to experimental gravitonics

New book by Dr. S.M.Poliakov and O.S.Poliakov

The authors develop an original phenomenological theory of gravitation generators and receivers based on their micro-structural model of the classical electron. This theory includes simple analytical equations for relation between magnetism and gravitation. It is demonstrated experimentally that gravitation is a property of non-stationary systems which include some time-variable parameter. The equations have been verified in a series of his experiments and it may be recommended for practical applications.

The experimental work was made on following subjects:

1. Light-beam curvature and frequency shift of the beam were produced. A new gravitational effect, named as the "quadrature frequency shift" of the curved light beam is predicted and calculated.
2. Magnetostriction effect is explained as a secondary gravitational effect. An equation for magnetostriction is given in the book.
3. The propagation velocity of gravitation interaction was calculated.
4. It was demonstrated that gravitation is one of non-linear mechanical effects and it can be produced in special mechanical systems or in ferromagnetic media.



Russian version of the book was published at first in 1991. Most powerful experimental result was claimed as 1200 grams force. Several mechanical systems and systems which are based on ferromagnetic material are detailed by the authors.

Second edition in English is ready for publication.

Editors and investors interested in joint projects on the topic can get direct contact with Dr. Poliakov:

Dr. Spartak M. Poliakov

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Phone 7-096-5646567



Antigravitation technology in sensational book

"My world" by Dr. V. S. Grebennikov, Novosibirsk, Russia
phone 7-3832-484245

In 1988 Dr. V.S. Grebennikov discovered biological antigravitation phenomenon based on so called "cavity structures effect" - CSE.



Here you can see some photos from his book and you can get more news from Dr. Yuri N. Cherednichenko (Laboratory of biophysics Scientific Research Institute of GPHE, Russian Ac. Med. Sci. Novosibirsk-city) who submitted the materials on his web site
<http://www.sinor.ru/~che/grebennikov.htm>
Email: che@online.sinor.ru



This NET issue includes Prof. Zolotarev's article on the "cavity structures effect" that can be considered as physical model of the technology. In other words the effect can be explained as result of interference of the De Broglie's matter waves produced by spatial resonators.



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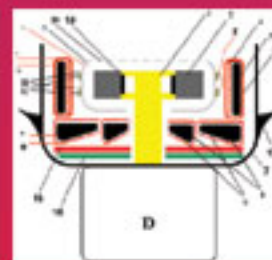
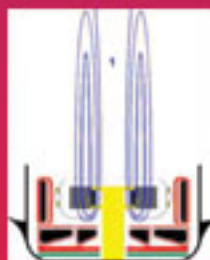
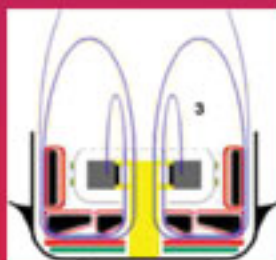
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Artificial biofield device by Dr. Mishin (this issue) in his experiments on the Ether wind detection and measurements

The Ether Wind



Next issue: report about relations between electricity and gravitation

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An Experimental Investigation of the Physical Effects in a Dynamic Magnetic System

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S.M. Godin



V.V. Roshchin

History of this project

Team of scientists from Moscow Aviation Institute (MAI) was created on the basis of "Machine Industry Projects" Institute of association "Aeropromservice" in 1990 as a technical physics laboratory. The research work was made to investigate electromagnetic fields and to find efficient methods of electromagnetic energy transfer. Financing was organized by private investors and the work was produced in close collaboration with Chair number 310 of MAI, especially Prof. PhD. L.K. Kovalev, Prof. PhD. V.V. Rybakov and PhD. K.V. Ilyshin.

Also in 1990 an analysis of laboratory data on hydrodynamics of vortex structures was published, which have special properties (Physics of Negative Viscosity Phenomena. Prof. Victor P. Starr, Massachusetts Institute of Technology) and there was discovered a new understanding of the structure of quantum media that can be considered as the base of electromagnetic and gravitation interactions. A series of experiments was produced to confirm the theory and in 1991 the Technical Task to manufacture "A device for conversion of inner energy of matter" was written. The experimental setup was started in 1991 and it continued for 2,5 years up to the middle of 1993.

We could work with the setup only for a very short period of time due to investor's financial problems lead to de-installation of the device and the laboratory was closed in 1993. This paper is a description of the results.

From 1993 to 1999 we tried to find financial support for the work from different government bodies, such as the Russian Academy of Science. Unfortunately we failed to find serious interest to this problem from them.

Today the project "Astra" is developing as analytic, engineering and patent work and it is a private initiative. At the present time we have all the documentation needed to produce the experimental setup and we have an agreement with some organizations to produce research work into a complex program, which also includes the medical biological aspects.

Abstract

It was demonstrated that a magnetic system, which is based on rare-earth magnets could be used to convert different forms of energy. ***With some critical mode the experimental setup becomes fully energetically autonomous. This is accompanied with some local changes in the weight, some decrease in the surrounding air temperature and creation of concentric "magnetic walls" around the setup.***

Introduction

We have experimentally investigated physical effects in a system based on rotating permanent magnets [1]. Below the technology of manufacture, assembly, and the results of testing are disclosed.

Technological description

The converter consists of an immobile stator and rotor, which carries fixed magnetic rollers. The magnetic system of the converter has about 1 m diameter. The stator and magnetic rollers were manufactured from separate magnetized segments made of rare-earth magnets (REMs) with a residual magnetization of 0.85 T, a coercive force of 600 kA/m, and a specific magnetic energy of 150 J/m. Then the magnetized segments were assembled and glued together in special mounting stage that is necessary for tolerance in positioning of the segments. With this mounting stage it became possible to glue the elements into the common unit. The stator incorporated REMs with total weight of 110 kg and the rollers contained 115 kg of the same REM material. The elements of magnetic system were assembled into a single structure on a special platform made of non-magnetic alloys.

The platform construction includes several springs and shock absorbers to move the converter in the vertical direction on three slides. There is an inductive transducer to mark any changes of weight. The total weight of the platform with the magnetic system in initial state was 350 kg.

Description of the observed effects

The converter was installed in 2.5-m-high laboratory room on three concrete supports at ground level. In addition to ordinary steel-reinforced concrete ceiling blocks, the converter environment included a standard electro-generator and an electro-motor. The converter was accelerated by means of the electric motor. The speed of rotation was gradually increasing until the amperimeter, which was connected in series with the motor circuit showed zero input current or back current direction. This mode of operation corresponds to 550 rpm, but the motion transducer began to indicate a change of weight beginning from 200 rpm. Then the electric motor was disconnected by means of special electro-magnetic overrunning clutch, and standard electrodynamic generator was connected to the main shaft of the converter.

On some critical mode (~ 550 rpm), the rotor demonstrated a sharp increase of the rotation speed; this was accompanied by slow-down in the rate of changes in weight. At this moment, first 1 kW load was connected to the system. Immediately upon connection, the rotation speed began to decrease. Weight changes in the system depend both on the consumed power (the load consists of ten standard 1kW heaters) and on the polarization voltage applied to the system. For maximum consumed power (7 kW), the change of weight reached up to 35% of initial value (350 kg), which corresponds to 50% of the pure weight of the working body of the converter. An increase of output power in load above 7 kW led to a gradual decrease of the rotor speed and, eventually, to the mode of operation when the system was leaving of the self-generation regime and the rotor speed at decreasing until it finally stopped. The application of a high-voltage signal to the cellular ring electrodes could control the platform weight. The electrodes were placed at 10 mm above the external roller surface.

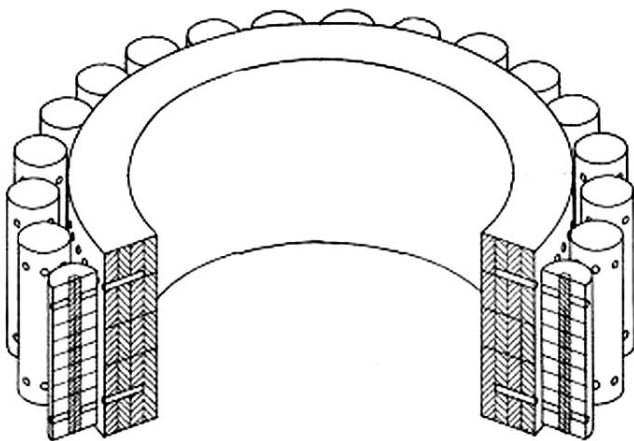


Fig 1

Direction of the rotor motion demonstrated certain hysteresis. For the clockwise rotation, the critical mode

was observed for 550 rpm and the axial force acted against the gravity vector. For the counter-clockwise rotation, the critical mode was observed for 600 rpm and the extra force was co-directed to the gravity vector. The onset of the critical mode exhibited a scatter within 50–60 rpm. It should be noted that, probably, some other critical resonance mode might exist, which corresponds to some high rotor speeds and a greater level of load. Starting from the general theoretical considerations, the output mechanical energy must nonlinearly depend on the internal parameters of the converter magnetic system and the rotor speed, so that the observed effects are far from optimum. Establishment of the maximum output power, maximum weight variation, and the converter energy resource is a topic of great theoretical and practical interest.

Besides the phenomena described above, a number of other interesting effects were observed in the process of experimenting with the system. ***In particular, the converter operation in the dark was accompanied by a corona discharge with a pinky-blue light emission and by ozone production.*** The ionization cloud was formed around the stator and rotor and it acquired a toroidal shape. The general corona discharge showed wavy pattern corresponding to the surface of rollers: zones of increased emission intensity were distributed along the roller height in a manner similar to that observed for the high-voltage microwave induction energy storage in the pre-breakdown state. These zones appeared to be yellowish-white, but the emission was not accompanied by sounds characteristic of arc discharge. Nor did we observe any visible erosive damage of the stator and rotor surfaces.

One more effect, which has never been previously reported, is the appearance of vertical "magnetic walls" surrounding the setup. We have detected and measured an anomalous constant magnetic field around the converter. The measurements revealed zones of increased magnetic field strength, which have the order of 0.05T arranged coaxially relative to the system center. The direction of the magnetic field vector on the "walls" coincided with that in the rollers. The structure of these magnetic zones resembles the pattern of circular waves on the water surface. No anomalous field was detected by the mobile magnetometer employing the Hall effect in the areas between zones.

The layers of increased magnetic field strength propagated with no attenuation to a distance of 15 m from the converter center and then rapidly vanished at the boundary of this 15-m area. Each layer zone was 5–8 cm thick and had sharp boundaries. The layers were spaced by 50–60 cm, the spacing slightly increased with the distance from the converter center. A stable pattern was also observed at height of 5 m above the setup (the measurements were conducted in a second-floor room above the laboratory; no tests were performed on next floor).

Another interesting phenomenon is the anomalous temperature drops in the immediate vicinity of the

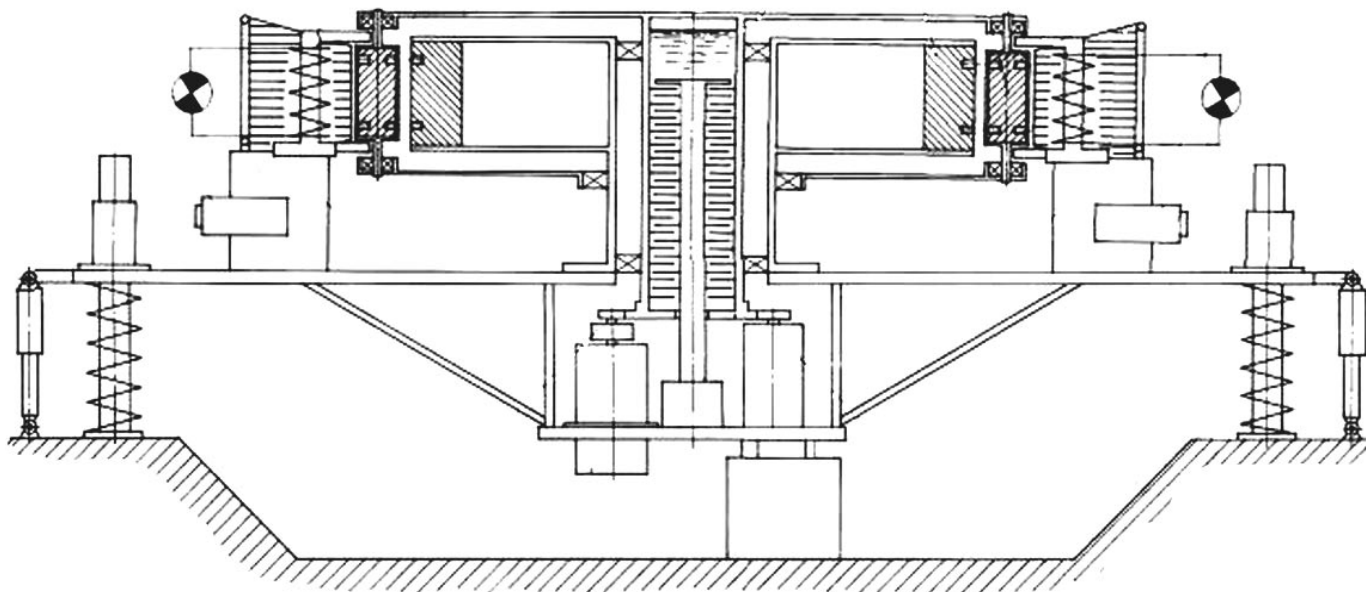


Fig 2

converter. When the room temperature level of the laboratory was about +22 C, the temperature at the converter surface was 6–8 degrees lower. Similar temperature variations were detected in the vertical magnetic “walls.” An ordinary alcohol thermometer with a reading step of time of 1.5 min detected the temperature changes in the walls. The temperature variations in the magnetic “walls” could be easily detected directly by the human body: a hand inside of the “wall” immediately feels cold.

Discussion of results

All the experimental results described above are very unusual and need some theoretical rationalization. Unfortunately, attempts to explain the obtained results within the existing framework of physical theories showed that none of these models can explain the whole set of experimental data. Recently, Dyatlov [2] attempted **to combine the concepts of electricity and gravity** by introducing the so-called electronavigation and magnetic-spin coefficients into the Heaviside gravity equations and into the Maxwell field equations. This provides the relationship between the gravitational and electrical components, as well as between the magnetic and rotational components in a given medium. The assumptions are built around a special model of inhomogeneous physical vacuum, the so called **“the vacuum domain model”** [2]. It is suggested that the extra relationships are absent outside the vacuum domain. Although it is difficult to imagine a long lasting vacuum domain, the proposed model provides us with a satisfactory explanation (at least some qualitative phenomenology) of discovered emission, the system

weight changes and the conversion of energy taken from the surrounding medium into the rotational mechanical moment of the rollers. Unfortunately, the theory cannot provide a physical pattern of the observed phenomena.

Conclusion

At the present time some work into a new advanced version of the converter are in progress at Glushko town, Scientific Industry Corporation “Energomash” (Moscow). This experimental setup will allow us to get a new deep insight into the physics of the observed phenomena. Another goal is the creation of commercial samples for practical application.

References

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Unfortunately, attempts to explain the obtained results within the existing framework of physical theories showed that none of these models can explain the whole set of experimental data.

Torsion Technologies are XXI Age Technologies

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During past three hundred years the science has been known two universal long-range types of field. They are gravitational field and electromagnetic field. The significance of universal long-range fields can be easily proved, for example, by electromagnetic fields. The twentieth century showed clearly that it is difficult to find any technical, scientific or household problem, which could not be solved with the help of electromagnetism. It is electric power industry, electric transport, radio communication, computers, navigation, etc. Not a single universal long-range field has been discovered for last three hundred years; a field that could boast such an impressive sphere of practical application as it is the case with electromagnetism.

In the early twentieth century French scientist E. Cartan postulated the existence of torsion fields in the nature, i.e. fields generated by the angular momentum of rotation [1]. Before the spin was discovered, the nature of torsion field had been connected to the rotation of huge objects. Within the framework of such an approach, torsion field is viewed as a manifestation of gravitational field of rotating huge objects [2]. Later on, the spin, a quantum analog of the angular momentum of rotation, was discovered and it became clear that torsion field at the quantum level is generated by a spin unlike electromagnetic field generated by a charge and gravitational field generated by mass. From this standpoint, torsion field can be viewed as an independent physical object like electromagnetic and gravitational fields. By the mid-1970s, theoretical research on torsion field resulted in appearance of an independent subdiscipline of theoretical physics named Theory of Einstein-Cartan. Practically all experts working within the framework of Theory of Einstein-Cartan consider that torsion field is only a specific aspect of gravitational fields. The most prominent experts working within the framework of this theory are E. Fradkin, D. Gitman, V. Ponomarev, U. Obukhov from Russia, American R. Hammond, R. Hehl from Germany, Italians V. De Sabbata and C. Sivaram, M. Karmeli from Israel and others.

Theory of Einstein-Cartan remained a theoretical discipline that did not find practical application as it proved that torsion field is weak and cannot create visible phenomena or effects. This situation existed until 80s-90s, when G. Shipov created Theory of Physical Vacuum (TPV), which proved that the Theory of Einstein-Cartan is a phenomenological theory, primarily because of its relation to the phenomenological nature of E. Cartan's geometry. A fundamental theory of torsion fields basing on Ricci's geometry was developed in Theory of Physical Vacuum. The theory of torsion field in TPV does not impose any restrictions on the constant

of spin-torsion interactions, i.e. torsion field can manifest intensively. We should pay attention to the fact that even Theory of Einstein-Cartan does not impose any restrictions on the constant of spin-torsion interactions regarding dynamic torsion (for radiating torsion sources). This does not prove that torsion field has strong manifestations. It is important in this context that the theory does not require obligatory infinitesimal constant of spin-torsion interactions. In this case the answer to the question whether this constant is small or big and, consequently, whether possible effects are strong or weak can be obtained only by means of direct experimental measurements.

What is the most basic interpretation of the Physical Vacuum? Let's imagine some limited space, where the air has been removed. Traditionally, we would say there is nothing there, which means there is vacuum. However, according to modern understanding, this is physical vacuum since this volume is not empty at all. Let us imagine now that we managed to remove all fundamental particles from this volume and to screen it so that no particles from outside can get inside. But even in this case, from the point of view of modern physics, it is impossible to assert that the volume is empty. The so-called virtual electron-positron pairs can appear in random locations of this volume of space.

Material objects, electron-positron pairs, cannot appear from nowhere. They can be produced only by substance and if we do not register it directly in the specified volume, from which virtual pairs arise, this is bound to be some specific substance that cannot be observed under usual conditions. This specific substance was called Physical Vacuum. Apart from producing electron-positron pairs, Physical Vacuum manifests itself in a number of experimental phenomena.

Physical Vacuum is known to manifest itself in the so-called Lamb shift in hyperfine structure of hydrogen atom radiation and determines the so-called Kazemir's effect. The standard interpretation describes Physical Vacuum as a complex quantum dynamic object, which manifests itself through fluctuations.

With such an approach the scientific description of Physical Vacuum derives from the concept of S. Winberg, A. Salam and S. Glashow. G. Shipov's Theory of Physical Vacuum is based on strict fundamental postulates. This theory provides analytical description of Physical Vacuum on the basis of three vacuum equations: the equation of A. Einstein, equation of Geisenberg and equation of Young-Mills, which are structural equations of R. Weitzenbock's geometry. G. Shipov's Theory of Physical Vacuum allowed us to recognize the structure of the creation. We are an integral part of the reality, which is divided into seven hierarchical levels.

The topmost level, Absolute Nothing, is a level, which has no strictly analytical description within the framework of the Theory of Physical Vacuum. The problem is to be solved by future theories. However, we believe that this level of the reality contains information defining the necessity of generation of the

following level of the reality that determines the way (laws) of how this generation should take place, which determines properties of another level of the reality. G. Shipov called this next level of the reality as a primary torsion field.

The primary torsion field is a special form of existence of substance, which is a quantum vortex, which does not possess energy and does not transmit energy.

These quantum vortexes have informational interaction. As there is no quantum vortexes interaction energy in the primary torsion field, the perturbation transfer rate in the medium of this level can only be equal to infinity. The primary torsion field also has to contain information defining the necessity of generation of the following level of the reality that determines the way (laws) of how this generation should take place, which, in turn, determines properties of another level of the reality. This level of the reality is known to modern physics as Physical Vacuum. Physical Vacuum might have a lot of components and various structural elements. Physical Vacuum, as well as the primary torsion field, contains ring vortex structures, which do not transfer energy. Perturbation propagates instantaneously in Physical Vacuum, i.e. its speed is equal to infinity. Properties of Physical Vacuum should contain information, which defines the mechanism of origination of specific virtual pairs rather than some random particles and antiparticles.

Particles, which were originated from Physical Vacuum, form the new level of hierarchy of the reality, i.e. the plasma. Properties of such particles as electron, proton and neutron, coupled with those of Physical Vacuum, with which they interact, determine appearance of specific rather than random atoms generated from the specified particles. These atoms and molecules, which they form, constitute the following three levels of the reality depending on the state of the phase - gases, fluid and solids.

G. Shipov called the four lower levels of this seven-level structure of the reality the objective physics, which is a subject of standard physical schools. The upper two levels were called the subjective physics. A number of theoretical experimental results prove the fact that these two levels together with the level of Physical Vacuum are responsible not only for many physical phenomena and processes, but also play a primary role in human consciousness. It is possible that Absolute Nothing is a level connected with the global manifestation of the Spiritual.

The level of the Spiritual should be creative and volitional. Inevitability of existence of creative base, i.e. the Spiritual level, is determined by the fact that the whole vertical structure and properties of all the horizontal levels should at first be "formulated" at the level of Absolute Nothing. Inevitability of something volitional on the Spiritual Absolute "Nothing" level is determined by the fact that there should be an impulse, which would start the mechanism of creation of the above levels of the reality. In the end it turned out that

the Theory of Physical Vacuum, as well as constructed physical models, not only gives ground to set up physics of consciousness, but also allows us to suppose the physical understanding of the Spirit.

Phenomenological models of Physical Vacuum appeared in Russia in the early 1980s and later turned out to correspond to the conclusions of the Theory of Physical Vacuum. Also it was important that these models did not contradict to official experimental results.

When models of Physical Vacuum were created it was deemed expedient to return to the electron-positron model of P. Dirac, which is changed in some aspects. This approach may be considered as justified if it allows us to formulate conclusions, which do not follow directly from standard notions.

At the same time, taking into account that physical vacuum is a state without particles, and, proceeding from the model of the classical spin by Ya. Frenkel and I. Ternov as ring wave packet (circulating energy flow, according to Belinfante's terminology [6]), we shall consider the vacuum as a system consisting of ring wave packets carrying information on the properties of the particles, rather than system of electron-positron pairs. It follows from the above suggestions that the true electro neutrality of such electron-positron vacuum will only be possible in case ring wave packets of electron and positron are enclosed into each other, as you see on Fig.1A.

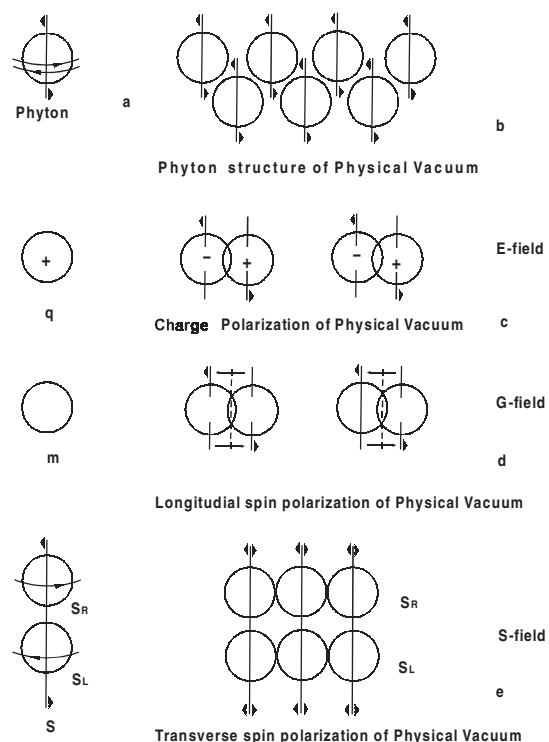


Fig.1 Diagrams of polarization states of Physical Vacuum

If the spins of these enclosed ring packets appear to be opposite, such system will be self-compensated not only with respect to charges, but also to the classical spin and magnetic moment. The system comprised by the enclosed ring wave packets, as is shown in Fig.1a, **will be referred to as a fiton**. Let's consider the most

practically important cases of Physical Vacuum perturbation by different external sources within the framework of the proposed model. This may help to demonstrate a feasibility of the suggested approach.

1. Let the charge (q) to be the perturbation source. If vacuum has fiton structure, the activity of the charge will be expressed in the charge polarization of Physical Vacuum, as it is shown on the Fig.1C. This case is well known in terms of quantum electrodynamics. In particular, the Lamb shift is traditionally explained through the charge polarization of the electron-positron Physical Vacuum.

2. Let the mass (m) to be the perturbation source. Unlike in the previous case, where we face a well-known situation, we will come up with a hypothetical suggestion here. Perturbation of Physical Vacuum by the mass m will be expressed in symmetric oscillations of fiton elements along the axis on the center of the object of perturbation, as it is shown on the Fig.1D. Such state of Physical Vacuum can be characterized as gravitational field (G-field).

If the mechanism of gravitation is really connected with longitudinal spin polarization of Physical Vacuum, we will have to admit that the nature of gravitation excludes the antigravity existence.

3. Let the classical spin to be the perturbation source. Presumably, the activity of the classical spin on Physical Vacuum will consist of the following. If the source has a spin oriented in a manner shown on the Fig.1e, spins of fitons that coincide with orientation of the source's spin, retain their orientation. Spins of fitons that are opposite to the source's spin are subjected to inversion due to the activity of the source. As a result, Physical Vacuum will change in a state of the transverse spin polarization. This polarization state can be interpreted as a spin field (S-field), the field generated by the classical spin, i.e. torsion field. The above approach is similar to the notions about the torsion fields as a condensate of fermion pairs.

The S_R and S_L polarization spin states are in contradiction with the Pauli's exclusion. However, according to the concept of academician M. Makarov [7], the fundamental physical laws at densities close to Planck's ones can have other physical sense. Rejection of Pauli's exclusion in a specific material medium, such as Physical Vacuum, is permissible, and probably to no less extent than in the case with the concept of quarks.

According to the above approach, we can state that the uniform medium, Physical Vacuum, can exist in different phases, or, to be more precise, polarization states, i.e. EGS states. This medium in the state of charge polarization manifests itself as an electromagnetic field (E). The same medium in the state of spin longitudinal polarization manifests itself as a gravitational field (G). Finally, Physical Vacuum in the state of the spin transverse polarization manifests itself as a spin (torsion) field (S). Thus, EGS-fields correspond to the EGS-polarization states of Physical Vacuum.

In the early 1980s, A. Akimov predicted and experimentally confirmed the existence of a special class of torsion fields – electrotorsion fields [9]. In the mid-1990s, the author of the Theory of Physical Vacuum, G. Shipov, gave fundamentally strict substantiation of electrotorsion fields [3]. The model of polarization states of Physical Vacuum allowed us to find out an important circumstance. It has already been reported that torsion field can be registered in cases when Physical Vacuum has the state of the spin transverse polarization. However, we can formulate a more general approach based on the synergetics criteria. Presumably, torsion field can be registered in all cases when Physical Vacuum is in non-equilibrium spin state.

It is clear that the charge scission of fitons also causes spin spatial scission in case of the charge polarization of Physical Vacuum, as you can see at Fig. 1c. ***As a result, the spins appear to be non-compensated, which is an equivalent of the torsion component in electromagnetic field.***

Gravitational and torsion fields manifest themselves "purely", whereas electromagnetic fields always contain the torsion component, which is an important fundamental fact. Torsion field can be observed both in electrostatic field and in electromagnetic radiation.

Inability to understand this fact frequently resulted in that many phenomena of psychophysics generated by electromagnetic sources were explained with electromagnetic phenomena. In this connection it is necessary to mention the works of investigator Dzen Kanzen, inventor Hideo Uchida, etc. Thus, Hideo Uchida experimentally proved [8] that *the device, which he had designed, reacted when the generator was switched on at the frequency of 13.0 GHz, with the detector shielded and waveguide outlet closed by a metal blank flange.* It is possible to explain this phenomenon considering the fact that the electromagnetic signal in the waveguide excites a torsion signal at the same frequency and the signal is not screened.

It is noteworthy that the reaction of biolocation operators to electromagnetic radiation is probably connected with the specified ability of electromagnetic field to generate the torsion component.

G. Shipov's fundamental theory of torsion field [3], which allowed us to prove intensive manifestation of torsion field, and, hence, provided us with an opportunity to observe strong effects, and, consequently, to solve a wide range of applied problems, played a very important role in the new revolution in physics. Creation of the world's first torsion generators in Russia in the 1980s [9] was a landmark of the new revolution in physics. Torsion generator is a device generating static torsion fields and wave torsion radiation. A number of laboratories, which have been united under the International Institute of Theoretical and Applied Physics (Russia, Moscow), which is carrying out a

considerable amount of works together with TORTECH USA, have made more than 20 torsion generators of different design during 20 years.

The developed torsion generators form two groups of devices. The first group includes torsion generators that create static torsion fields of variable intensity and spatial configuration, with different spacing and range.

The other group consists of torsion generators that create wave torsion radiation of various intensity, different frequencies (with frequency range from fraction of hertz up to hundreds of gigahertz), different frequency spectrums, different types of modulation, different methods of sending information to different objects. Universal torsion generators have been designed, which, apart from wave torsion radiation, can also create the static torsion fields and torsion currents. In some practical situations different types of torsion generators should be used simultaneously.

During 20 years torsion fields and torsion generators have been widely used to create torsion energy sources, torsion transport, torsion metallurgy, torsion systems of data transfer communication, torsion systems of medical diagnostics, etc. [10].

Feasibility and practical effectiveness of torsion fields was experimentally proved in a number of areas of application. In some areas, such as nuclear wastes salvaging with the use of torsion technologies, there is scientific substantiation and preliminary experimental results. Technological experience was gained in some areas.

Peculiar features of torsion field's properties define a significant efficiency of torsion technologies and simplicity of physical and technical methods, which implement these technologies. I will only outline their basic properties. However, it is noteworthy that all the properties of torsion fields were predicted theoretically and have been confirmed experimentally.

1. The classical spin or macroscopic rotation is the source of torsion fields. Torsion field can be generated by torsion of space or arise as a consequence of perturbation of Physical Vacuum of a geometrical or topological nature. It also can arise as an integral component of electromagnetic field. Torsion field can have self-generating nature.

The above cases describe torsion field generated at the level of matter. However, according to the Theory of Physical Vacuum, there are primary torsion fields that are generated by Absolute Nothing. Similar to the initial material of the matter world, i.e. the fundamental particles, which appear from Physical Vacuum, the Physical Vacuum itself arises from primary torsion field.

2. The tordions are quanta of the torsion field. We believe that tordions are neutrinos with energy as low as unities of eV. These neutrinos form a special class.

3. As torsion field is generated by the classical spin, its influence on some object can result only the change of its spin state (state of nuclear or atomic spins).

4. Different from the sources of electromagnetic and gravitational fields, which create fields with central symmetry, sources of torsion field create ***fields with axial symmetry*** as it is shown on the Fig.2. The spinning object establishes polarization in two spatial cones corresponding to left torsion field (S_L) in one direction and right torsion field Fig.2 (S_R) in the other. Moreover, there is an area of torsion field that looks like a disk, which is perpendicular to the spin axis and passing through the spin center. Axial torsion field appears in the areas described as cones (T_a), while radial torsion field (T_r) arises in the disk. Each of these torsion fields can be either right (T_{aR}, T_{rR}) or left (T_{aL}, T_{rL}).

5. Different from the electrical charges, torsion charges having the same sign (like classical spins ($S_R S_R$ or $S_L S_L$)) attract to each other, while unlike charges ($S_R S_L$) are repelling.

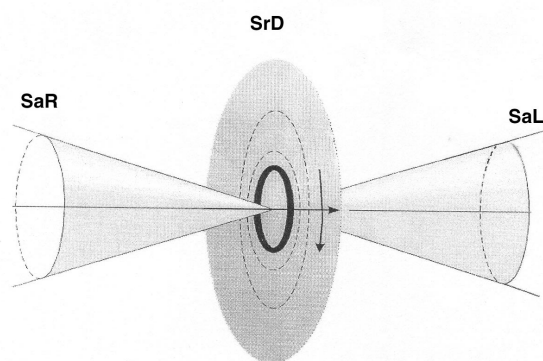


Fig.2 Spatial diagram of static torsion field of the spinning object. SaR, SaL - right and left axial torsion fields. SrD - radial torsion field of the spinning object

6. A stationary spinning object creates static torsion field. If the spinning object is non-equilibrium, for example change of angular rotational velocity, precession of massive objects, its nutation or the object has the moments of greater order, also the gradient distribution of mass along the spin axis, then such a dynamic spinning object creates wave torsion radiation.

7. Static torsion field has a limited range r_0 where the intensity of torsion field may slightly vary remaining almost the same as you can see on the Fig.3. Conventionally by analogy with electromagnetism, though physics of processes is different here, we can call the r_0 range as a *short-range zone*. The r_0 range does not limit the wave torsion radiation and its intensity does not depend on the distance.

8. The potential of torsion fields is identically equal to zero, which proves that they are not of energy nature. This is one of the factors which explain, why torsion signals (torsion influence) are transferred informationally rather than energetically, i.e. without

transmission of energy and their speed is overlight (infinite).

9. Physical Vacuum is the medium, where torsion radiation propagates. It is the holographic medium in relation to the torsion waves. In this medium torsion waves propagate through the phase pattern of the hologram. This is the second fundamental physical factor that explains informational rather than energetic nature of signals transfer, as well as indefinitely great transfer speed.

10. The constant of spin-torsion interactions for the static torsion fields for the case of the Cartan's spinning is less than 10^{-50} , according to the existing assessments, i.e. such fields cannot produce effects that can be observed in reality. Theoretically, the constant of spin-torsion interactions for the wave torsion fields of the Cartan's spinning (dynamic torsion) is not limited. Also the torsion fields of Ricci's or Weitzenböck's spinning have no restrictions on the value of the constant of interactions, and, hence, the intensity of manifestation of these fields is unlimited. Torsion fields with spinning generated as a component of electromagnetic fields (electrotorsion interaction) have the value of the constant of interactions about $10^{-3} - 10^{-4}$ [3]. This is a theoretical value that has been experimentally confirmed by professor R. Kuzmin.

11. Since the constant of electrotorsion interactions ($10^{-3} - 10^{-4}$) is slightly less than the constant of electromagnetic interactions ($\sim 7.3 \cdot 10^{-3}$), in natural conditions such torsion influence can cause observable changes only in objects with non-equilibrium state, for example, phase transitions that attenuate the electromagnetic connections.

12. ***Torsion fields pass through the natural mediums without any losses.*** This is a normal factor considering that neutrinos are the quanta of torsion fields.

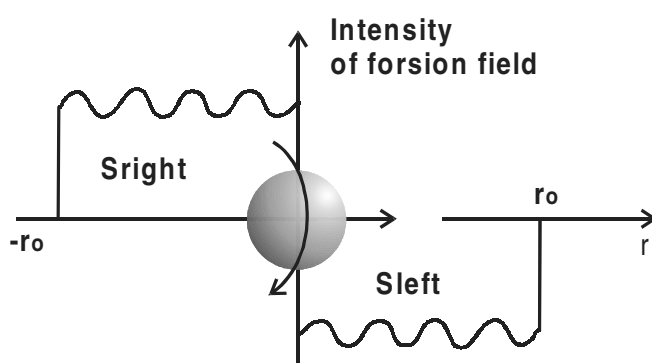


Fig.3 Intensity of static torsion field as function of r

13. Theoretically, as it has been pointed out above, the speed of torsion waves is equal to infinity. Overlight speeds are not unusual in physics. It was presented in Newton's theory of gravitation, and it forms the basis of ***the concept of tachyons***. There would be no Goldstone's theory of spontaneous disturbance of symmetry without them. Overlight speeds were experimentally observed at first by N. Kozyrev [11], and

later confirmed by two other teams. Zeilinger [12] confirmed it at the quantum level. We should mention that Soviet physicists noticed more than a decade ago that spin perturbations in spin medium are propagating in such a way that they cannot be screened, which in those times had no relation to the torsion fields. It means that there is a possibility of underwater and underground telecommunications, as well as communications through any other natural medium.

14. All organic and inorganic bodies consists of atoms, most of them have non-zero atomic or nuclear classical spins. Taking into account that all bodies are placed in the magnetic field of the Earth, considering the presence of magnetic moments of atoms and nuclei caused by the classical spins, and charges, there is a precession, which generates wave torsion radiation. ***Thus, all bodies have their own torsion fields (radiation).***

15. Since different bodies consist of different chemical elements and different chemical compounds with different stereochemistry, i.e. different spacing of atoms and chemical compounds in these bodies, ***each body has unique torsion field (radiation), i.e. typical frequency and spatial-frequency torsion field.***

No matter how unusual properties of torsion fields may seem, they should not only be accepted, but also exactly obeyed, since these properties are an objective reality of nature confirmed experimentally.

Many properties of torsion fields, since they have been formulated, almost automatically allow finding a property, which can be used as the basis for any specific application of torsion fields, according to the given formulation.

We can demonstrate peculiar properties, and, hence, manifestations of torsion fields by the following example. It is usual to think that physics knows everything about mechanics. In particular, many scientists speak about inertia, but there is no definition of inertia. Orthodox physics not only lacks interpretation of inertia, it cannot even explain whether the forces of inertia are internal or external with respect to moving bodies. Theory of the Physic Vacuum showed it clearly that inertia is a manifestation of torsion fields in mechanics [13].

It follows from the fact that if torsion fields can be controlled, it is also possible to control forces of inertia and, on this basis, make universal propulsive devices, which do not use the reactive thrust or friction.

Presumably, Newton's mechanics is based on Euclidean geometry, where torsion fields derive from Ricci's geometry, i.e. geometry of spinning. It is, therefore, quite obvious that Newton's mechanics cannot be applied to systems with spin, just as it cannot be used to describe objects moving at relativistic speeds. In this case the theory of relativity based on Riemannian geometry should be used. It is a special sort of mechanics, torsion mechanics, which should be applied to systems with

spinning rather than Newton's mechanics. Russian physicist-theoretician Gennady Shipov laid the basis of torsion mechanics. Torsion mechanics observes effects that are impossible from the Newton's mechanics view; also it is impossible in the case with quantum mechanics.

The most unusual factor is the possibility to create, not only theoretically, but also practically, systems that can be moving by their own internal forces.

The Fig.4 shows a picture of a device that employs the above principle.

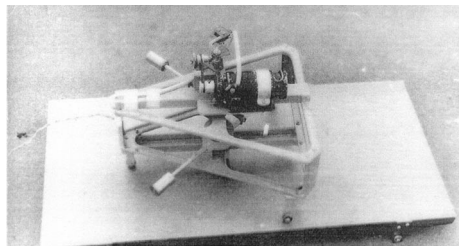


Fig.4 Tolchin's inertial drive (inertioid)

Since the first half of the 1980s great attention was paid to experimental and practical work aimed at **changing properties of different materials by the torsion field influence to these materials when they are in various phase states**. An example of such work is a research on influence of torsion waves to metal melts.

The scheme of the experiment is shown on the Fig.5. A standard laboratory Tamman's furnace was used to melt metals. Tamman's furnace is a metal cylinder of 60 cm diameter.

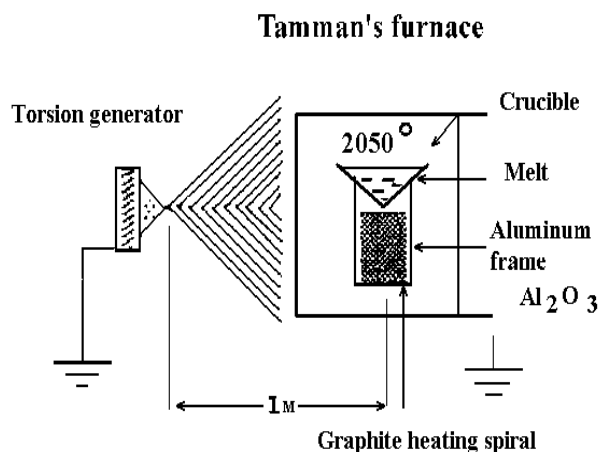


Fig.5 Torsion field influence

The metal furnace body is earthed, i.e. such body is the Faraday cylinder that prevents any electromagnetic influence on molten metal. Metal in this furnace can be melted in vacuum or in any gas. Inside Tamman's furnace there is a graphite-heating element that makes metal melts when the currents is equal to 900 A.

Each experiment includes two sorts of melting, a test and experimental ones. In both cases the conditions

remain the same. The only difference is that in the second case a torsion generator producing torsion waves from 1 to 150 Hz influences the metal and it is placed about one meter from the Tamman's furnace. The time of influence is 15-20 minutes. As soon as melting was over, each furnace was left to cool down. Then ingots were removed from the crucible and sections were taken to study the structure of metal. The results of such melting procedures were given on the screen.

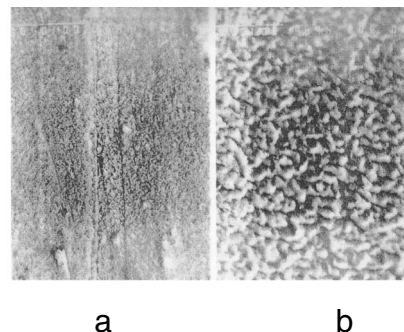


Fig.6 a- control melting
b- melting with torsion field influence

On the Fig.6a you can see the structure of tin after test melting. It is clear that the dimensions of metal grains are differing greatly. The structure of the metal is not homogenous. These factors cause low characteristics of metal, such as strength and ductility. On the fig.6b we can see the structure of tin that was influenced by torsion field while being melted. The difference between two pictures is so obvious that we can ignore any comments. However, we would like to point out that torsion field made metal grains almost identical with respect to their dimension, they became bigger, and the structure of metal became almost completely isotropic. Such metal is stronger and more ductile. The results you have just seen were obtained in the late 1980s. In the ensuing years, a number of alloy production torsion technologies were developed and patented. **Torsion modes were established, which helped to reduce the size of grains, and in some cases they can change the crystal lattice.**

Torsion technology for metallurgy was developed in Russia [14]. It is a torsion technology of silumin production, silumin being a mixture of aluminum and silicon. Unlike standard silumin production technologies, torsion technology does not require employment of alloying additives to increase the metal's strength. Nor does it require special chemical additives to fix gases in silumin. If torsion technology is used, torsion waves of a certain spectrum alone make gas bubbles out and increase strength by 1.3 and ductility by 2.5 times. **Simultaneous increase of strength and ductility by means of torsion radiation is impossible from the point of view of standard technologies.** These torsion technologies were shown in the city of Tejong, South Korea, in 2000. Now you can compare the results of test melting made in Russia and in Korea. Fig.7a shows a section of a test silumin ingot made in Korea. There are numerous bubbles and large structures here.

On the Fig.7c there is a section of a test silumin ingot made in Russia. This one also features numerous bubbles. Some structures are not visible here because of a poor photocopy.

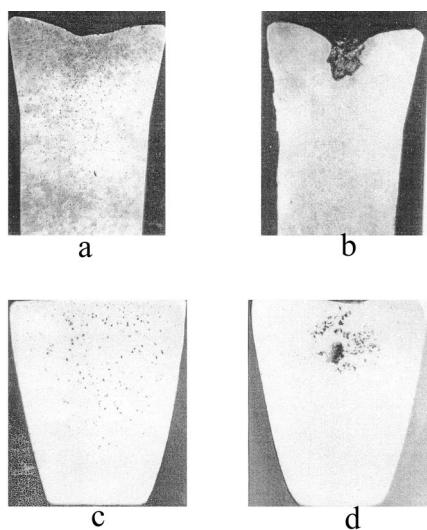


Fig.7

Fig.7b shows a section of a silumin ingot made in Korea with the use of torsion technology. On the Fig.7d there is a section of a silumin ingot made in Russia also with the help of torsion technology. Both ingots have no small bubbles scattered throughout the ingot. However, a specially performed deviation in the melting process carried out under torsion influence allowed us to observe the process of bubbles expulsion, they're joining together and making up large hollows. It was due to express cooling of the metal mould done in Tejong, which is not allowed in standard technology, that large hollows stopped short of piping, which is seen in the top right-hand ingot.

Considering the pressing nature of the global energy crisis coupled with impossibility of the radical solution of this crisis by means of the energy of the sun, wind, thermal sources etc., there are quite frequent suggestions that the energy of Physical Vacuum should be used instead. Physics-theorists have two points of view regarding this issue. One point of view is the statement, that since Physical Vacuum is an object with minimum energy, the idea to use it as an energy source makes no sense.

The other point of view recognizes that elements of Physical Vacuum, oscillators, do not interacting with each other, have energy, which is infinite. A number of Russian physicists, including Academician Y.Zeldovich [15], pointed out that this infinite energy was usually overlooked, announced it unobservable and called it zero level making this indefinitely high level a benchmark, for example, to calculate energy of particles. J.A. Wheeler [16] is known for his estimation of energy fluctuations of Physical Vacuum, which can be viewed as the lower boundary of this energy amounting to 10^{95} g/cm³. For comparison we shall note, that nuclear energy

(density of the nucleus) is equal to 10^{14} g/cm³, and energy produced by burning oil is about 1 g/cm³.

If the energy of Physical Vacuum is large, then increasing in power consumption for needs of the Earth, without mentioning the problem of heat balance, with the help of energy of Physical Vacuum cannot affect it in any way.

Recognizing that the theory gives us a possibility to develop energy from Physical Vacuum, the problem consists detection of physical principles which need to be used as a basis to make equipment capable to solve the problem and subsequent search of technical solutions of appropriate commercial nature. The above physical principles are in the focus of a number of research groups. However, now it is unknown if anyone solved this problem. At the same time, there are a lot of devices, which, according to their inventors, have efficiency greater than 100 percent [17].

Usually, the psychological power of school physics asserting that efficiency cannot exceed 100 percent appears to be stronger than data obtained in higher educational institutions. Any standard course of thermodynamics contains strict proof that closed systems truly can never have efficiency greater than 100 percent. However, if the system has an open type and thus can get energy from outside, such system can have arbitrary large efficiency. Thus, if an inventor asserts that he has designed a system with efficiency more than 100 percent, it seems senseless to discuss the question whether it is possible or not. There are only two questions in this matter. The first question is whether the procedure is correct and whether the equipment complies with the requirements for definition of a system's efficiency. In a great number of cases inventors declare more than 100% efficiency because either the method of measurement or equipment were improperly chosen or used.

If efficiency of the system is measured correctly and efficiency is indeed more than 100 percent, this automatically means that the system is of an open type and this is the case when the second question needs an answer: what kind of energy gets into this system and through what channel? When the research finds the channel and the kind of energy and as soon as the revealed energy is incorporated in the total system's energy balance, its efficiency again drops below 100 percent.

Thus, when the measured efficiency of a system is more than 100 percent, it only means that we do not know well how does this system work. In this connection there is a proposal, that it would be more logical to use the term "effectiveness ratio" rather than efficiency when dealing with the open type systems. In terms of standard terminology, some systems of electrostatic, magnetic, electromagnetic and thermal type are known to **have efficiency up to 500 percent**. In most cases inventors in patents declare the figure. In one patent,

for example, the device was declared to have efficiency of 3,000 percent. However, as a rule, independent expert evaluation does not confirm such high figures. This might happen if inventors conceal know-how or because the system is hard to produce.

Russian inventors, as well as in CIS, focused their attention on thermal systems with efficiency greater than 100 percent. Among the great number of such systems there are ones, whose **efficiency reaches 400 percent**. However, there is only one design of a thermal system, whose mass production variants passed independent expert evaluation several years ago, proved to have efficiency more than 120 percent. A production variant of a similar system with efficiency of 150 percent was shown last year in Russian. Construction of such system with efficiency up to 200 percent is planned for 2001.

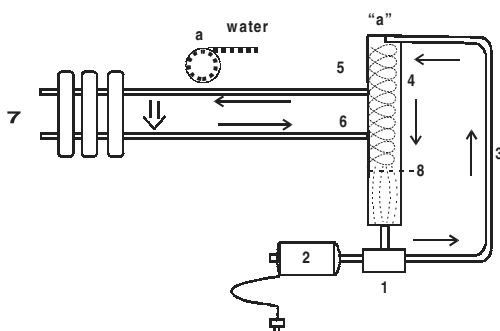


Fig. 8

All types of systems with efficiency greater than 100 percent have a **main element with the spin** and specific demands to the performances of this spin. Fig. 8 shows the general diagram of a thermal system, whose efficiency is more than 100 percent. Water flows from the heat exchanger (4) into the electromotor-operated (2) pump (1). A standard set up would feature a water-heating element at this stage, which is not the case with this one. After the pump the water flows back into the heat exchanger by specific pressure.

Now, a standard system would have the water get into the heat exchanger through its upper butt. The present

Vacuum to be shared with the object that generates torsion field of the system, i.e. the water spiral. This makes the temperature of the water to rise. One could think that the water heats itself. Considering that energy that heats the water is caused by torsion effects, and also taking into account that this mechanism is implemented through spiral, vortical process, and that the system is designed to obtain extra energy, this thermal heating set up was called the Torsion Vortex Generator (TVG).

It follows from the above that the Torsion Vortex Generator has two energy sources: they are electric mains supplying power to the electromotor, which is necessary to pump the water through the system, and Physical Vacuum giving out energy to heat the water. Later, when efficiency of such systems is considerably higher, i.e. more energy is taken from Physical Vacuum, part of the thermal energy, taken from Physical Vacuum, might be transformed into electrical energy and supplied to the electromotor.

In this case the mains will not be necessary any longer and such thermal system will become completely independent. Such system will become an independent source of energy.

When it happens, it will be a revolution in power engineering in general. It's not important whether this system is going to be thermal, electric, magnetic or of any other construction.

An important direction of work connected with Physical Vacuum and torsion fields consists on fundamental and applied medicobiological research. It was a research of great importance about the influence of static torsion fields and wave torsion radiation on various kinds of living organisms, as well as research of integral and characteristic torsion fields inherent in various living organisms. The latter became possible due to creation of highly sensitive quantum systems recording torsion radiation and its frequency spectrums.

A database containing spectrums of torsion radiation of different tissues at various stages of different diseases

... as a result, the water, which gets into the heat exchanger hits the tube wall and adopts a downward spin movement. With certain parameters added to the water spiral, such system can have more than 100% of efficiency.

design makes the water flows into the heat exchanger laterally. As a result, the water, which gets into the heat exchanger hits the tube wall and adopts a downward spin movement. With certain parameters added to the water spiral, such system can have more than 100 percent of efficiency.

Since spiral movement generates the torsion field, which is registered by torsion field measurement devices, it can serve as the grounds to consider that interaction of the system's torsion field with torsion fields of spin clusters (clusters of fitons [18]) of Physical Vacuum causes a small part of fluctuation energy of Physical

has been collected for a long time. It gave an opportunity to make equipment to check the man's health condition, measuring characteristic spectrums of torsion frequencies of specific groups of cells or tissues of any part of a human organ and comparing them with the respective spectrums of healthy cells or cells with different degrees of pathology.

A system designed to diagnose a man basing on the records of his torsion fields was named as a Torsion Diagnostics system (TORDI). To understand correctly how does it work, a number of things should be explained. Van Hoven's theory gives the following

conclusion: in order to obtain complete information about any system, it should be destroyed. However, destruction of tissues of the man in order to get information about their state is a too high price to pay for the information about his health.

However, the above Van Hoven's criterion can be satisfied with the minimum influence, when the cells are not destroyed and the atoms of these cells, being primary sources of torsion spectrums to be registered, are bring into the non-equilibrium state by means of outer disturbing influence.

In order to choose the frequency of the disturbing torsion influence correctly, it is necessary to take into account the role of water in physical and biochemical organization of tissues of the human organism.

At the same time, it is necessary to take into account the resonance torsion frequencies of various human organs. Finally, it turns out that the signal of torsion disturbance should be rather sophisticated considering both these factors. The TORDI system is a ready-to-use production device. Nevertheless, it is important to understand that the model is not the limit of scientific and technical potential incorporated in it and that enhanced variants of the system will appear with the course of time.

Summing up, I would like to draw your attention once more to the fact that work on torsion technologies is not limited by the directions that were discussed here. Actually, as it was pointed out in the beginning, ongoing development includes all branches of economy, industry, agriculture and medicine, as well as all problems of everyday life. Technologies that we mentioned are the forerunner of the fact that the mankind is on the threshold of the age of torsion

technologies, which, we believe, will change our life in the 21st century more than all the scientific and technical revolutions of the 20th century.

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The Electrical Vortex Non-Solenoidal Fields

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A mistake was found in the electrodynamics: it is detected that all electrodynamics' postulates corresponds to the experimental facts, but vortex electric fields has unclosed inductive lines.

When the magnet is moving, then the current of magnetic induction is moving together with it. From known velocity of motion \mathbf{v} and the value of magnetic induction \mathbf{B} , it is possible to calculate the intensity \mathbf{E} of appearing vortex field according to electrodynamics formula of transformation of fields $\mathbf{E}=\mathbf{vB}$.

If to change the $\mathbf{E}=\mathbf{vB}$ on induction $\mathbf{D}=\varepsilon_0\mathbf{E}$ in formula of fields' transformation, that will get $\mathbf{D}=\varepsilon_0\mathbf{vB}$, where

\mathbf{D} is electric induction, \mathbf{B} is magnetic induction, \mathbf{v} is velocity of motion, ε_0 is electric constant.

Herewith the appearing electric induction is always transverse to the direction of motion. It is possible to formulate the rule of origin for electric induction under the condition of rectilinear motion: if to dispose the right hand palm so four fingers shows the motion direction of the magnetic flow (the field), connected with moving magnet, and the vector \mathbf{B} falls into palm, then the moved aside big finger will indicate the direction of vector \mathbf{D} . The given rule is like the rule for Lorenz' force, but on the contrary (the difference is in frame). In the first case the charge moves, but the magnet rests. Here the magnet moves, but the charge, which points the direction for lines of force of electric induction, is immovable. So, there it is the rule for left hand, but here, on the contrary, it is the rule for right hand. Thereby, if the charge moves, but the magnet is immovable, then the rule of left hand uses for determination of the force. But if the magnet moves, but the charge rests, then the rule of right hand uses for determination of the force.

As we can see from this figure, the initial effect of lightning of the sheet reached 6-7 mg with the gradual recovery to its common weight in 15 minutes. The usual weight is shown by the lower line of recording. In the case of reversible deformation the change of weight of the body is not observed. So, compressed rubber or compressed steel spring shows their common weight. We should expect such result, because the **entropy of the system doesn't change with reversible processes** (as well as with elastic collision). That's why **decrease of the weight of the bodies should be discovered in the processes of a big increase of entropy**. It appeared, that initial heating of the bodies really leads to the very significant decrease of their weight.

Studying of this phenomenon gave a big material, which allows deeper understanding of the way, how active properties of time call decrease of mass and weight of the body.

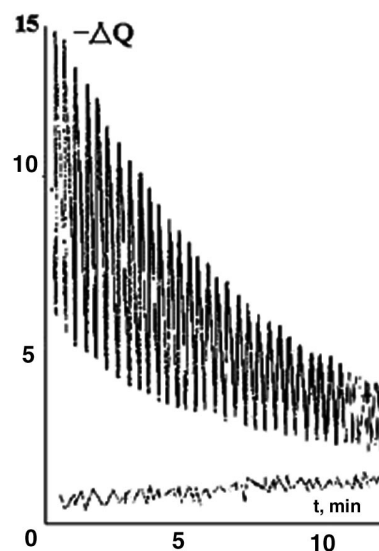


Fig.2

The Causal Mechanics

by Kozyrev N.A.



Review by Alexander V. Frolov

This is a short review on research work of the well-known Russian scientist Nikolai A. Kozyrev. Most of these papers are not yet published in English. There are important practical applications for new technologies, which are based on Kozyrev's theory and we'll be discussing this in our book. There is a project to publish an English language book about the time rate control technologies that will include all Kozyrev's papers devoted to this topic.

"The Nature of Stellar Energy Based on Analysis of Observational Data"

A conclusion about stellar energetics was made from astronomical observations: any given star is a machine that transforms incoming energy into heat radiation; there is no inner source of energy inside the star. The possibility of using incoming energy-flow exists in all area of space-time. ***It is proposed that through the power of some active properties, time can influence the energy of matter, and thus, time is a source of life in our universe.*** The density and other parameters of stellar matter in the mode of transformation (time-flow energy into heat energy) are calculated. It is concluded that output-energy depends on the volume of matter. It was proposed that time is not simply spreading, but being created throughout the universe at any given moment and for this reason telecommunications by means of time-properties can be produced as instantaneous signal instead of electromagnetic methods, which have some limited velocity.

"Cause or Asymmetrical Mechanics in Linear Approximation"

N.A.Kozyrev calculates the qualities of stellar matter where it is a transformer of time-form energy into heat-energy. It is concluded that the transformation involves several electrodynamic processes, but, generally, any closed mechanical system can also produce energy if it is an asymmetrical system. ***The asymmetry for mechanics according Kozyrev is a cause-effect asymmetry and if the mechanical system includes the non-reversible cause-effect connection it can take the energy from time-flow.*** (In my opinion, this is the theoretical basis for any kind of over-unity systems. Editor)

The notions of cause and effect are defined in the papers. N. Kozyrev postulates 5 properties of cause-effect connections. A definition and formula for the velocity of time-flow are given. It is proposed and experimentally demonstrated that in special case the time-flow can introduce two time-paired equal and opposite forces into the system.

N. Kozyrev demonstrates through gyroscope experiments the fact that time-energy can be transferred to the experimental system. It is also proposed that the energy of the system can be transferred to time-energy. In other words, the time flow can be accelerated or decelerated by means of energy exchange with a special asymmetrical mechanical or electrodynamic system.

In this paper N.A.Kozyrev describes two extreme cases for mechanics: there is the quantum mechanics of the atom world (microcosmos in other words) where there are no cause-effect connections since velocity of time is equal to zero; and if the velocity of time is equal to infinity there are only stable cause-effect connections for any process, that is classical Newtonian mechanics. The real world exists for a real time velocity between zero and infinity.

Experiments with vibrational gyroscopes and weight machines (scales) are described in the paper. Important conclusions are made about the possibility of increasing vital anti-entropy processes into biological systems if they are interacting with the time-flow.

"Causal Mechanics and the Potential for Experimental Investigation of the Properties of Time"

In this paper N. Kozyrev writes about the connection between matter and time. He describes three cause-effect axioms, determining the physical qualities of the velocity of time-flow, and publishing important experimental data. In his experiments, the weight of gyroscopes was changed when they were connected to weight machine (scales) by means of a vibrational system. Weight changes were detected at about 100 mg levels. These weight changes depend on frequency due to a discrete law. So, it is one of the real demonstrations of the discrete quantum world laws in our real world of classical mechanics.

"Unknown Worlds"

This work is a demonstration of organic matter possibility to get free energy for vital processes by means of transforming time-form energy. The "density of time" is defined. Experimental data for measurement of the density of time at different places on the planet is given. It is claimed that the density of time can be changed: near any given Cause process it is thinner and near any given Effect process it is denser. N. Kozyrev wrote about the possibility of using the physical properties of time for biological forms of telecommunications, i.e. for telepathy. This telecommunication cannot be screened and it is instantaneous signal system.

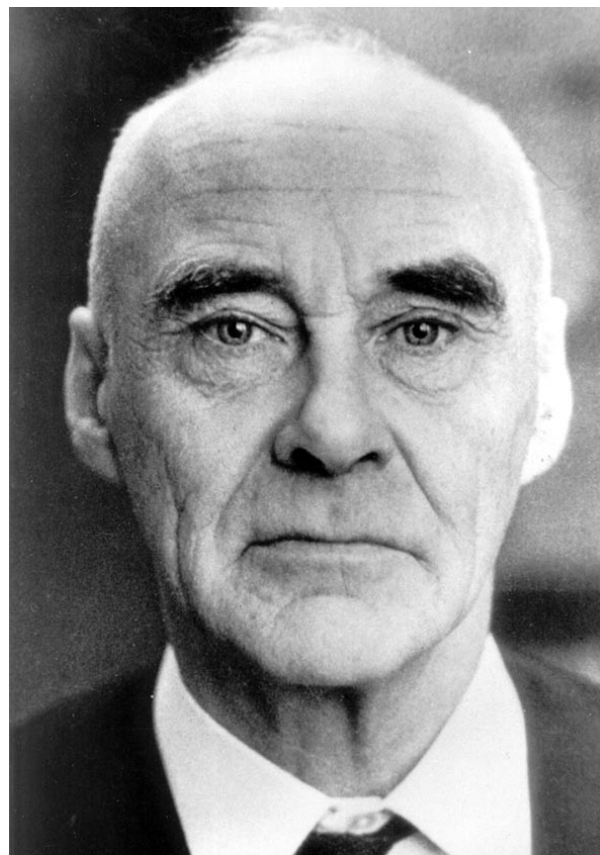
In this paper it was proposed to screen time by means of certain processes; i.e. it is possible to create compensation of natural time-flow by corresponding physical processes in some local space-time area.

"The Way to Space"

N. Kozyrev writes about the irrationality of rocket methods for space exploration and he proposes his theory to find gravitation - time relation to build antigravitation spacecraft. The force that would propel the spaceship in this case would be produced by means of changing of the physical properties of time. *(In other words it is warp drive topic, which being developed by many research teams today. Editor)*

"On the Potential for Experimental Investigation of the Properties of Time"

There is some potential for biological systems to use time-flow as a source of vital energy or life energy. N. Kozyrev describes experiments with gyroscopes and



several methods how to introduce some cause-effect asymmetry into a mechanical system. The value of the velocity of time-flow is calculated. Seasonal changes in the density of time produced by vital processes of Nature are detected. In this paper, functions existing between the density of matter and the density of time are determined and it was tested in experiments.

"Astronomical observations by means of physical properties of time"

In this paper N. Kozyrev experimentally determines value and sign of the time-flow; which is positive in clock-wise co-ordinate systems. The changes of density in time are experimentally proven: In the area of entropy processes (dissipation, heating of matter, melting of ice, evaporation of liquids, fading of plants) the "production of additional time" was detected. In the area of opposite processes (cooling of matter, freezing of water, crystallization) the "absorption of time" was detected. There is a description of mechanical and electromagnetic detectors monitoring the density of time changes.

"On Time-to-Matter Influence"

The paper is about N. Kozyrev's experiments to detect the production of additional time-flow by means of

special detectors in the area of dissipation and evaporation processes. It was assumed that the Sun is not only a time-absorption system but also a time-flow production system. This small component of the time structure is very important since it is ordered and it introduces the anti-entropy organizing effect to any natural process and especially in biological processes. ***It is proposed to use this organizing life effect to increase the vital processes of biological systems.***

"On the Possibility of Reducing Mass and Weight under the Active Properties of Time"

Experimental data were published to demonstrate the weight changes during some non-reversible deformations or heating. The nature of time and matter-time interaction was investigated in this way.

On New Energy and Political Authority

Alexander V. Frolov

The article "New energy in hands of politicians" [1] by A. Davidov, Head of Department of Strategy Analysis and Information, Council of the Russian Federation puts forward some interesting points. It demonstrates a great interest of Russian officials to the new energy technologies.

Mr. Davidov thinks that the electrochemical cells are the most perspective method to produce hydrogen as a fuel. Also he wrote about real possibility of working with plasma, resonance effects and other fuel-less systems since any system involved in energy exchange with environmental and by this way the over-unity efficiency can be explained.

Mr. Davidov also wrote about the main aspect of the autonomous energy system, which is their property to produce power directly on demand. It will lead to global changes in industrial relations, increase in personal and business independence, decrease in the authority of mediators in energetics, new kinds of business.

Davidov's conclusion is: that financial power will be replaced by new energetics, which should become a new direct tool of economic control.

I suppose the changes based on autonomous energetics should be really a global one, but it will not lead to destruction of the world financial system because the gold equivalent can not be replaced by the KWtts-hours for all financial operations at the moment.

It cannot be organized until the majority of energy customers use the centralized energy networks, for example in cities and towns. But in the future the currency stability of any state will be connected with the technological level of its autonomous energetics. The replacement of the gold equivalent in the financial system means an obligation to make an exchange a certain amount of KWtts-hours for the corresponding amount of money (currency). There is clear logic in this system since the money should be an equivalent of the work and work in physics is related with the KWtts-hours. It was great to read Mr. Davidov's statement about some completed research work into new energy and antigravitation started in the Soviet period of Russian history. He has promised to demonstrate the prototypes in 2 years if the financial problems were resolved.

Davidov's forecast and his conclusion on the change in balance of political forces correlate with my own conclusions of 1996, "Free energy" a written report was made for the Russian State Duma. In a few years the new political power may become the main force in Russia and power should be based on the technologies of fuel-less autonomous energetics.

Mainly this will lead to the strengthening of regional authority especially in far from Moscow areas of Russia and with a low population and low-tech industry as a result of their weak energetics. It may be also necessary to note that the new energy technologies are the key to new methods of space exploration. The advanced propulsion aerospace systems are the start of civilian access to space, which is a new large market.

Reference:

1. Davidov A.V. The new energy in the hands of politicians, "On the edge of impossible", #6 (259), 2001, p.14.

Calculation of the Effect of Many-Cavity Structures (Cell Structures)

Comments on Professor Zolotariov's article
by Alexander V. Frolov

Professor Zolotariov V.F. gave this article to me in 1992 together with the other unpublished materials on studying and development in this direction. The article is devoted to **the discovery by V.S. Grebennikov and V.F. Zolotariov "Phenomenon of the interaction of many-cavity structures with the living systems", Russian priority reference on the discovery #32-OT-11170 from 3.09.1985.** Works by V.S. Grebennikov are examined in details on the site <http://www.sinor.ru/~che/grebennikov.htm>

This effect is an example of the interaction between de Broglie waves and biological systems. In the opinion of Professor Zolotariov, the group movement of the electrons in the solid body generates de Broglie waves. Cavities within the body become resonators to the de Broglie waves, and hence, source of standing de Broglie waves. **The field is produced by the cavities situated in space rhythmically that lead to a resonance reinforcement of the effect** (*Editor's note: in this case we mean not a rhythm in the time, but a rhythm in the space, in a similar case they say, that the architecture is a frozen music*)

"As a result, the energies of a different character appear, for example from an array of paper tubes, bee's honeycombs and so on. The organism reacts to the different energies with the result that changes in physiologic condition can occur." (V.S. Grebennikov, "Pchelovodstvo" #12, 1984, p. 28).

Professor Zolotariov supposes that since only related nature categories can interact with themselves, so the origin of physical mechanism of nervous impulses has a common nature with de Broglie material waves. It may be presumed that these waves are the longitudinal waves.

Technical realization of the effect can be made possible by various methods. "The walls of many-cavity structures ... are usually considered as the boundaries of the potential electron's box. This is generally true for dielectrics as well as metals. The group movement of electrons leads to a system of standing de Broglie waves in the potential space, which have **classic frequencies** (B.N. Rodimov, *Autofluctuational quantum mechanics*, Tomsk, TGU, 1976).

The classic frequencies are

$$f_{\text{classic}} = n h/4 m L^2 \quad [1]$$

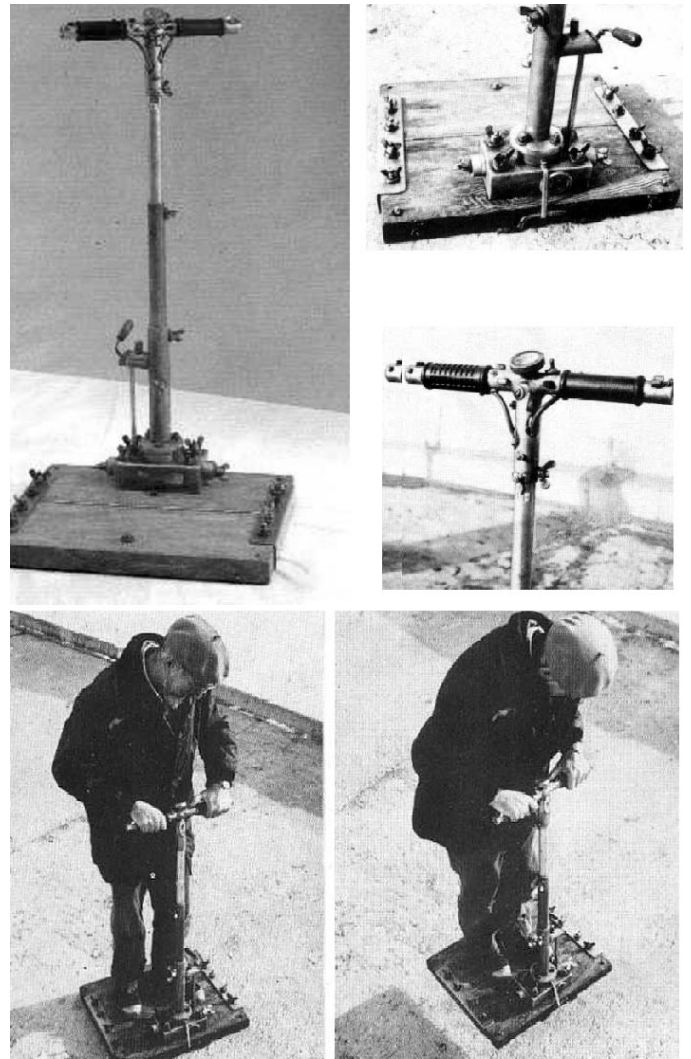


Fig 1 V.S.Grebennikov's flying system
(photo from his book "My World")

and quantum frequencies are following:

$$f_{\text{quantum}} = n f_{\text{classic}} \quad [2]$$

where n is an integer number, L is the size of potential hole in centimeters, m is the effective mass of the electron".

Further, Professor Zolotariov writes that the length of the standing wave is more than double L, the size of the potential hole. An example of the calculation: for n=1 and L=1cm, the frequency f will be approximately equal to 2 Hz. This is near the frequencies of consequence for the central nervous system impulses, i.e. it is dangerous for health. That is why work should be done with constructive parameters that will not affect the organism.

Application of the effect for new kind telecommunication systems is possible because of its unique property since the effect cannot be screened!

"Since the effect of cavity structures propagates passively through the quantum fields in the conjugate world (vacuum), then we should not observed a screening of the Cavity Structural Effect (CSE). This was checked in experiments with iron sheets, clothe, plastics, cardboard, wood, brick walls. According to our theoretical conclusions we could not find any screening." (text by Professor Zolotariov).

Further, Professor Zolotariov gives a calculation formula for location of the wave maximums. "The regularity of location of de Broglie wave maximums on the distance D from the tube structure shall be calculated with the formula:

$$D = 2L (N+1) 2^K,$$

where N,K=0,1,2... L is the circumference length of the tube, N is the harmonic number of the standing de

Broglie waves, K is the number of maximum".

The conclusion of these articles was to make an association with the "golden section" and the effect studied: *"...the hologram of human memory is situated in the vacuum field and exists in the space after the human death"* (Maneev A.K., *Movement, contradiction, development. Minsk, "Technique and Science", 1982*).

All this brings us to the thought that the organism interacts with the de Broglie waves going through it. The resonance character of interaction supposes the multiplicity of lengths of the waves and frequencies, which are determined by the geometric sizes of the interacting structures. Hence, the importance of the geometric proportions appears, i.e. "golden section". That is why the appearance of the "golden section" in nature is not accidental, because the basis of it lies in the de Broglie waves. In practice, it should be recommended to all inventors of the CSE-effect systems.

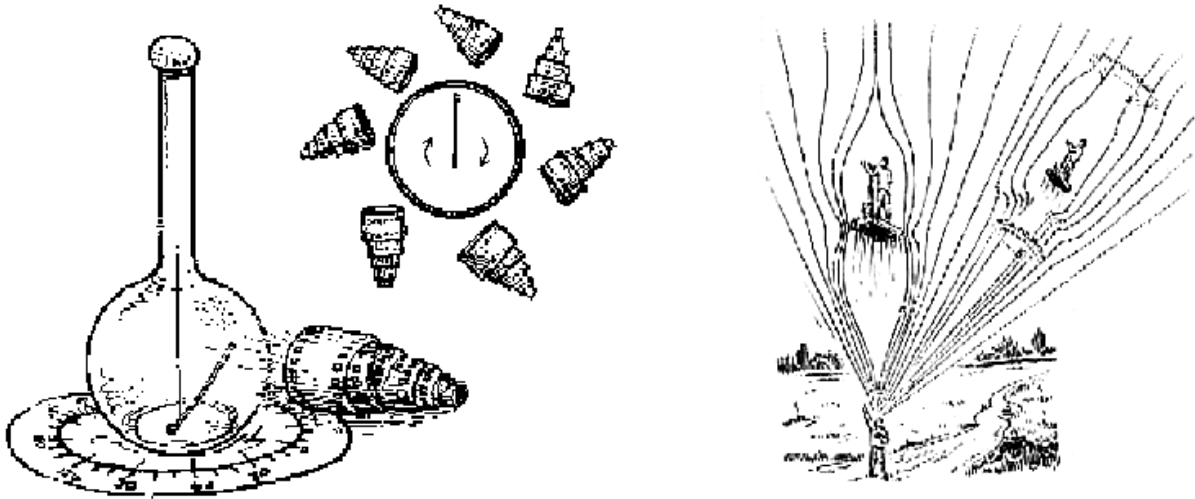


Fig 2

This picture from Grebennikov's book "My World" provides us with some ideas on simplest experiments with rolls of films (left side) and possible amazing antigravitation "warp drive" technology (right side). In 1996 Prof. Zolotarev also demonstrated similar experiments for participants of International Scientific Congress "New Ideas in Natural Science", for example, he used small fiber-optic coil suspended in glass container. The dielectrical coil can react (it is rotating) with permanent magnet or with hands. In both cases the coil is operating as a kind of de Broigle's waves detector.

Power Output can be More than Power Input

Patent of 1877 by Pavel N. Yablotchkov

by Alexander V. Frolov



Pavel N. Yablotchkov

Pavel N. Yablotchkov was born in 1847 near Saratov, Russia. He graduated as a Military Engineer in 1866 and spent several years in the Russian Army.

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Quasi-Superconductive Technology for Electric Power Transmission

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SUMMARY

Low cost and low losses single-wire electric power system (SWEPS) has been developed. The new technology of electric power transmission uses idle operation mode of the transmission line and reactive capacitive current for transmission of active electric power. Three different SWEPS has been constructed and tested: 230V, 10kV and 100kV each is of one-kilowatt capacity. Resonance mode of oscillation at the frequency from 3 kHz to 30 kHz was used to provide the most efficient power transmission. Frequency converter and modified Tesla transformer were applied at the generator site to generate high frequency reactive capacitive current. Reversal Tesla transformer and standard rectifier and inverter were used at the consumer end to convert the reactive high frequency electric power to standard 50-60Hz electricity. It has been experimentally proved that SWEPS has quasi-superconductivity properties for reactive capacitive current flow along the line even at high operation temperature of the electric conductor. SWEPS has no resistance losses for following tested conductor materials of the line: copper, aluminum, steel, tungsten, carbon, water, and damp soil. Analysis of theoretical calculations and experimental study shows that SWEPS can be applied both for energy transmission from

renewable powerful generation site to a large energy system and for transmission lines connecting different parts of renewable energy system.

DESCRIPTION

Renewable-based electric grids are increasingly being viewed as an attractive alternative for providing power to rural communities. Technology options include small hydropower, biomass-powered generators, small geothermal, solar-thermal, wind turbines and hybrid systems with back-up diesel generator, which may be connected to the local utility. Implementation of renewable-based technologies for rural electrification would contribute to the social and economic growth of the rural communities and would serve sustainable progress of the remote regions. Electric grids face specific problems of non-efficient operations, including transmission losses and the high cost of grid extension in remote sparsely populated areas. For example off-shore wind turbine, micro-hydro or geothermal generator are often located far from consumers and requires costly installation of a long distance transmission line which usually has from 6% to 10% of electric losses.

We propose and investigate single-wire power transmission line systems instead of three-phase lines and apply steel conductor or even non-metal conductive media instead of traditionally used aluminum or copper conductor.

The OBJECTIVE of this project is to implement the original low cost and low-loss single-wire electric power system for renewable-based electric grids. Project program covers design and manufacture of 50 kW single-wire power transmission line. The complete set of equipment contains: audio-frequency converter, resonance generator - mono-stable multivibrator, rectifier and inverter. Transmitted electromagnetic energy has a voltage of 5 kV to 20 kV and a frequency of 1 kHz to 20 kHz.

SWEPS operation principle is the following: In no load operation mode the active current and the magnetic field

of the line are equal to zero, while the electric field intensity has its maximum value owing to reactive displacement current that charges the capacitance of the line, it is well-known, that the Ohm's law and Joule's law are not applicable to displacement current, and Joule (resistive) losses are equal to zero.

ACTIVITIES

Resonance mode of oscillation at the frequency from 3 kHz to 30 kHz was used to provide the most efficient power transmission.

Frequency converter and modified Tesla transformer were applied at the generator site to generate high frequency reactive capacitive current. Reversal Tesla transformer, standard rectifier and inverter were used at the consumer end to convert the reactive high frequency electric power to standard 50-60Hz electricity.

Three different SWEPSs have been developed and tested: 230V, 10KV and 100KV, each of them having capacity of 1 kVA. 5 to 100micrometer diameter wires of copper, aluminum, steel and tungsten (as well as 100 micrometer carbon wire, 10 mm plastic tube and 0.3 micrometer thick ITO film on glass substrate) were used as electric power transmission media.

LEVEL OF IMPLEMENTATION

Theoretical and experimental study of parameters of the single-wire transmission power system has been carried out demonstrating its ability of efficient operation. Different kinds of electrical apparatus and application possibilities have been investigated. Analysis of theoretical calculations and experimental study shows that SWEPS can be applied both for energy transmission from renewable powerful generation site to a large energy system and for transmission lines connecting different parts of renewable energy system.

The patents protect the transmission method and the device [1-7]. The two next implementation stages are: Stage 1 (12 months): 20 kW to 50 kW 50 km single-wire electric power system for renewable-based electric grid (\$350 000) and

Stage 2 (24 months): 1 MW quasi-superconductive line for wind-offshore and island application (\$3.5M).

Three different SWEPS systems have been developed and tested: 230V, 10KV and 100KV, each of them having capacity of 1kVA.

RESULTS

Single-wire electric power system for electric grid can be applied instead of three-phase network. SWEPS uses

one pole single-wire open-tuned circuit, capacitive and displacement current for transmission of active power. Modified step-up Tesla transformer was applied at the generator site to generate high frequency reactive capacitive current. Reversal step-down Tesla transformer or diode-capacitor block was used at the user's end to convert high frequency reactive power to standard AC 50 Hz or DC electricity.

Substantial reduction of distribution network construction cost is expected to reduce consumption of wires and accessories and application of light type poles and structures. Energy losses in distribution networks are much lower compared with conventional power distribution lines. It has been experimentally proved that SWEPS has no resistance losses with conductor media like: steel, tungsten and carbon wires having diameter from 5 μm to 100 μm, water, ITO film on glass substrate, damp soil etc.

It makes it possible to construct electric power transmission lines using steel conductors and even non-conductive materials. Computer simulation of distributed solar power system, consisting of several solar power plants installed in Spain, in European part of Russia and Far East of Russia, connected by low loss transmission line, showed that this power system generates electricity 24 hours a day 6 months a year and does not require electric accumulator or back-up generator during the night.

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Water is the Basis of the Future Energetics

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ABSTRACT

The results of the space-matter-time unity axiom implementation during theoretical description of the water electrolysis process are shown. The experiments confirm the theoretical calculation of production of additional energy from the water during its plasma electrolysis. Energy consumption for hydrogen production is reduced tenfold. It gives the reason to believe that water becomes the main source of energy for future power engineering.

1. INTRODUCTION

The results of our researches are based on the main axiom of natural science: space - matter - time unity axiom. Space, matter and time are the primary elements of the universe, which cannot be separated from each other. This thesis is clear; it requires no experimental check and contains all criteria of an axiom. Let us call it the Unity axiom [1], [2].

In the new millennium, the Unity axiom acts as a judge of trustworthiness of many physical, chemical and other theories, which have been worked out without taking into consideration this axiom, that is why they proved to be incomplete or erroneous.

The Unity axiom makes the theories based on pseudo - Euclidean geometries to become the property of history. It declares that Maxwell's equation, Schrodinger's equation, de Broglie's equation, etc. are incomplete and unable to give us more information about the matters being studied as they give now [1], [2].

The Unity axiom states that the law of conservation of angular momentum (moment of momentum) governs the constancy of velocity of electromagnetic radiation, constancy of Planck's constant, constancy of mass and free electron charge as well as the processes of radiation and absorption of the photons by the atomic electrons. It proves the lack of orbital movement of the electrons in the atoms. The electrons with the atomic nuclei bring together the unlike electric fields, and their like magnetic poles limit this convergence. The electrons have the form of tori. They rotate in relation to their axes of symmetry and precess on atomic nuclei. They unite the atoms into molecules by their unlike magnetic poles [2]. The analysis of the electromagnetic models of the photon and the electron within the framework of the Unity axiom by means of the laws of conservation of angular momentum and the formation of the spectra of the atoms and the ions leads to equality of the wavelengths λ of these models to radii r of their rotation [2].

$$\lambda = r \quad (1)$$

Thus, the Unity axiom strengthens the foundations of exact sciences laid down by Euclid, Galileo, Newton and Planck; it restricts the mythological activities of the scientists in development of these sciences. It makes us to revise many theoretical provisions of physics, chemistry and other sciences [1], [2].

The revision process takes place, and some of its results are given below. The detailed proofs of trustworthiness of these results can occupy hundreds of book pages, that's why it is impossible to describe these proofs in brief. Those, who want to possess these facts, have only one opportunity: they should believe them. I'd like to refer the persons, who are willing to know the proof of trustworthiness of the facts in detail, to the publications of the author, or they can attend the course of his lectures.

2. ATOMIC MODELS AND HYDROGEN MOLECULES

A hydrogen atom consists of one proton and one electron. The electron has a form of a rotating hollow torus. Its electric field has the surface, which is similar to the surface of an apple. Magnetic field of the electron and its magnetic poles look like the magnetic field and the magnetic poles of a bar magnet, which role is performed by the torus rotation axis. The proton has also magnetic poles and the electric field, which is opposite in sign to the electric field of the electron [2]. The structure of the hydrogen atom results from the law of formation of the spectra of the atoms and the ions [3]:

$$F = E_i - \frac{E_1}{n^2}. \quad (2)$$

Here $F = h \cdot \nu_f$ are the energies of the photons emitted or absorbed by the electron; $E_i = h \cdot \nu_i$ is ionization energy of the atom; $E_1 = h \cdot \nu_1$ is binding energy of the electron with the atomic nucleus, which corresponds to the first energy level; $n = 2, 3, 4, \dots$ is the main quantum number or energy level number of the electron. Binding energy E_c of the electron is calculated according to the formula

$$E_c = \frac{E_1}{n^2}. \quad (3)$$

Taking into consideration the fact that the ionization energy E_i of the hydrogen atom is equal to binding energy E_1 of the electron with the nucleus, which corresponds to the first energy level $E_i = E_1 = 13.598 \text{ eV}$, and using the formulas (2) and (3), we'll get the energies of the photons F emitted or absorbed by the electron and binding energies E_c of

the electron with the atomic nucleus, which correspond to n-energy levels (Table 1).

Table 1 Spectrum of hydrogen atom

Values	n	2	3	4	5	6
F (exper.)	eV	10.20	12.09	12.75	13.05	13.22
F (theor.)	eV	10.198	12.087	12.748	13.054	13.22
Ec (theor.)	eV	3.40	1.51	0.85	0.54	0.38

It results from the spectroscopy law (2) that during the transition of the electron between the energy levels n and $n + 1$ the energies of the absorbed and emitted photons are calculated according to the formula [2]:

$$F = E_1 \left[\frac{1}{n^2} - \frac{1}{(n+1)^2} \right]. \quad (4)$$

Analysis of the mathematical model of the law of formation of the spectra of the atoms and ions (2) shows that this model includes: energy of the photons

$F = h \cdot \nu_f$ emitted or absorbed by the electron during

its energy transitions; energy $E_i = h \cdot \nu_i$ of ionization

of the electron and the energy $E_1 = h \cdot \nu_1$, which corresponds to the first energy level of the electron in the atom. Since the Planck's constant h is available in all three formulas, we should pay attention to the essence of its dimensionality [2].

$$h = m\lambda^2\nu = mr^2\nu \left(\frac{kg \cdot m^2}{s} \right) = const. \quad (5)$$

In modern system of measurements this dimensionality corresponds to the following notions of physics and mechanics: angular momentum, moment of momentum and spin. It results from the fact that the law of conservation of angular momentum governs the constancy of Planck's constant. It runs as follows: if the sum of external forces influences a rotating body is equal to zero, angular momentum \bar{h} (moment of momentum, spin) of this body remains constant all the time.

A lack of the orbital component of energy of the electron is the main peculiarity of the mathematical model (2) of the law of formation of the spectra of the atoms and the ions. It draws attention to the lack of the orbital movement of the electron in the atom. The law of formation of the spectra of the atoms and the ions opens the new possibilities for us in cognition of the principles of the microworld [2].

When the hydrogen atom is formed, the unlike electric fields of the electron and the proton draw them together, and the like magnetic poles restrict this rapprochement (Fig. 1, d). If the scale is chosen that the size of the proton is equal to one millimetre, the size of the electron will be

nearly one meter, and the distance between the proton and the electron in the hydrogen atom will be 100 metres according to Coulomb law (Fig. 1, e).

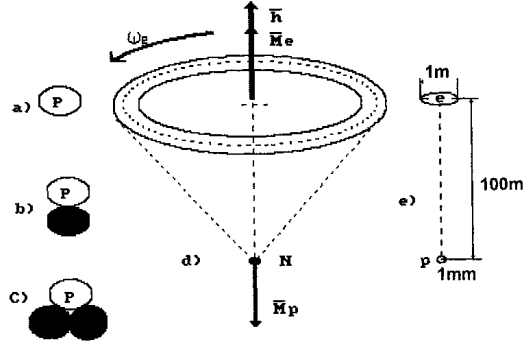


Fig. 1.

Diagrams of models of the nucleus and the atom of hydrogen: a) the proton, b) deuterium nucleus, c) tritium nucleus, d) hydrogen atom, e) geometrical dimensions of the atom in the scale of the size of the proton (p) 1 mm, \bar{M}_e is magnetic moment of the electron, \bar{M}_p is magnetic moment of the proton, \bar{h} is electron spin

The spins of the electron and the proton are equal to the Planck's constant. It is clear that the electron does not rotate round the nucleus of the atom, it precesses on the nucleus (Fig. 1) [2].

Fig. 2 shows the diagrams of the hydrogen molecules. We'll not describe their formation in details. But we should note that the terms orthohydrogen and parahydrogen originate from the direction of vectors of magnetic moment of the electron, not the proton, because magnetic moment of the electron $M_e = 9,27 \cdot 10^{-24} J/T$ is by a factor of 10^2 greater than magnetic moment of the proton $M_p = 1,41 \cdot 10^{-26} J/T$ [2], [6].

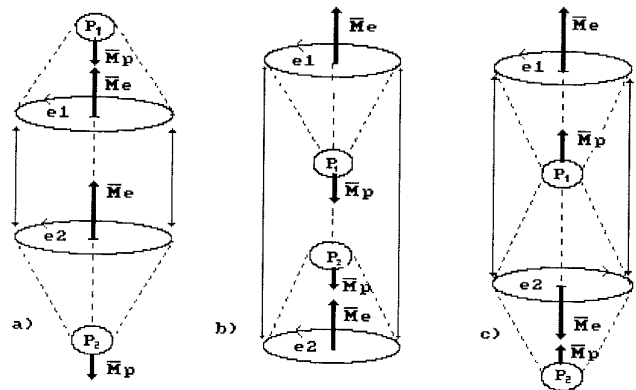


Fig. 2.

Diagram of the hydrogen molecule H_2 : a), b) – orthohydrogen; c) – parahydrogen

The analysis of the diagrams of the atom (Fig. 1) and the molecules (Fig. 2) of hydrogen shows that the hydrogen atom is an ideal binding link. The negatively charged electron is situated on one end of its core, and the positively charged proton is situated on another end [2], [6].

3. MODEL OF OXYGEN ATOM

The oxygen atom consists of eight electrons. They have different binding energies with the nucleus and different energies of ionization [7], [8]. The greater the energy of ionization, the nearer the electron is situated to the atomic nucleus. Let us number the electrons in accordance with their distance from the atomic nucleus

(Table 2). As it is clear, the eight electron of the oxygen atom has the least energy of ionization. It means that it is situated at the largest distance from the nucleus and it is the main valency electron of the oxygen atom. Fig. 3 shows the diagram of the oxygen atom. Its eighth and seventh electrons are situated nearer to the surface of the atom than others, that's why they are its main valency electrons [2].

Table 2 Energy of ionization of electrons in oxygen atom

Number of electron	1	2	3	4	5	6	7	8
Energy of ionization, eV	871.39	739.32	138.12	113.90	77.41	54.93	35.12	13.62

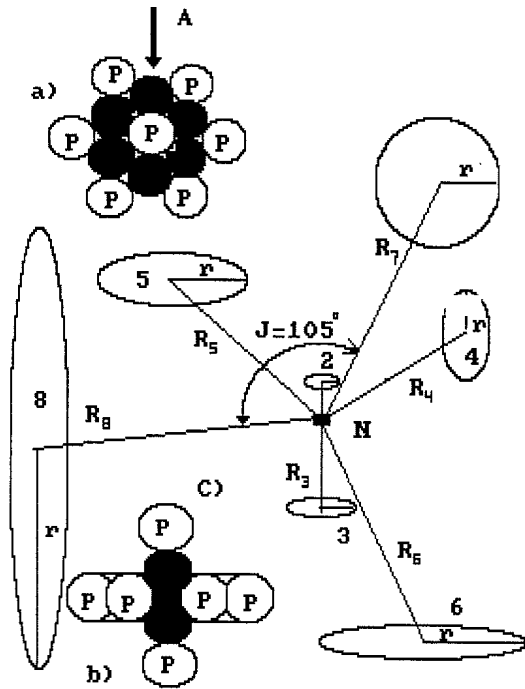


Fig. 3.

Ionization energy of the eighth electron of oxygen atom is equal to $E_i = 13.618\text{eV}$ and its binding energy with the atomic nucleus corresponding to the first energy level is equal to $E_l = 13.752\text{eV}$. The calculation of energy indices of this electron according to the formula (1) gives the following results (Table 3) [2].

Diagrams of models of oxygen nucleus and atom: a) diagram of the nucleus of oxygen atom (view to the plane of the nucleus); b) view to the nucleus from the face (arrow A); c) diagram of the model of the atom; 1-8- the numbers of the electrons; N – the nucleus of the atom; r – radii of the electrons; $R_1, R_2, R_3, \dots, R_8$ – radii of energy levels.

Energy of ionization of the seventh electron of the oxygen atom is $E_i = 35.116\text{eV}$, and energy of its binding the nucleus, which corresponds the first energy level, is $E_l = 83.98\text{eV}$.

Table 3 Spectrum of the 8th electron of oxygen atom

Value	n	2	3	4	5	6
F (exper.)	eV	10.18	12.09	12.76	13.07	13.24
F (theor.)	eV	10.16	12.09	12.76	13.07	13.24
Ec (theor.)	eV	3.44	1.53	0.86	0.55	0.38

We'd like to draw the attention of the reader to the large divergences between the experimental data of spectroscopy concerning the seventh potential of excitation, which are available in reference books [7] and [8]. We have considered the data available in the reference book to be reliable [7].

Taking this fact into consideration, we'll have the following for the seventh electron of oxygen atom (Table 4)

Table 4. Spectrum of the 7th electron of oxygen atom

Quantum number	n	2	3	4	5	6
F (exper.)	eV	14.12	25.83	29.81	31.73	32.88
F (theor.)	eV	14.12	25.79	29.87	31.76	32.78
Ex (theor.)	eV	21.00	9.33	5.25	3.36	2.33

When analysing the structure of the atom or the molecule, one should bear in mind that binding energies of the electrons with the atomic nuclei are increased as they get nearer to the nuclei. The electron, which is the most remote from the nucleus, has the least value. It is the eighth electron in the oxygen atom (Fig. 3, Table 3). The seventh electron of this atom (Table 4) has greater binding energy with the nucleus. It means that it is situated deeper in its cell. When we use the term «cell», we imagine a volume of a cone form with the apex at the atomic nucleus and the base, which is equal to the ring size of the electron [2].

When the photons are absorbed, binding energy of the electron with the nucleus is reduced, and it goes on rotating and precessing on the nucleus, and it moves away from it and gets nearer to the surface of the atom.

When the electron emits the photons, its binding energy with the atomic nucleus is increased, and it gets deeper into its cell [2]. Activity of the electron in the chemical reactions is determined by its binding energy with the atomic nucleus. If this energy is decreasing, the chemical activity of the electron and its atom is increasing [1], [2].

4. MODEL OF WATER MOLECULE

Fig. 4 shows the model of water molecule. The electrons of two hydrogen atoms are connected with the eighth electron and the seventh electron of the oxygen atom. Let us call hydrogen atom, which has been attached to the cell of the eighth electron of the oxygen atom, the first H', and let us call the atom, which is attached to the cell of the seventh electron of the oxygen atom, the second H'' hydrogen atom in water molecule. We'll give the same names to the protons and the electrons of hydrogen atoms (Fig. 4) [2].

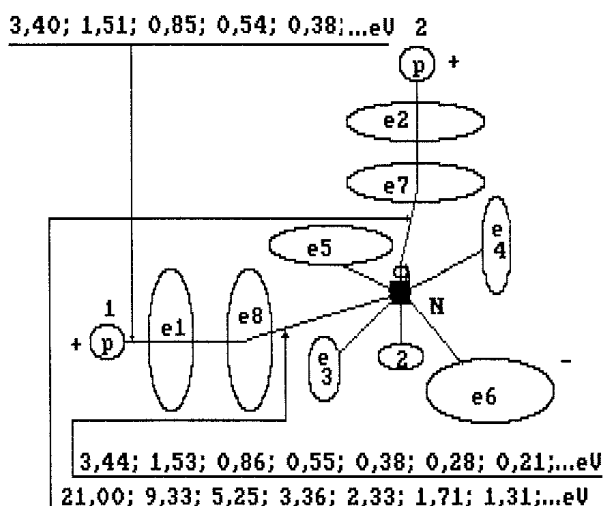


Fig.4

1, 2, 3, 4, 5, 6, 7, 8 - number of the electrons of the oxygen atom; N is the nucleus of the oxygen atom, P denotes the nuclei of the hydrogen atoms (the protons); e_1 and e_2 are the numbers of the electrons of the hydrogen atoms.

Binding energies of the 7th electron and the 8th electron of the oxygen atom with its nuclei, which correspond to their various energy levels, are shown in Fig. 4. Binding energies of the electron of the first hydrogen atom with its proton are given there too. Later on we'll show how to use these energies to calculate the energy of water electrolysis process. Now let us analyse low voltage process of water electrolysis, which has been used in industry to produce hydrogen for a long time [2], [6], [15].

5. LOW VOLTAGE ELECTROLYSIS OF WATER

Usually the solutions $NaOH$ or KOH are used in low voltage electrolysis of water, that's why it is desirable to know binding energies of alkali metals with ion OH . The eleventh electron of sodium atom (Na) has the least binding energies with the nucleus, that's why it is the main valency electron of this atom (Table 5). Ionization energy of the eleventh electron of sodium atom is equal to $E_i = 5,139eV$, and the energy, which corresponds to the first energy level, is equal to $E_1 = 13,086eV$.

Binding energies E_c of the eleventh electron with the atomic nucleus are near to binding energies of atom Na with ion OH .

Table 5 Spectrum of the 11th electron of sodium atom

Quantum number	n	2	3	4	5	6
F (exper.)	eV	-	3.68	4.31	4.62	4.78
F (theor.)	eV	-	3.68	4.32	4.62	4.77
Ec (theor.)	eV	3.27	1.45	0.82	0.52	0.36

Table 5 shows the theoretical $F(theor.)$ and experimental $F(exper.)$ values of energies of the photons emitted and absorbed by this electron as well as energies of its binding $E_c(theor.)$ with the atomic nucleus calculated according to formulas (2) and (3). Let us pay attention to the fact that the second energy level of this electron is a fictitious one.

Low voltage process of water electrolysis takes place when voltage is 1.6-2.3 V and strength of current is hundreds of amperes. Large strength of current proves large consumption of the electrons. As the eighth electron of the oxygen atom is situated at the larger distance from its nucleus than other electrons, the proton of the hydrogen atom connected with this electron is the first to come nearer to the cathode and to get the electron e_k from it (Fig. 5, a). When each of two water molecules gets the electron e_k , their surface electrons are united and form a cluster, which consists of two water molecules (Fig. 5, a, b) connected by two electrons e_k , emitted by the cathode. As it is clear, there is the orthohydrogen molecule in the chain of the protons and the electrons, which connect two water molecules. As the electrons, which have arrived from the cathode, have passed the free state phase, the hydrogen molecule

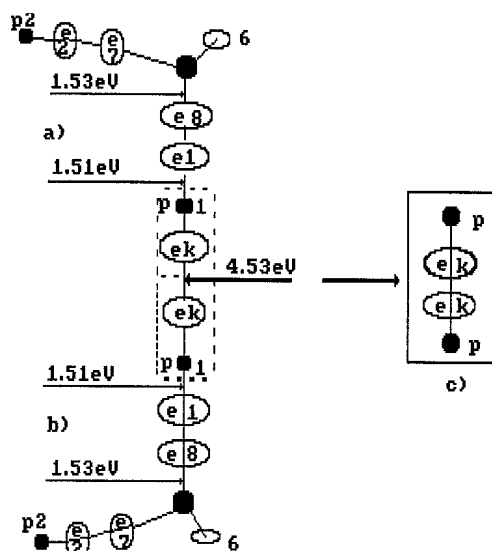


Fig. 5. Diagram of formation of the orthohydrogen molecule

fusion in this chain is accompanied by the release of energy. Fusion energy of one mole of the hydrogen molecule is equal to 436 kJ. Let us convert kJ into eV in reference to one molecule [2].

$$\frac{436 \cdot 1000}{6.02 \cdot 10^{23} \cdot 1.6 \cdot 10^{-19}} = 4.53 \text{ eV} \quad (6)$$

The amount of this energy is shown on the right-hand side from the hydrogen molecule situated in the cluster chain (Fig. 5). On the left-hand side the binding energies 1.51 eV of the hydrogen atoms with the oxygen atoms in water molecules are shown (Table 1).

The fusion energy 4.53 eV of the hydrogen molecules redistributes the binding energies in the cluster chain in such a way that the binding energies of 1.51 eV of the hydrogen atoms with the oxygen atoms in water molecules become equal to zero, and the orthohydrogen molecule is separated from the cluster chain (Fig. 5, c) [2].

Thus, the difference between the fusion energy 4.53 eV of the hydrogen molecule and the total binding energy $(1.51 + 1.51) = 3.02 \text{ eV}$ is equal to $(4.53 - 3.02) = 1.51 \text{ eV}$. This energy is spent for electrolytic heating of solution. When 1 m^3 of hydrogen is released,

$$\frac{1000 \cdot 1.51 \cdot 6.02 \cdot 10^{23} \cdot 1.6 \cdot 10^{-19}}{22.4 \cdot 1000} = 4058 \text{ kJ} \quad (7)$$

The following chemical reaction will take place near the cathode

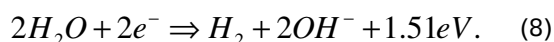


Fig. 5 shows that two electrons e_k emitted by the cathode are spent to form one hydrogen molecule. In accordance with Faraday's law, two faraday-coulombs

of electricity are spent for the formation of one hydrogen mole in this case:

$$2F = 2 \cdot 96485 = 192980 \text{ or } 192980 / 3600 = 53.60 \text{ A} \cdot \text{h} / \text{mol}$$

If electrolysis takes place when voltage is applied to the electrodes, the energy

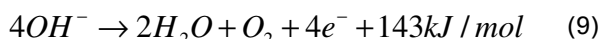
$$E = I \cdot V = 53.6 \cdot 1.70 = 91.12$$

watt-hours will be spent for obtaining one hydrogen mole, and the energy

$$E_m = (1000 / 22.4) \cdot 91.12 = 4.10 \text{ kWt} \cdot \text{h} / \text{m}^3,$$

or $4.10 \cdot 3600 = 14760 \text{ kJ} / \text{m}^3$ will be spent for obtaining one cubic metre. It is natural that quantity of heat energy of 4058 kJ (7) is a part of total energy of 14760 kJ spent for production of one cubic metre of hydrogen.

In alkali solution, the hydroxyl ions OH^- have the negative charge and they contact with the anode by its surface electron connected with the eighth electron of the oxygen atom (Fig. 5) and transfer excessive electrons to it. Then four ions OH^- interact with each other to form two water molecules and the oxygen molecule [2], [6].



One cubic metre of hydrogen produced during water electrolysis is 44.64 moles. At the same time, 22.32 moles of molecular oxygen O_2 are released. Fusion energy of oxygen molecules will be equal to $143.0 \cdot 22.32 = 3191.76 \text{ kJ}$.

If we add this value to energy 4058.0 kJ of cluster fusion of hydrogen molecules, we'll get the total amount of released heat energy of $4058.0 + 3191.76 = 7249.76 \text{ kJ}$. If we take into account that energy of 14760 kJ is consumed to produce one cubic metre of hydrogen, we'll get index K_T of heat energy efficiency of this process.

$$K_T = \frac{7249.76}{14760.0} = 0.49 \quad (10)$$

One cubic metre of hydrogen weighs 90 g. Energy content of one gram of hydrogen is equal to 142 kJ. When this hydrogen is burned, energy of $90 \times 142 = 12780 \text{ kJ}$ is released. The total index K_0 of energy efficiency of the process is the following:

$$K_0 = (4058 + 3191.76 + 12780) / 14760 = 1.36 \quad (11)$$

It should be noted that the actual energy expenses for hydrogen production in low voltage water electrolysis give this value. One cubic metre of hydrogen contains

1000/22.4=44.64 moles of molecular hydrogen. During its fusion, energy is released:

$$H + H \rightarrow H_2 + (436 \cdot 44.64) = 19463.0kJ / m^3. \quad (12)$$

Modern electrolyzers spend nearly 4 kWh of electric energy or (3600x4)=14400 kJ in order to produce one cubic metre of hydrogen. Taking into consideration energy (19463.0) of fusion of one cubic metre of hydrogen and energy (14400) spent for its production, we'll find water electrolysis process efficiency index:

$$K = \frac{19463.0}{14400} = 1.35 \quad (13)$$

Thus, **when low voltage process of water electrolysis takes place, the theoretical index of energy efficiency of this process is more than 100% [2].**

6. PLASMA ELECTROLYSIS OF WATER

There are several patents of plasma-electrolytic devices for production of heat energy, hydrogen and oxygen from water with the heat energy efficiency index more than 100% [9], [10], [11], [12], [14].

The essence of the plasma - electrolytic process is in the fact that current density at the cathode is dozens times greater than current density at the anode during this process. As a result, a flow of positive ions of metal, which is directed to the cathode, is formed in the solution. Due to the kinetic energy of these ions a part of hydrogen atoms is separated from water molecules and they form plasma of atomic hydrogen with the temperature 5000-10000⁰ (Fig. 6). In this case, strength of current reduces considerably. A value of voltage can be specified, but in any case it will be greater than at

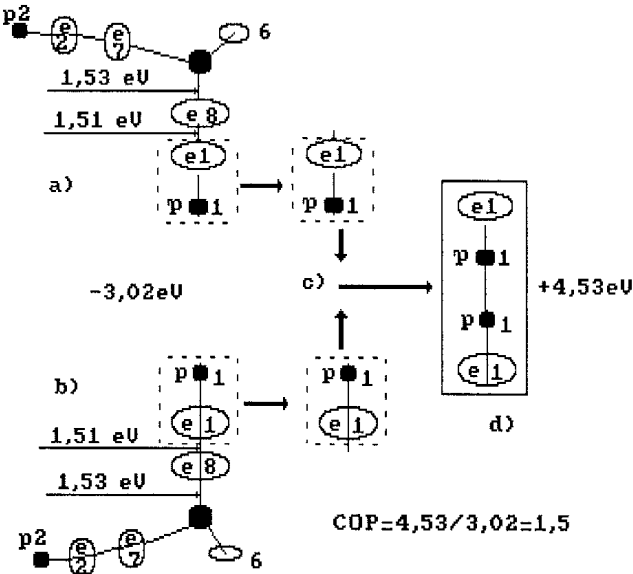
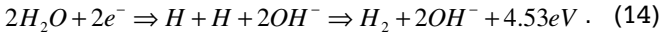


Fig. 6.

Diagram of fusion of the hydrogen molecules during water electrolysis: a), b) - water molecules; c), d) - hydrogen atoms; e) orthohydrogen molecule

the low voltage electrolysis. In this case, Faraday's law fails to operate, and the energy calculation can be based only on binding energies of the electrons and energies of fusion of atoms and molecules.

Fig. 6 shows a diagram of separation of the hydrogen atoms from eight electrons of the oxygen atoms of two water molecules. The following reaction takes place near the cathode in this case



Energy of $1.51 \cdot 2 = 3.02eV$ is spent for the separation of two hydrogen atoms H from two water molecules. Index K_T of heat energy efficiency of this process will be equal to

$$K_T = 4.53 / (2 \cdot 1.51) = 1.50 \quad (15)$$

The results of the experimental test of these theoretical calculations are given in Table 6. The preliminary tests have shown that the values of heat capacity of the solution C do not differ greatly from the values of heat capacity of water; therefore, this parameter has been taken the same as for water: $C = 4.19 \text{ kJ/(kg degree)}$. Figs 7, 8 and 9 show the diagrams of plasma- electrolytic reactors, which we have used in our research.

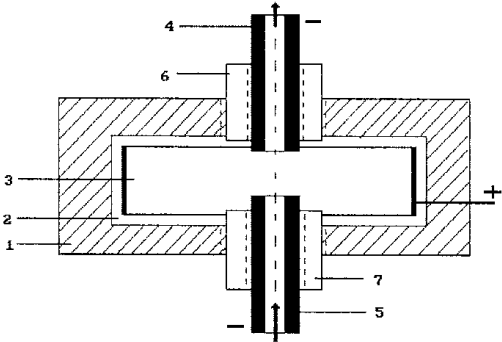


Fig. 7.

Diagram of the plasma - electrolytic reactor (patent No. 2157862): 1 - housing of the reactor, 2 - lid of the reactor, 3 - anode, 4 - cathode (outlet pipe), 5 - (inlet pipe), 6 and 7 - bushings

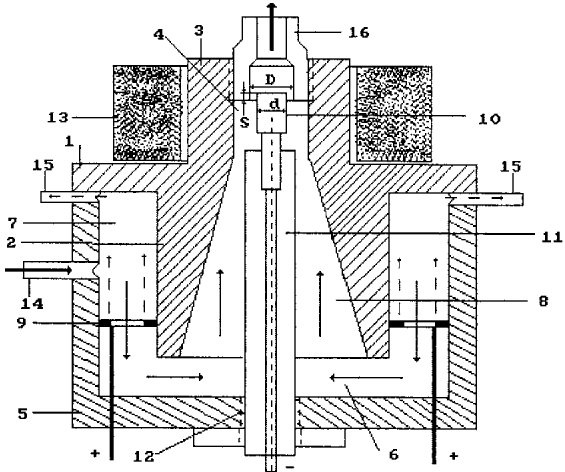


Fig. 8.

Diagram of a model of the plasma - electrolytic reactor (patent No. 2157427): 1 - housing, 5 - lid, 9 - anode, 10 - cathode, 13 - magnet

Table 6

Indices	1	2	3	Average
1 - mass of the solution before the reaction m_1 , grams	1200	1195	1200	1198
2 - mass of the solution after the reaction m_2 , grams	1180	1180	1180	1180
3 - mass difference, inlet and outlet, $\Delta m = m_1 - m_2$, grams	20	15	20	18.3
4 - reactor inlet temperature t_1 , degrees	21	21	21	21
5 - reactor outlet temperature t_2 , degrees	85	85	85	85
6 - temperature difference $\Delta t = t_2 - t_1$, degrees	64	64	64	64
7 - duration of the experiment, τ , s	279	307	282	289
8 - number of rotations of the electric power disc during the experiment n , rot	39.5	44.5	41.5	41.8
9 - electric energy consumption according to the electric power meter readings, $E_1 = n \cdot 3600 / 600 \text{ kJ}$. Note: 600 rotations of the electric power meter correspond to 1 kW h of electric power	237	267	249	251
10 - readings of voltmeter V , volts	196	200	199	198.3
11 - ammeter readings, amperes	3.66	3.30	3.58	3.51
12 - electric energy consumption according to the readings of the voltmeter and the ammeter, $E_2 = I \cdot V \cdot \tau$, kJ	220.1	202.6	200.9	201.2
13 - energy to heat the solution, $E_3 = C_1 \cdot m_1 \cdot \Delta t$, kJ	322.0	320.4	322.0	321.5
14 - energy consumed to form the vapours, $E_4 = C_2 \cdot \Delta m$, kJ	45.4	34.0	45.4	41.6
15 - total energy for heating and vapours $E_0 = E_3 + E_4$, kJ	367.4	354.5	367.4	363.1
16 - COP of the reactor according to the electric power meter readings $K_1 = E_0 / E_1$	1.55	1.33	1.47	1.45
17 - COP of the reactor according to the voltmeter and ammeter readings $K_2 = E_0 / E_2$	1.87	1.75	1.85	1.82

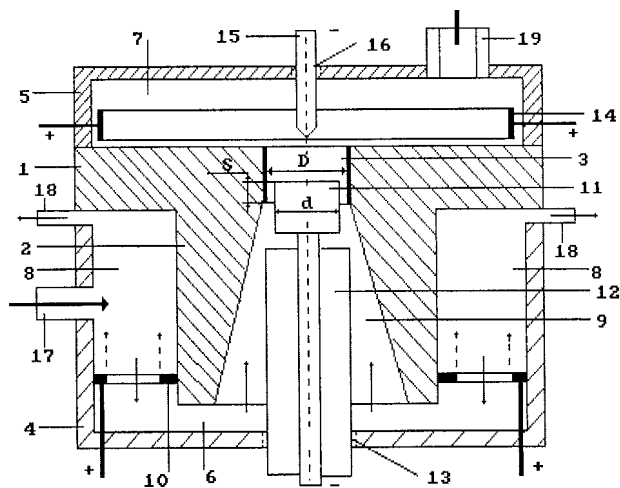


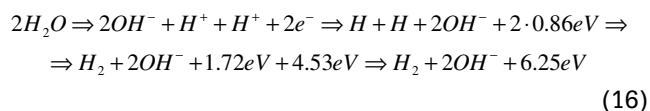
Fig. 9.

Diagram of a model of two chamber plasma- electrolytic reactor (patent No. 2157861):

1 - housing; 4 - lower lid; 5- upper lid; 10 and 14 - anodes; 11 and 15 - cathodes

Let us consider one more variant of formation of the hydrogen molecules from the destroyed water molecule. Fig. 10 a, b, c shows that in order to separate the proton of the hydrogen atom from the water molecule, it is

necessary to spend 1.51 eV of energy. Then $(0.85 \cdot 2) = 1.72$ eV of energy will be released during further fusion of two hydrogen atoms. Then 4.53 eV of energy will be released during fusion of a hydrogen molecule. The total amount of energy will be $1.72 + 4.53 = 6.25$ eV in the process of fusion of two hydrogen atoms and a hydrogen molecule. The following reaction will take place near the cathode:



where H^+ is the proton.

In this case the index of heat energy efficiency will be equal to:

$$K = 6.25 / 3.02 = 2.07, \quad (17)$$

The results of the experimental check of this theoretical calculation are given in Table 7.

Let us present the second variant of the calculation on the experiment (Table 7) but at this case we are not using the theoretical results of energy consumption for

hydrogen production, but the experimental ones. One cubic metre of hydrogen contains $1000/22.4=44.64$ moles of molecular hydrogen or 89.28 moles of atomic hydrogen. During the fusion of one hydrogen atom, 0.86 eV of energy is released. During the fusion of 89.28 moles of the hydrogen atoms will be released.

$$H^+ + e^- \rightarrow H + 0.86 \cdot 89.28 \cdot 1.602 \cdot 10^{-19} \cdot 6.023 \cdot 10^{23} = 7322.3 \text{ kJ} / \text{m}^3 \quad (18)$$

Table 7

Indices	1	2	3	Average
1 - mass of the solution, which has passed through the reactor m , gram	1200	1230	1160	1197
2 - temperature of solution, reactor input t_1 , degrees	20	20	20	20
3 - temperature of the solution, reactor output t_2 , degrees	31.0	30.5	31.0	30.8
4 - temperature difference $\Delta t = t_2 - t_1$, degrees	11.0	10.5	11.0	10.8
5 - durability of the experiment $\Delta \tau$, s	300	300	300	300
6 - number of rotations of the disc of counter during the experiment n , rotations	4.44	4.44	4.44	4.44
7 - electric power consumption according to the reading of the counter $E_1 = n \cdot 3600 / 600 \text{ kJ}$ Note: 600 rotations of the counter correspond to 1 kWh of electric power	26.64	26.64	26.64	26.64
8 - voltmeter data, V	40	40	40	40
9 - ammeter data, A	1.80	1.80	1.80	1.80
10 - electric power consumption according to indices of voltmeter and ammeters, $E_2 = I V \Delta \tau$, kJ	21.60	21.60	21.60	21.60
11 - power to heat the solution, $E_3 = C m \Delta \tau$, kJ	55.31	54.11	53.46	54.29
12 - reactor efficiency index according to counter $K_1 = E_3 / E_1$	2.08	2.03	2.01	2.04

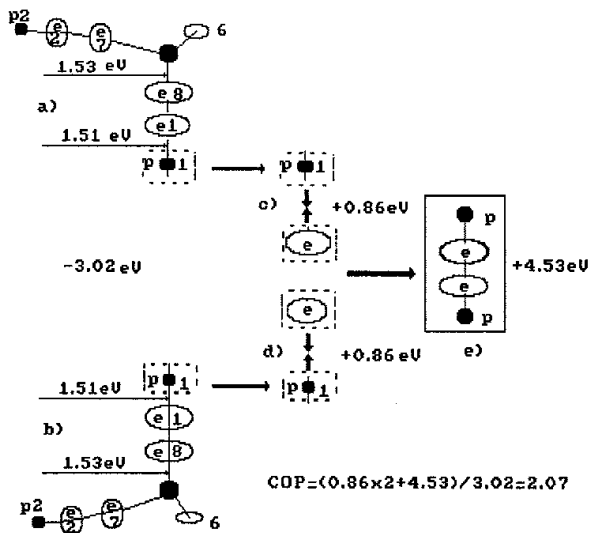


Fig. 10.

Diagram of fusion of the atom and the molecule of hydrogen in water electrolysis process: a), b) - water molecule; c), d) - hydrogen atoms, e) - orthohydrogen molecule

Further fusion of one cubic metre of the hydrogen molecules will add some energy:

$$H + H \rightarrow H_2 + 436 \cdot 44.64 = 19463.0 \text{ kJ} / \text{m}^3 \quad (19)$$

If we add the energies of fusion of the atoms and the molecules of hydrogen, we will get $(7322.3 + 19463.0) = 26785.3 \text{ kJ}$. In order to produce one cubic metre of hydrogen employing the existing technology, it is necessary to spend $(4.0 \times 3600) = 14400 \text{ kJ}$. Index K of heat energy efficiency of this process of electrolysis will be (Table 7)

$$K = (26785.3 / 14400) = 1.86. \quad (20)$$

It is clear, the results of two methods of calculation (16), (17) and (18), (19) and (20) will give the values of indices of energy efficiency of electrolytic process, which are close to the experimental data (Table 7).

7. COLD NUCLEAR FUSION

Earlier we have found out that fusion of the atoms and the molecules of hydrogen are the main source of additional energy for case of usual and plasma electrolysis of light water [1], [2].

During consideration of the model of the electron [1], [2], we have found out that it can exist in a free state only when it has a definite electromagnetic mass. Being

combined with the atomic nucleus, it emits a part of energy in the form of the photons, and its electromagnetic mass is reduced. But stability of its condition does not become worse, because the energy carried away by the photon is compensated by binding energy of the electron with the atomic nucleus [1], [2].

If the ambient temperature increases the electron begins to absorb the thermal photons to pass onto higher energy levels of the atom and to reduce the binding with it. When the electron becomes free, it interacts with the atom only if the ambient temperature is reduced. As this temperature is reduced, it will emit the photons and it will change its energy level to the lower one [2].

If the electron is in the free state due to an accidental external influence on the atom and the environment has no photons, which are necessary for it to restore its mass, it begins to form the photons from the environment (the ether) immediately and to absorb them. The electron acquires the stable free state only after it restores its constants: mass, charge, energy and magnetic moment [1], [2].

Thus, if an interchange of the free state and binding state with the atom takes place due to the accidental influences on the atom, the electron restores its electromagnetic mass every time due to absorbing of the ether.

Many researchers think that the atomic nucleus fusion process is a source of additional energy during heavy water electrolysis. We have analysed this hypothesis and have determined that there is a possibility of formation of helium from the nuclei of deuterium and tritium. In this case the predicted process of the conversion of the neutrons into the protons can be generated by gamma radiation, but it is not converted into heat energy. In this case the thermal photons are generated by means of formation process of helium atoms and not by its nuclei. The calculation shows that 47352 kJ of heat energy can be released during the formation of one mole of the helium atoms. ***This energy is enough to evaporate 18 liters of water.***

It means that the accurate measurements of quality of helium should be carried out. As it is supposed, helium is formed during electrolysis of heavy water. If the calculation results and experimental ones are the same, it will be necessary to intensify helium formation process [2].

8. PLASMA-ELECTROLYTIC GENERATOR OF GASES

The new theory of water electrolysis predicts the possibility of significant reduction of energy consumption for production of hydrogen from water. For example, let us pay attention to the structure of orthohydron, its diagram is shown at Fig. 2, b. This structure is formed when the hydrogen atoms of two water molecules get nearer to each other (Fig. 10).

In this case each of two water molecules transfers one proton and one electron to a hydrogen molecule, and the hydrogen molecule is formed without the electrons emitted by the cathode, i.e. without direct expenses of electric energy for this process (Fig. 10, c). In this case electric energy is spent only for the separation of the formed hydrogen molecule. Two water molecules connected in such a way form the simplest cluster. When water molecules are converted into a vaporous state, the bonds between the clusters are broken, and we have an opportunity to find energy of these bonds between water molecules in the cluster at the temperature of 20°C. We use vapour formation energy of 2595.2 kJ/kg for this purpose. Let us convert this energy into electron-volts per one molecule

$$E_c = \frac{2595.2 \cdot 1000}{6.02 \cdot 10^{23} \cdot 1.6 \cdot 10^{-19} \cdot 55.56} = 0.485 \text{ eV}. \quad (21)$$

On the Fig. 11 the value of this energy is given to the right of the hydrogen molecule situated in a cluster chain. Binding energies of 1.27 eV between hydrogen atoms and the eighth electrons of the oxygen atoms are shown in the left-hand side. Before the cluster was formed, these energies were equal to 1.51 eV. When the cluster was formed, a part of this energy was redistributed for the formation of the bond between the protons of two water molecules with energy of 0.485 eV. That's why binding energies 1.51 eV were reduced, and they became equal to $(1.51 - 2 \cdot 0.485) / 2 = 1.27 \text{ eV}$.

Now let us determine the temperature of plasma, at which these bonds will be broken. The temperature of plasma related with the photons, which are emitted and absorbed by the electrons of the atoms during their energy transitions. In order to break the bond with energy of 1.27 eV, the electron should absorb one or a collection of the photons with energy of

$$E_c = mc^2 = 1.27 \text{ eV}.$$

When this bond is broken, the temperature can be determined approximately. For this purpose, let us use the dependence of kinetic energy of molecule movement of ideal gas on the temperature.

If we equate energy E_c to the energy of thermal movement of the ideal gas molecules, we'll get

$$E_c = 3 \cdot k \cdot T, \quad (22)$$

where $k = 1.38 \cdot 10^{-23} \text{ J/K}$ is Boltzmann constant; T is Kelvin temperature.

We'd like to draw your attention to the fact that the dependence (22) is the dependence of binding energy of the hydrogen atom with the water molecule on the temperature when this bond is broken. Temperature T_c according to Celcium scale, which is required to break

the bond with energy of 1.27 eV, is determined according to the formula

$$T_c = \frac{E_c}{3 \cdot k} - T = \frac{1.27 \cdot 1.602 \cdot 10^{-19}}{3 \cdot 1.38 \cdot 10^{-23}} - 273 = 4637.0^\circ \text{C} \quad (23)$$

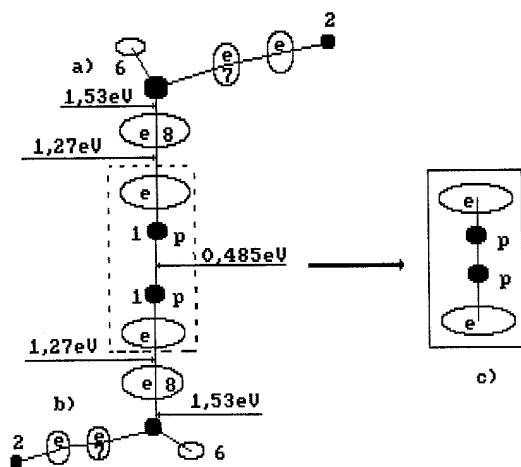


Fig. 11

Diagram of formation of the second model of orthohydrogen molecule: a) and b) diagrams of water molecule; c) orthohydrogen

It is known that plasma of atomic hydrogen has a temperature of 5000 - 10000°C [15]. It means that intensity of the process of separation of the hydrogen molecules from the clusters of water depends on the temperature of atomic hydrogen plasma. When this temperature increases, intensity of hydrogen release should increase too. The temperature of plasma depends mainly on voltage between the electrodes. If the voltage become higher, so the temperature of plasma is greater. Fig. 12 shows the dependence of hydrogen output intensity on voltage in supply mains of the plasma-electrolytic reactor.

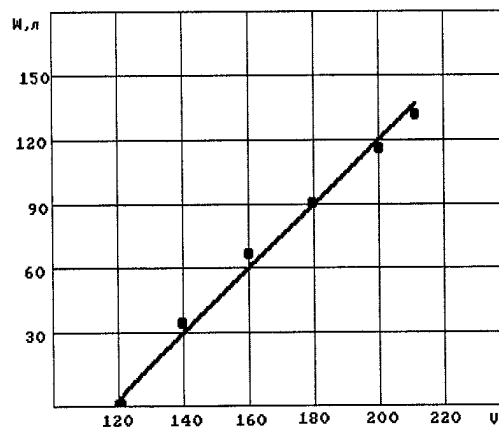


Fig. 12

Dependence of hydrogen output W (liters) on voltage V of power supply source

Let us pay attention to the fact that theoretical dependence of binding energy $E_c = f(T)$ on the temperature, at which this bond is broken, and the experimental dependence of the volume of hydrogen being obtained $W = f(V)$ on voltage are linear. It proves the existence of the bond between these phenomena.

Thus, if it is possible to create the conditions when the clusters of two and more water molecules contact the atomic hydrogen plasma, which temperature is 5000-10000°C, the energy of this plasma is enough to break the bond with energies of 1.27 eV.

As plasma is formed from atomic hydrogen, the process of synthesis of the molecules of hydrogen from its atoms takes place partially as well. It provides this small increase $(222.6 - 180.9) = 41.7$ kJ, Table 8) of thermal energy, which is registered in the experiment. But the majority of the hydrogen molecules are formed according to the diagram shown in Fig. 10, i.e. without the consumption of the electron emitted by the cathode.

Table 8 Experimental results

Indices	1	2	3	Average
1 – duration of the experiment τ , s	300	300	300	300
2 – input of energy E_1 , kJ	157.8	144,0	132,0	144,6
3 – energy of hot water E_2 , kJ	209.97	190,20	180,50	193,56
4 – output of gas mixture, liters	136.13	145,62	137,87	139,87
5 – output of hydrogen, liters	108.90	116,50	110,30	111,90
6 – output energy of hydrogen E_3 , kJ	1392.74	1488,82	1409,63	1430,04
7 – output common energy E_4 , kJ	1602.71	1679,02	1590,13	1619,95
8 – heat COP of the reactor $K_1 = E_2 / E_1$	1.33	1,32	1,37	1,34
9 – common COP of the reactor $K_2 = E_4 / E_1$	10.16	11,66	12,05	11,29
10 – electric energy consumption to produce one cubic meter of hydrogen, kWh/m ³	0.40	0,34	0,33	0,36

Specialists know that the reduction of energy expenses by obtaining one cubic meter of hydrogen from 4 kWh/m³ to 0.40 kWh/m³ means complete solution of the energy problem [2].

High temperature of plasma forms the conditions, under which several various processes take place near the cathode. Firstly, water is boiled and evaporated. At the same time, a part of the molecules is destroyed, and atomic hydrogen is released, another part of the molecules forms the orthohydrogen molecules. A part of water molecules is destroyed completely, and oxygen is released with hydrogen near the cathode. A part of hydrogen is combined with oxygen to form water again.

Thus, water steam, hydrogen, oxygen and partially ozone are released at the same time. If steam is condensed, a mixture of the gases is released. In the average modes of the operation of the reactor, the mixture of gases, which are formed near the cathode, contains 80% of hydrogen and 20% of oxygen. It is necessary to reduce the concentration of oxygen in this mixture. The new theory of water electrolysis opens the ways to solve this task.

Plasma electrolysis of water reduces energy expenses for production of hydrogen from water by an order of magnitude greater, and it becomes a competitive source of energy. In Table 8 the results of one of such experiments obtained by us together with D.V. Korneev are given.

9. FUEL CELL EFFICIENCY

Fuel cells are considered to be one of the most prospective consumers of hydrogen. But efficiency of the process of the reaction between hydrogen and oxygen in a fuel element and the formation of electric power are studied insufficiently. The data of one of the fuel cells are given in the report [16]. At hydrogen consumption of 2 kg per hour it generates 30 kWh of electric power. As one cubic meter of gaseous hydrogen weighs 90g, 2 kg of liquid hydrogen contain 22.2 m³ of gaseous hydrogen. If we take into consideration that in order to produce 1 m³ of hydrogen the best industrial electrolyzers consume 4 kWh and assume the energy value as 100%, we will get energy efficiency of the fuel cell

$$\frac{30 \cdot 100}{22.2 \cdot 4} = 33.8\% . \quad (24)$$

The source of information [17] reports that efficiency of fuel cells of the third generation with solid electrolyte is near 50% and use of the technology in fuel cells allows to increase efficiency of electric power up to 75%; taking into consideration heat generated by them, efficiency is increased by 90% or 95%. Efficiency of fuel cells depends on efficiency of use of electric properties of the hydrogen itself. If quantity of the electrons, which belong to the atoms of hydrogen and take part in the formation of electric power of the fuel cell, is taken into consideration, efficiency of physical and chemical process of this cell is less than 1%. Let us make a calculation for the fuel cell, which is described in the report [6]. This fuel cell generates 30 kW of electric power when 2 kg (22.2 m³)

of liquid hydrogen is consumed per hour. As the mole of gaseous hydrogen is equal to 22.4 litres, it is necessary to consume $22222.22/22.4=992.06$ moles of molecular hydrogen for the production of 30kW of electric power. If we take into account this value as well as Faraday's number $F = 96485$ kl/mole and the number of the electrons in the hydrogen molecule, we will get the total number of coulombs of electricity in 992.06 moles of molecular hydrogen $992.06 \times 2 \times 96485 = 191437818.2$. These are potential possibilities of 22.2 m³ of molecular hydrogen. In what way are these possibilities used by modern fuel cells? The fuel cell being considered operates at voltage of 100V; that's why when 30 kW are generated, current of $30000/100=300$ amperes per hour circulates in its electric circuit. 3600 coulombs of electricity are consumed at 1 ampere per hour and 1080000.0 coulombs are consumed at 300 amperes per hour. If we assume that potential quantity of coulombs of electricity, which 22.2m³ of hydrogen contain (191437818.2 coulombs) is 100%, actual quantity of coulombs of electricity generated by the fuel cell is

$$\frac{1080000.0 \cdot 100}{191437818.2} = 0.57\% \quad (25)$$

The given calculations show that energy possibilities of hydrogen in fuel elements are used only by 0.6%. If this index is increased tenfold, it will mean the global priority of hydrogen energetics in all fields of human activity [18].

10. CONCLUSION

There are the water plasma electrolysis modes when energy expenses for hydrogen production are reduced tenfold minimum, and it becomes the main source of energy in future. Potential possibilities of modern fuel elements are used only by 0.6%. There is a reason to believe that this index will be improved greatly in the nearest future. Theoretical and experimental information obtained by us shows that the ways of the guaranteed solution of the future energy problems have been found.

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Nikola Tesla and Instantaneous Electric Communication

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Nikola Tesla (1856-1943), an outstanding inventor, was and still remains one of the most mysterious persons in the history of electrophysics. Whereas the most scientists were moving together in direction of microparticles investigations, as the basis of matter structure and of nature itself, he was going in opposite direction. He had a keen interest in the investigation of electric charge of the Earth as a whole. He was looking for the ways to influence on it, to control its state and methods of its regulation.

Therefore, exactly, the most of his searches, experiments, the purpose of constructions and buildings, created according to his conceptions, cause perplexity and misunderstanding of scientists even in nowadays.

The most mysterious of his main experiments were made in USA after 1904. After Nikola Tesla death in 1943, all his diaries and records over a period from 1904 year had mysteriously disappeared. Probably they were stolen (it was known, what to take). Lost records could "cast light" on one of the most "strange" of his buildings made in the form of the enough tall tower, on the top of which a specially created toroidal transformer was placed. This transformer could create there a huge electric potential up to the billion volts.

Nikola Tesla switched on this tower-device, what caused the fright and even panic in mind of people from nearby settlements. Of course! Because of very high electric potential there began air ionization, which spread very high to the atmosphere accompanying by the effect of color play. Such luminous, color-playing sky caused even a horror of people, who knew nothing about the experiment made and its goals. They did not guess that Tesla by means of the electric charge, created of

the tower, was influencing on the electric charge of the Earth as a whole (about 600000 Coulomb). There was a global scale in Nikola Tesla's investigations.

There is no point in detailed analysis of the fact that the potential of the tower top influenced on the Earth charge. Interaction of charges-balls with the distortion of field lines, distortion-distribution of charge on their surfaces, induced charge, is beautifully described even in school physics textbooks. In Nikola Tesla investigations the Earth had the role of one of the charged balls. It was possible by changing of charge on the tower to deform electric charge distribution on the whole Earth surface at once. This deformation (electric currents) could be fixed at once in every point of the Earth surface. It is alluring to use this effect for data transfer telecommunication, both on the Earth, and in space.

After such introduction the question "How does the system of instantaneous electric communication for any distance look like and work?" is still opened. First of all, the readers need to know, that such instantaneous communication is possible in principle. The proving theoretical calculations, are rather difficult for popular interpretation. Some part of readers can take it on trust, and those who are most interested in can apply to works of Oleinik V.P. (quantum physics) the professor from Kiev Polytechnic University. At the minimum there are two necessary works: Oleinik V.P. "Faster-than-light transfer of a signal in electrodynamics. Instantaneous action-at-a-distance in modern physics" (Nova Science Publishers. Inc. New York. 1999) and Oleinik V.P. "Latest development of quantum electrodynamics: self-organizing electron, faster-than-light signals, dynamical heterogeneity of time." (Physical vacuum and nature. 4. 3-17. 2000).

"PC" magazine has devoted rather big article "Computers and teleportation" to V.P. Oleinik works, concerning instantaneous electric communication ("PC" #6, 2000). Note, that the author of the given article has also found the possibility of instantaneous electric communication, but by means of materialistic methods, absolutely different from Oleinik's ones, what is most

"Since the effect of cavity structures propagates passively through the quantum fields in the conjugate world (vacuum), then we should not observed a screening of the Cavity Structural Effect (CSE). This was checked in experiments with iron sheets, clothe, plastics, cardboard, wood, brick walls. According to our theoretical conclusions we could not find any screening." (text by Professor Zolotariov).

Further, Professor Zolotariov gives a calculation formula for location of the wave maximums. "The regularity of location of de Broglie wave maximums on the distance D from the tube structure shall be calculated with the formula:

$$D = 2L (N+1) 2^K,$$

where $N, K=0,1,2\dots$ L is the circumference length of the tube, N is the harmonic number of the standing de

Broglie waves, K is the number of maximum".

The conclusion of these articles was to make an association with the "golden section" and the effect studied: ***"...the hologram of human memory is situated in the vacuum field and exists in the space after the human death" (Maneev A.K., Movement, contradiction, development. Minsk, "Technique and Science", 1982).***

All this brings us to the thought that the organism interacts with the de Broglie waves going through it. The resonance character of interaction supposes the multiplicity of lengths of the waves and frequencies, which are determined by the geometric sizes of the interacting structures. Hence, the importance of the geometric proportions appears, i.e. "golden section". That is why the appearance of the "golden section" in nature is not accidental, because the basis of it lies in the de Broglie waves. In practice, it should be recommended to all inventors of the CSE-effect systems.

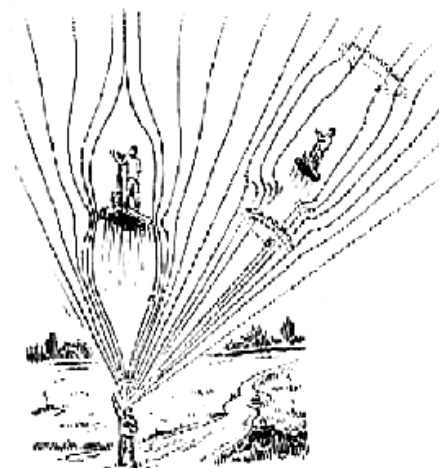
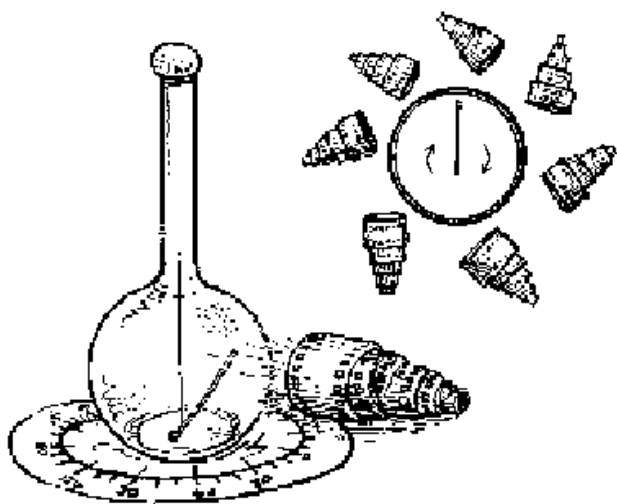


Fig 2

This picture from Grebennikov's book "My World" provides us with some ideas on simplest experiments with rolls of films (left side) and possible amazing antigravitation "warp drive" technology (right side). In 1996 Prof. Zolotarev also demonstrated similar experiments for participants of International Scientific Congress "New Ideas in Natural Science", for example, he used small fiber-optic coil suspended in glass container. The dielectrical coil can react (it is rotating) with permanent magnet or with hands. In both cases the coil is operating as a kind of de Broigle's waves detector.

Power Output can be More than Power Input

Patent of 1877 by Pavel N. Yablotchkov

by Alexander V. Frolov

Pavel N. Yablotchkov was born in 1847 near Saratov, Russia. He graduated as a Military Engineer in 1866 and spent several years in the Russian Army.



Pavel N. Yablotchkov

In 1872 he came to Moscow and started his activities in electrotechnical field. From 1875 he worked in Paris with well-known Louis Breget and his first patent in France # 110479 of November 29, 1875 was about electromagnetic transformer. Then he patented and developed a lighting system (the famous Yablotchkov's electrical candle). In 1876 he patented new electromagnetic transformer for industrial application, France # 115793 of November 30, 1876.

The most interesting patent claim on over-unity by Pavel N. Yablotchkov is known as France patent #120684, October 11, 1877, "The system of distribution and amplification of electrical currents by means of atmosphere electricity..." The patent describes special capacitors connected in series with the load, to increase output current by means of ionization. Experiments were produced together with well-known phisicists (such as Dr. Maskar, Dr. Varren-Delaru and others) and **they confirmed 200% efficiency of the circuit**. Let's try to explain the method. Fig.1 is a schematic drawing from Yablotchkov's patent. The Leyden jar is not a symmetrical capacitor, i.e. it is different in principle from a two-plate flat capacitor. The inner electrode of the jar should be connected to a high voltage source and in this case the changes of

The other known fact is that great ionization of air is observed when the converter is in operation. So, the electrostatics machine can produce pulses of very high voltage (potential difference) but it can't be used as a source of powerful current. We should use some method to increase the current in the circuit and Yablotchkov's technology is quite a good idea for this. A large surface of external electrode of the Leyden jar can solve the problem. Maximum strong ionization allows us to get output current several times stronger than the weak current from the electrostatic machine.

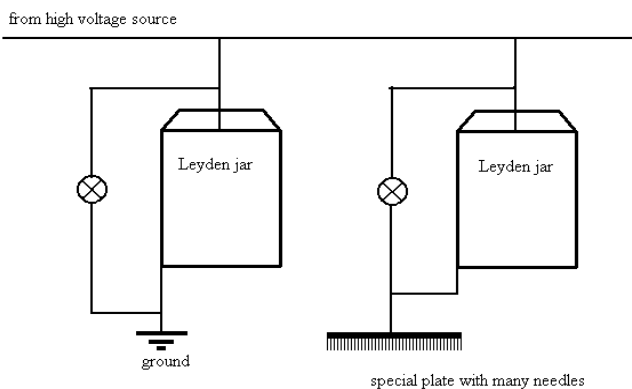
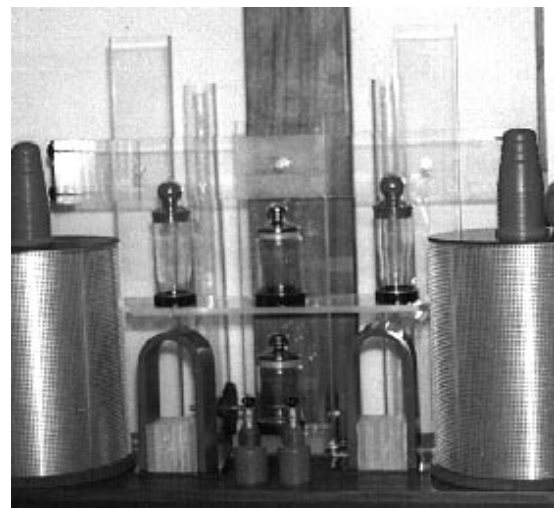
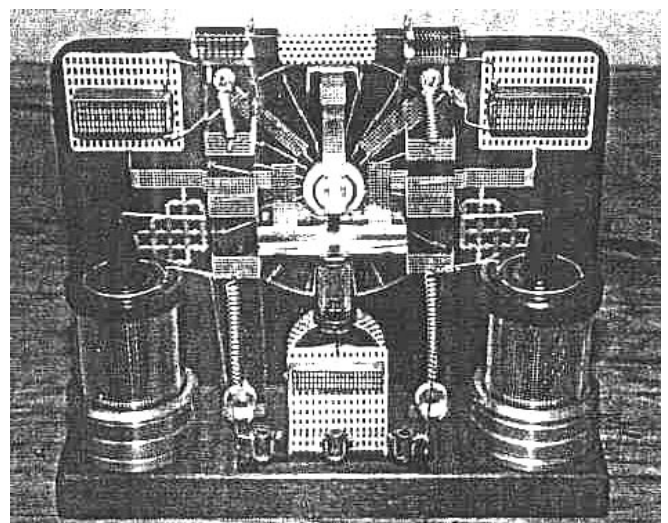
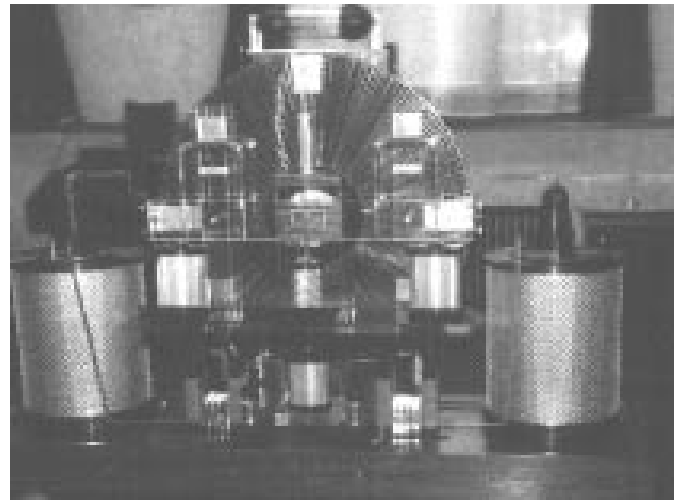


Fig.1

In the opposite case it does not work and if you connect a high voltage source to the external electrode no potential changes will be detected on the inner electrode. Connection to ground or to a special plate (that is covered by many needles to increase air ionization) is necessary to collect the maximum electrons on the plate surface or to return the maximum electrons from the plate surface when changes of potential in the external electrode are produced by means of electrical induction in the Leyden jar.

As a conclusion I should note one more supposition about the secrets of the well-known Swiss M-L converter (Methernitha). The main elements of the design are Leyden jar capacitors, which have the external surface, made of perforated metal.



Swiss M-L converter (Linden- Methernitha)

pleasant tastes. Most of the changes were found to be in the flavour and taste components, which were minor substances in the product. For example esters concentration changes during the treatment. At the same time the content of major components, such as sugars, organic acids, particularly, heavy organic acids, and especially ethanol remain constant. It seems logical from kinetic point of view, when simple processes, like esterification, are preferable with respect to many stages reactions, and reactions with high activation energies, which can go at hard conditions. Also, it seems logical that magnetic treatment may influence on electrical state of colloid species. Thus magnetic treatment can be considered as mild, selective in the comparison with many other physical methods. Nevertheless, the changes lead to acceptable energetical and nutritious value of the product. Data show that difficult problems, such as tartar removal, can be solved by MBW treatment.

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The Fundamentals of the New Principle of Motion

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The concepts of active and passive interaction between the moving object and the space form the basis of the new principle of motion.

So as to be more understandable, let's consider what is the old principle of motion. For this we will use the concept of a moving object and the space in which the object is moving. Naturally, material objects and the space can't interact between each other directly, because the space is the philosophical category. In this case we can understand physical essence of natural phenomena easily. In our view, the material objects interact with some fundamental energy of space (FAM), which fills all space with a different density. Thus the energy (FAM) is inalienably connected with the space. One of the first names of this energy is "ether" in the early scientific works. So, for the simplicity we will accept that the object and the space interact between each other.

Thus, all existing methods of motion which have been invented by mankind till the present time are based on activity of the material object that means the one expends some energy to produce the motion, and at the same time space is passive, it means that space does not need to spent any energy to move the object. And so in common case space tries to keep the object

in the former state interfering with accelerated movements of the object (in accordance with **the 1st, the 2nd and the 3rd Newton's laws**).

It should be noticed that such method of motion (for the speed, which is much less than the speed of light) takes place both in animate and inanimate natures. In this case the level of energy of motion and reaction of space (or an environment) are not very high. Incidentally, the energy of object can be of different types: electrical, chemical, biochemical, mechanical etc. The common consequence of this type of motion is existence of the **inertia**. The classical physics can't answer the question: "what is inertia?" The same situation is applied to the concept of **mass**, which is closely connected with inertia. The classical physics says that **the mass is a measure of inertia**.

There is the new principle of motion of material object: the object is passive and space is active. In this case it's more favorably for space in the energy aspect to move the passive object and to spent some power then to keep the object in the present place in the former state of immobility (in accordance with **the 1st, the 2nd and the 3rd Newton's laws**). And so we should introduce **the 4th law of Newton's mechanics**. It says that **there are the systems of coordinates in which the body is moving not rectilinearly with acceleration when this body is in the state of immobility**.

The basic and the main differences of the offered principle of motion from the existing methods at the end of the XX century are the following:

- 1) **The absence of inertia of motion;**
- 2) **There are no limits for the speed of motion;**
- 3) **The absence of "fuel reserves" "on board" of the moving material object.**

At the present moment in aerospace it's technically possible to realize only the jet propulsion or use the inertial forces (for an example Tolchins' or Savelkaevs' inertial machines). But they are non-efficient and slow methods. (We'll pay no attention to exotic methods of propulsion: the space sail-ship based on the Sun-wind etc., because they are not promising enough.) The jet propulsion unit or inertial machines need on-board energy source, which is limited. That is a problem for aerospace systems.

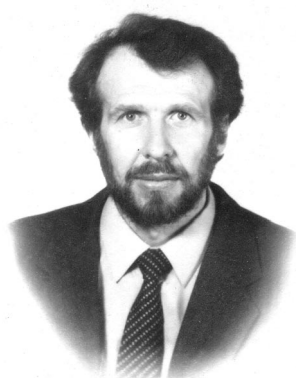
The first simple and rough illustration of the new principle of motion is a small experiment. Let's take a piece of soap and press it in the palms strongly. Incidentally, if the pressure of the palms is even, the soap will be left in the state of immobility. If the pressure

is not even the soap will slip out of hands with a high speed. It is most important to understand that the soap will not spend any energy. We can press and press it as long as we wish, and the soap will keep slipping out.

The aerodynamic (hydrodynamic) force is the analogous example. It's a **reaction of environment (the space) on the shape** of a moving wing. The appearance of a rarefaction above the wing creates the lifting capacity. It should be noted that environment creates the force itself and the wing doesn't expend any energy except for the translation motion.

The third example is an appearance of the buoyancy in water. It's also a **reaction of environment (the space) that depends on the density of an object's matter.**

Time is a Mystery of the Universe



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Milleniums pass, but we still do not know, what is time. We hardly have another such notion, which has so different and even alternative conceptions. Here are some widespread conceptions of time:

- *There is no time; it is a subjective sensation.*
- *Time is an objective reality, which is a form of matter existence as space.*
- *Time is only a comfortable method to describe the motion of bodies and processes, which take place in the World.*
- *Time is a cause of motion of bodies and passing processes.*
- *Time is absolute, it does not depend on anything and it is similar for all systems.*
- *Time is relative, it is own for every system.*
- *Time is a measure of strictly periodic (cyclic) processes, which are realized in stationary systems only.*
- *Time is a measure of changeability of systems; time does not pass in stationary systems.*

- *Time is reversible (because basic equations in physics do not change with change of sign of time).*
- *Time is essentially irreversible (because all human experience is an evidence that the future differs from the past, and that a movie, which was started counter, is not realistic).*
- *Time can be described mathematically as a scalar variable quantity, which changes equally in all points of three-dimensional physical space.*
- *Time can be described as one of directions in four-dimensional variety, which is called space-time, at that this direction, generally speaking, is own for every physical system.*

In general, the situation about the problem of time now is similar to the situation some centuries ago. It is well illustrated by the words, which are attributed to Augustine Blessed. They sound like this: "While I do not think about time, I know that time exists, but when I begin to think about it, I stop understanding, what it is." Situation related with the notion of time is complicated by the circumstance that this notion is widely used by representatives of various fields of knowledge (biologists, geologists, historians, philologists, and psychologists). With this many authors put their own sense in the notion of time. Often they do not want to take the trouble of explanation, what do they understand under the term of "time".

Let's consider some basic theses concerning time, which were based on achievements of philosophy and physics, sciences, where problem of time is investigated most deeply and in full. The most of known conceptions of time can be kept within two principally different conceptions of time, those are relational and substantial. These conceptions differ in interpretation of relation of time and physical matter (substance and physical fields belong to physical matter). According to relational conception there are no time itself in nature, and time is only a relation or system of relations between physical events. In other words, time is a specific manifestation

The force is also increases with the approaching to the walls of the cylinder (Fig. 2). We can always find a point of minimum gravity force inside the cylinder.

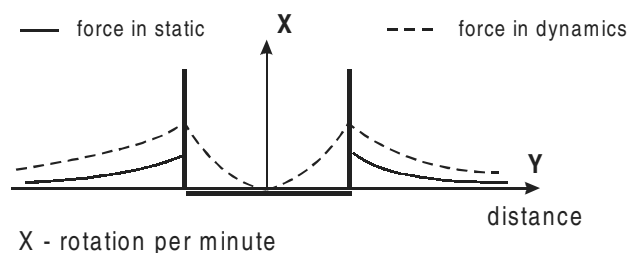


Fig.2.

During the experiment it was established that the increasing of gravity forces takes place around the rotating centrifuge. When the centrifuge is on, the mass begins to be attracted to the side of rotating centrifuge.

CONCLUSIONS

With the horizontal location of axis of the centrifuge there is a tendency towards acceleration to both walls of the centrifuge. We can notice a small shift in the center of gravitational equilibrium depending on the direction of rotation of the centrifuge (Fig. 2). Probably this happens due to the slow emission of ether by the Earth.

With the vertical location of axis of the centrifuge the direction of attraction of the mass depends on the direction of rotation of the centrifuge as well as on the position of the arm of rotating scales in regard to the force field of the Earth. With this the mass also is attracted to the both walls (Fig. 3).

The centrifuge was made for this experiment (Fig. 1). For the clear experiment we should avoid the electromagnetic radiation possible with rotation. We could do it by using appropriate materials for the centrifuge like paper and wood. There were no movements of the compass during the experiments. The

paper was twisted into a cylinder with internal and external diameters of 20/30 cm accordingly and height of 21 cm. The entire unit was put on a metal disk with diameter of 40 cm and aligned by a stainless steel rope with diameter of 3 mm. The centrifuge is situated on the axis of a 3 kW electrical motor rotating at 2860 rpm.

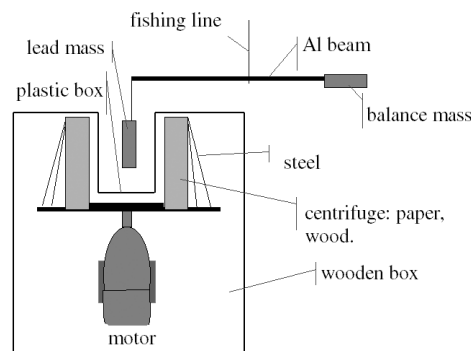


Fig.3.

Disturbances of the air appear with rotation of the centrifuge. To prevent them from affecting the experiment we should make a wooden box. The polyethylene reservoir with diameter of 16 cm was placed inside the cylinder of the centrifuge to isolate the mass from disturbed air.

A pendulum in the form of beam with the weights on its ends is suspended on the rope. The upper end of the rope made with 4-thread fishing-line with diameter of 0,15 mm. It is attached to the ceiling of the second floor and it has a length of 5 meters. To achieve a stable equilibrium of the pendulum we should split the upper end of the rope on 1 sm. The beam, on which the mass was attached, was made with a hollow aluminium tube of 8 mm diameter and 1,20 m length. The mass placed in the centrifuge was made of lead and has a weight of 3 kg.

Editor's note: The theory is well known but this simple experiment is a good illustration.

Design of an Engine for Free Space Based on the Pondemotor Effect

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This engine is based on the pondemotor effect, which is the principle of the creation of propulsive force by means of the interaction between electric and magnetic fields. The interaction between electric and magnetic fields produces energy-flux, determined by the Poynting vector [1,2]:

$$P = ExH, F = P/c, P = mc^2$$

Peculiarities of Poynting's vector are:

1. Violation of the principle of composition of fields:

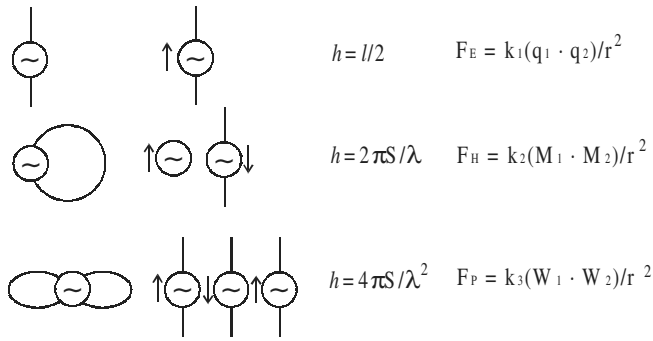
$$P = \sum P_i(f_i)$$

2. Poynting's vector changes with double-frequency for flat polarized electromagnetic field:

$$/ E_0 \sin \omega t /, / H_0 \sin \omega t / P_0 \sin^2 \omega t$$

3. Poynting's vector is constant for circular polarized electromagnetic field: $/P/=const$

Let's consider three types of interaction - electric, magnetic and gravitational - from one point of view. It allows us to draw an analogy between gravitational field and Poynting's vector.



where h is the operating length, V is volume, l is length, S is square, M is magnetic charge, λ is wave-length, q is electric charge, W is bulk of energy.

Electric exciting of the space is initial (primary) interaction. It has flat polarization and maximum interaction with free space. A magnetic exciter is produced by closing of the electric exciter or from a couple of parallel electric exciters with an opposite feed. A composition of three electric exciters or two magnetic exciters with opposite feed can be used as gravitational exciters. In the last case, the exciter is polarized in volume and in some case it can be rotating to form the toroid. In the first case space is excited by electric and magnetic fields. In the second case, only magnetic field excites the space. In the third case both electric and magnetic fields are "closed with themselves" and electromagnetic energy is concentrated in the volume of space. Only Poynting's vector exists and it defines the energetic condition of the volume.

The main interesting aspect is the circular polarization of the magnetic field. There are two methods: two equal

components of the field are 90 degrees phase shifted in wave zone, or electromagnetic dipole gives us the circular polarization [3]. The electromagnetic dipole at the first half of the period creates an electric field, at the next half of the period it creates the magnetic field, that corresponds to 90 degrees phase shift.

We are interested in the zone nearby the exciter because the force of pondemotor action lies here. In the opposite wave zone, the electric component has no magnetic component in the same phase (sinphase) and the magnetic component has no sinphase electric component here. The sinphase components have not formed here yet. Then we offer to make these components artificially, by the excitation of space with two crossed electromagnetic dipoles which are fed by currents with 90 degrees phase shift.

There are a lot of versions for disposition and feed of exciters, and in one particular case it is radial and circular disposition, which correspond to feed and step $h = 2\pi/N$ (the analogy of feed to form the triangle and star electric circuit).

We can draw an analogy with the movement of liquid or gas with absolutely resilient properties and deal with moving ether under the action of electromagnetic field. Then we can say that the electric and magnetic fields act on the ether with force $F = P/c$, forcing ether to move. But the energy-flux, which is produced by one fragment of the exciter, compensates the incoming and outgoing quantity of ether. We should make some asymmetrical construction for discompensation of these fluxes.

The second fragment of the exciter will provide the second pair of forces with different geometry, different operational frequency and different direction of rotation. For example, if we take two fragments with different diameters which are superposed at a distance h from

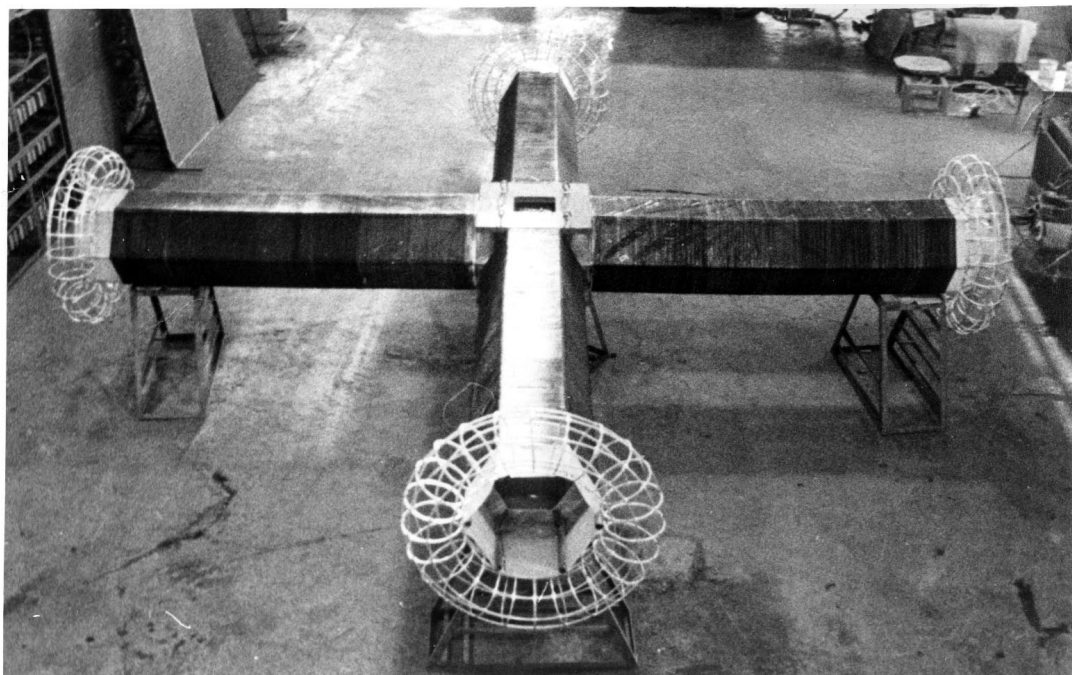


Fig. 1
Photo of Ignatyev's experimental setup. Maximum size is about 4 m.

each other, but they have equal Poynting vector P , and place them coaxially then ether will move asymmetrically according to law of conservation of the quantity of the motion, and the result for it is the propulsion force F_t .

At the present time the third model of the fragment of the engine was built and its main technical parameters were measured. So, on the frequency of 80 kHz we measured that the electric intensity is $E=10^5$ V/m, the total electric intensity is $E=10^6$ V/m, the magnetic intensity is $H=2 \times 10^4$ A/m, the Poynting's vector is $P=10^{10}$ Joule/($m^2 \times s$), the propulsion force is $F=60$ N (about 6 kg-force) if the input power to one LC circuit of the system is about 10 kW. The system is shown on the photo.

In the near future will start experiments on engines based on the "pondemotor effect": measurement of rotation moment, interaction between the exciter and its mirror reflection from the Earth surface and so on. We started to design a fragment of the engine with radius $R=40$ m, which will create $P=10^{14}$ Joule/($m^2 \times s$) and $F_t=3 \times 10^4$ N (about 3 tons).

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Propulsion From Relativity Effect of Inertial Force

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Many scientists challenged to get propulsion from inertial force. No one succeeded. Here we show the possibility of propulsion system by the effect of relativity of inertial force. Activity matter may be a gravitational wave or "space-time". We named it "space-time propeller". If we success to show that the system will work, then we will get a propulsion from electric power.

The system consists of a turntable and 2 wheels. Wheels were set on the edge of this turntable. We call it "space time propeller ". Proper time at point P in wheels will be delayed by rotation of turntable and wheels. This delay depends on the position in the wheels. Delay describes as follows, if we neglect the effect of own mass of wheels. We do not need to think about mass of the turntable. The " τ " is proper time on P. The " t " is the time at the inertia system fixed on the center of a turntable.

$$d\tau = \gamma dt \quad (1)$$

$$\gamma = \frac{1}{\sqrt{1 - \frac{r^2 \omega^2}{c^2} - \frac{R^2 \Omega^2}{c^2} - \frac{r^2 \Omega^2 \cos^2 \varphi}{c^2} + \frac{2rR\omega\Omega \sin \varphi}{c^2}}} \quad (2)$$

In general the "inertial force field in the accelerated coordinate system" is in inverse proportion to proper time of each point.

$$\text{inertial force field} = -\frac{dx_\mu}{d\tau} \quad (3)$$

In the case of the space-time propeller, the sum of inertial forces on each point of wheels is not equal to zero.

It means that all the sum of inertial forces in wheels is never canceled. It is a "relativity effect". We call this phenomenon the "inertial force deviation".

Non-compensated inertial force =

$$= \int_{\text{Volume of all Wheel}} -\frac{dx_\mu}{d\tau} dm \neq 0 \quad (4)$$

The new propulsion force is just a non-compensated inertial force. If we put plus spin on the turntable and minus spin on wheels, we can get directed propulsion.

How many propulsion we can get? We can get 70,000 N propulsion under the following condition. The radius of the turntable and wheels is 1m; linear density of wheels is 10Kg/m, frequency of rotation of turntable and wheels is 16,000 Hz.

The idea of the space-time propeller includes 2 problems. The first one is that we used a rigid body in above discussion. But any terms will not be divergent under the condition that λ in (2) is real. Therefore we can avoid the physical failure in above discussion. The second one is that active matter is unknown. According to above discussion, we can't explain energy-momentum conservation.

We should find an active matter to explain the energy-momentum exchange mechanism. It is natural to think that the active matter is the gravitational wave. It means that the space-time propeller "kicks" the space time like the propeller kicks the air.

To explain that active matter is a gravitational wave, we need to know the structure of space-time inside of

The Experimental Gravitonics

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Now we can suppose that the XXI century will be the century of Gravitation, like the XX century was the century of Electricity and Atomic energy, and the IXX was the century of steam engine.

This thought started to take more and more minds of engineers and scientists and to move them to activity in this direction. In a general sense all "gravitation research program" has three main goals: a) real system for communication by means of gravitation waves; b) real gravitation propulsion drives for space ships; c) real transformations of the space gravitation energy in electrical energy.

So, to work in this new area of science the minimum real equations are necessary to describe the physical mechanics of the processes.

We clarified this question and now we can state: ***Gravitation is the problem, which can be solved in the limits of non-linear mechanics in the case of curve-linear motion... and nothing more!***

In a general view this problem could be solved by D'alambert but he did not completely solve the equation of motion for material point in 4-dimensional space.

We used another way and found new, approximate, analytical equations, which connect the gravitation of macro-object with rotation and magnetism with gravitation. The equations were checked in series of experiments, from mechanical to quantum and they proved their validity.

Short Review of the Approximate Dynamic Theory of the Gravitation Source

Next dynamical equations are obtained for process of generation of the gravitation power by different methods:

1. Process of magnetisation –demagnetisation of the ferromagnetic material:

$$W = \frac{BHV}{\alpha} = \frac{B^2V}{\mu\alpha}$$

$$W_r = \frac{1}{\alpha} \frac{d}{dt}(BHV) = \frac{1}{\alpha} \frac{d}{dt} \frac{B^2V}{\mu}$$

where W is gravitation energy of magnetised ferromagnetic; B is magnetic induction; H is intensity of the magnetic field; V is volume; $\alpha = 1/137$ is fine

structure constant; W_r is the power of gravitation radiation.

2. Another method is the rotation of the gyroscope:

$$W = 2k\gamma_0\omega^{3/2} \frac{m^2}{r}$$

$$W_r = 2k\gamma_0 \frac{d}{dt}(\omega^{3/2} \frac{m^2}{r})$$

In comparison with "Theory of Field" by Landau and Livtshitz, the value of gravitation power, which is radiated by spherical gyroscope:

$$W_r = \frac{m^2 r^4 \omega^6}{90c^5}$$

where W is gravitation energy, K is parameter of form, γ_0 is absolute world gravitation constant that is equal to the fine structure constant, ω is frequency of rotation of the gyroscope, m is mass of the gyroscope, r is radius of the gyroscope, W_r is radiated gravitational power, c is speed of light in vacuum.

3. The precession of the gyroscope

$$W = \xi[L, \Omega] = \xi \left[\left(\frac{dL}{dt} \right) \right]$$

where ξ is gravitational-mechanical ratio:

$$\xi = \frac{4\gamma_0 m}{r^3 \omega^{1/2}} = \frac{W}{E_k}$$

The radiated gravitation power is

$$W_r = \frac{4\gamma_0 m}{r^3} \frac{d}{dt} \left(\frac{1}{\omega^{1/2}} [L, \Omega] \right)$$

where L is the moment of quantity of motion of gyroscope, Ω is the frequency of the precession.

4. The precession of magnetisation

$$\frac{dM}{dt} = -\gamma[\overline{M}, \overline{H}] - \frac{\alpha\gamma}{M_0} \left[\overline{M} \left[\overline{M} \overline{H} \right] \right] - \frac{8\pi\gamma}{\tau_r f} (\overline{M} \overline{H}) \frac{M}{M_0}$$

where the energy

$$\frac{8\pi\gamma}{\tau_r f} (\overline{M} \overline{H}) = \Delta W$$

is gravitation energy which is re-radiated in the direction M during the process of the non-linear ferromagnetic resonance; M is magnetisation; M_0 is saturation magnetisation; γ is gyromagnetic ratio; τ_r is the time of the relaxation of the ferromagnetic; f is the frequency of the Larmor precession.

5. The equation of the gravitation detector

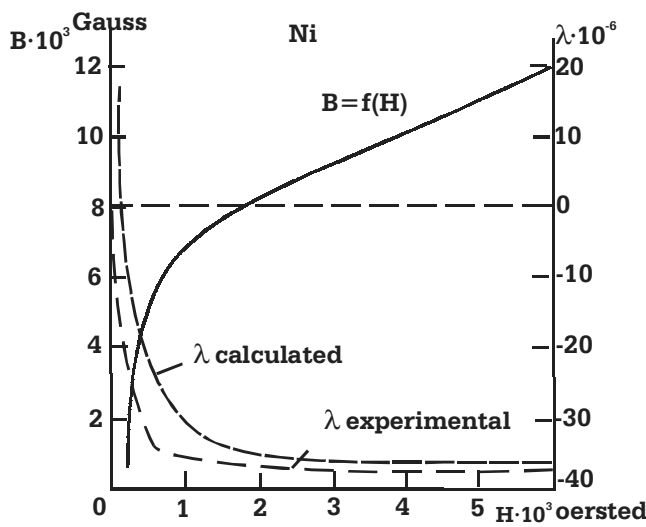
$$\pm \Delta\omega = \frac{90r}{\omega^{1/2}m^2} \alpha \Delta W$$

where $\Delta\omega$ is the reaction of the gyroscope (i.e. change of its own frequency of the rotation); α is the parameter of connection with external impulse of gravitational radiation; ΔW is impulse of gravitational radiation.

Experimental verification of the equations

The Magnetostriction equation:

$$\lambda_i = \frac{\alpha^k}{(BH)_s} H^2 \frac{d\mu}{dH} = \sigma_s H^2 \frac{d\mu}{dH}$$



and experiments Fig.1 (for Ni and Fe) allow us to state: the gravitation nature of the magnetostriction phenomenon is a compression of the matter in its own gravitation field.

Gravitation-optical effects can be produced on a laboratory table!

a) Gravitational curvature (the deviation) of a laser beam can be described by the formula

$$\theta_g = \frac{\Delta l \text{ grad} \phi}{c^2} = \frac{1,4 \cdot 10^{-5}}{(BH)_s} \text{grad}_z(BH)$$

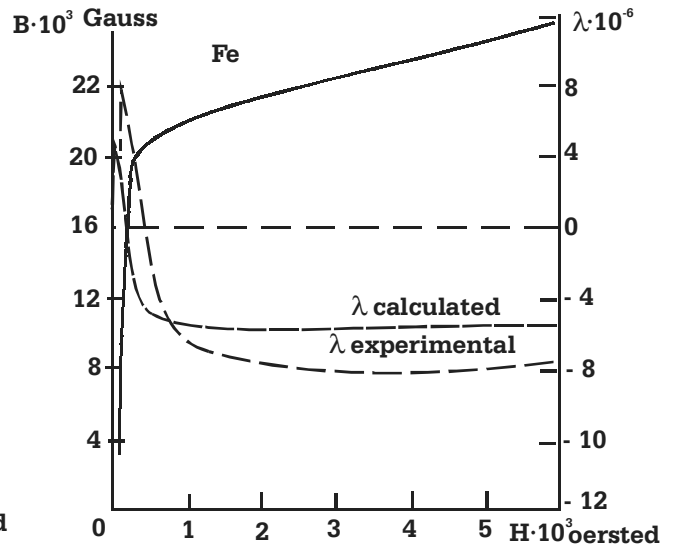


Fig 1

which is proved by the experiment, Fig. 2.

b) Gravitational shift of the laser beam frequency is described by the formula:

$$\pm \frac{\Delta\nu}{\nu} = \frac{1,4 \cdot 10^{-5} \Delta l}{(BH)_s} \text{grad}_z(BH)$$

that was also proved in the experiments.

c) Also some calculation was made by the author to find the quadratic gravitation-optical effect described by the formula:

$$\pm \frac{\Delta\nu}{\nu} = \frac{1}{2} \left[\frac{1,4 \cdot 10^{-5} \Delta l}{(BH)_s} \text{grad}_z(BH) \right]^2$$

d) **Real operating system of the gravitation propulsion drive was created and tested.** From results of this work the speed of propagation for gravitation wave was calculated as 9×10^{20} [cm/sec]

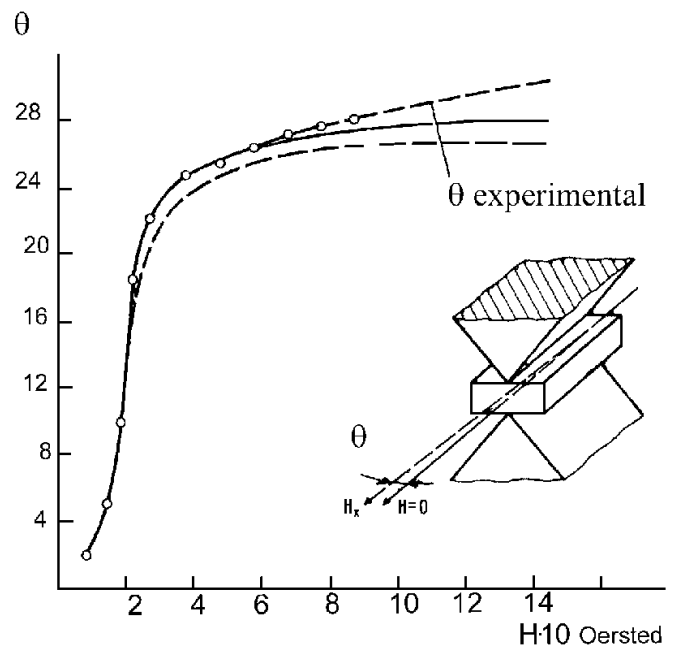


Fig.2

Fig.3 is the photo of the system. Its weight is equal to 32 kg, the vertical size is about 600 cm and diameter is about 370 cm. Consumed power is about 650 Wt.

Authors created the long-term program of the research work named as "Poisk-1". Also the POISK-2 program was created. It includes research into the gravitational spectrums of the solid body, medico-biological research, gravitational astronomy, earth and sun diagnostics, research into the interaction between gravitational radiation and matter, influence on the crystalline structure, influence on radioactive decay and many other topics.

The main results were published in our book "Introduction in Experimental Gravitonics", 1991, published in Russian. It was described why the "light barrier" is penetrable and the energy relations and the mechanism of "C-barrier" penetration were shown. Authors created and developed the microstructure models of the photon and electron. The "uniquants" put forward as the elements of the inner structure of electron and photon. The authors determined the "uniquanta parameters", described linear polarisation for photon, circularity polarised non-rotating photon and the circularity polarised rotating photon. Spin, magnetic moment of a unquantum, gravitational mass, equivalent charge and radius of a unquantum are postulated. Tangential velocity of unquantum rotation, unquantum magnetic field, gravitational constant of the unquantum, gravitational field of the unquantum are described.

There is "Quadruple generator of directed gravitational radiation" known as "Yoilka" (Fig.3). It can produce a swing of mass or swing of gyroscopes, precession of masses and precession of gyroscopes was studied by

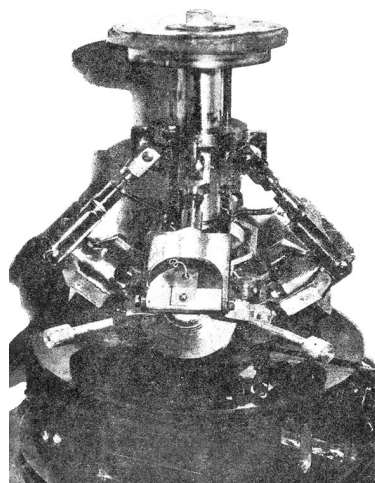


Fig.3 Four gyroscopes of the "Yoilka"

the authors. Experimental verification of new gravitational equations and research into the effects of shock rotation and effect of shock braking of the rotating gyroscope was produced. The authors reported the experimental results on creation of the propulsion force and explained the mathematical model of the generators in their laboratory.

To make the experimental verification of the ***natural relation between magnetism and gravitation***, corollaries from the microstructure model of electron, gravitational interpretation of magnetostriction were proposed. In the experiment some change of the trajectory of optical laser beam was obtained after that this beam passed through the magnetostriction substance. Also the authors proved some calculations from their experiments with homogeneously-magnetised ferromagnetic material, which were known before as "gravitational frequency shift" of optical beam.

Antigravitational Wing

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One of the main barriers for humankind on the way to the development of cosmic space is gravity. Using modern rocket-space technologies we should spent a lot of efforts to overcome the forces of gravitation. Present spacecraft consume a lot of fuel, that's why now the development of cosmic space is very expensive and non-effective.

Humankind has come close to the problem of control of gravitation, and now it is not a scientific fantasy, but working hypotheses. A lot of natural phenomena are laid in the basis of these hypotheses and character of them is really an antigravitational one. Serious scientific

works, theoretical and experimental researches are devoted to the problem of antigravitation; international scientific conferences on antigravitational research are held regularly. But the nature of antigravitational phenomena is still unknown; there was no theory to answer all these questions.

Actually in April 2001 researchers of Komsomolsk-on-Amur State Technical University offered to public attention a theoretical explanation of nature of antigravitational phenomena, which have huge opportunities to become a basis for further studying of antigravitation. Potential model of antigravitational interaction of the bodies by Dmitry V. Ponomarev and Roman V. Shibeko is based on the general theory of relativity by Albert Einstein and fully complies the frames of relativist kinematics, i.e. it is not in contrary with the modern theory of gravitation and laws of conservation. That's why it is headily spreading and it finds more support in various regions of Russia and abroad.

The Physical System of Artificial Biofield Experimental Research of Ether



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Introduction

It is a mistake to suppose that the experiments described in this article could be planned and made without a clear idea about the real properties of a single universal matter. The empirical model of multidimensional stereo dynamics and laminated on the phases ether was created continuously by the author in his works [1-5] on the base of results of natural observations and laboratory experiments, which were checked repeatedly on their validity. The analogous models of "many level" arrangement of the Universe and parallel matter world were proposed independently by American and English scientists from 1957. A distinguishing feature of our research is the experimental confirmation of the stated scientific theses.

The world ether as a superfluid, quantum three-dimensional environment has spin non-linear properties due to the revolution of the Universe as a whole. If the energy of revolution of ether body is enough to create a relatively weak magnetic field, than in the scale of the Universe the process of revolution produces a vortex (spiral) classical substance. The big energy and stability of the elementary particles and atoms define the visual image and main properties of the Nature around us. But in the same time they creates the circumstances to limit our knowledge about the real laws of the Universe. As

a result the predominant scientific paradigm became a hostage of the concept of the solid-state matter.

The academic physics had studied the substance and the relating fields sufficiently in detail. We cannot say the same about ether. The reason is that it constantly slips away from attention of the scientists and consists in its superfluid properties. The modern experimental physics is able to record only the processes where the visible work is performed, but the superfluid environment cannot perform this work if we observe the work in usual rate of time.

The way out of this difficult situation was suggested by the studies on the superfluid turbulence. It turned out, that the macroscopic ether as well as the usual superfluid liquid (for example, the helium-II) in the process of any translation (motion) transfers into the turbulent condition, i.e. there is no movement without rotations of ether. The next principle step was made when the material properties were found in ether vortex of any size. In this case ether is able to perform some work at the interaction with the usual substance due to the vortical viscosity. But of cause this process in conditions of superfluidity has some limits. That is why the force of interaction of ether macroflow with the physical body (the "fifth" physical force [2]) in every new experiment is decreasing according to the exponent law. The author called this phenomenon as the law of ether adaptation, or the energy-information barrier [3].

To study a new kind of interaction the concept of physical systems with the artificial biofield was developed [2-5]. Under this field we mean a specially organized stereodynamic ether structures of different size vortexes, which fill up all specter up to the macroscopic scale. The question is: does the time constant of ether adaptation depend on the size of the interacting vortexes? That is why to increase the time of observance of the new physical force to few hours a creation of the material system is required, and this system will be able to generate ether vortexes, which are close to the sizes of this system (the analogue is the "chakra" of biosystem).

Editors: The "chakra" is an active zone of human organism.

Device with an artificial biofield is a multi-dimensional physical system in sense of ether. If we compare the time of its active interaction with the time of existence of biosystem, it will be appropriate to introduce a term for the viable technical system (ether robot).

We will call the physical system a viable by definition (multidimensional) if it is able to realize the consistent of auto oscillation processes with vortical-wave nature during the defined period of time simultaneously in different phase conditions (subspaces, layers) of ether. The most important features of such system are its space-time vortical-wave (quasimaterial) wide-band of oscillations and the limited time of the functioning

existence, which is defined by the conditions of creation of energy-informational barrier. To provide the auto oscillation condition the source of energy, the oscillating circuit (pendulum) of any nature, amplifying process (negative viscosity) and the channel of positive feedback (negentropy) are required. It seems to be strange but our merely empirical concept of a viable system has a certain relation with the theorized ideas of Dr. I.L. Gerlovin [7].

Experiment results of the device, which has an artificial biofield

(ABD – artificial biofield device)

The modified electromechanical autogenerator, meeting the above-mentioned requirements was assembled to perform the tests. You can see its principle scheme at Fig.1.

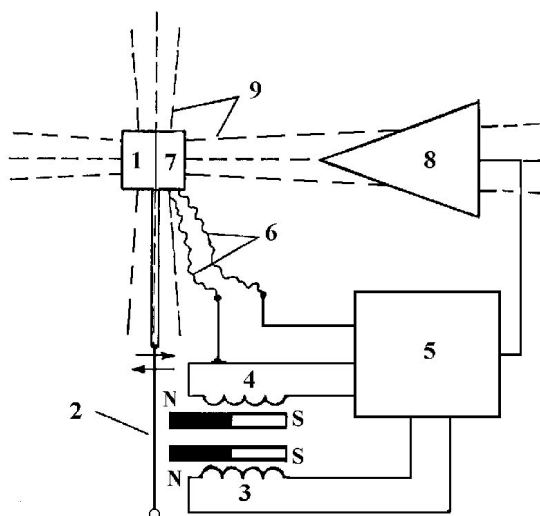


Fig.1

There are: 1 – mass (bob) of the pendulum, which is vacillating in the flat of the drawing in the indicated directions; 2 – steel spring; 3 – solenoid, which swings the pendulum; 4 – solenoid, which accepts swings of the pendulum (feedback); 5 – electronic amplifier; 6,7 – pigtails, which transfer the electrical oscillations and non-conventional emitter, situated on the pendulum, accordingly; 8 – device, which receives the non-conventional emitter; 9 – vortical-wave disturbance of ether in the orthogonal directions. Electrical signal from the amplifier 5 through the rectifier and filter goes to the self-recording micro amperemeter to record the electric amplitude of the oscillations.

Analysis of work of the given device relates to the theory of ether circuits and systems or ABD theory, which principles are creating yet now. As results from the Fig. 1, the multidimensional device is a usual auto oscillation electromechanical system (positions 1-5), which is supplemented with the circuit of special ether units (positions 6-8). The non-conventional emitter 7, spatial channel 9 and reception facility (antenna) 8 provide self-excitation of the wide-band auto oscillations of ether.

Since the physical processes are slowed in the using subspace of ether, to coordinate the work of the solid and ether subsystems we should choose an auto oscillation frequency over the range of 1-7 Hz. (In the case under consideration ether subsystem cannot exist without solid subsystem). With the ordinary sizes and position in space of the ABD elements, the positive sign in the additional channel of the feedback is achieved automatically, and non-conventional disturbances of ether (vortex-waves) are “oscillated” by the simple transistor amplifier 5 together with electromagnetic signal that is the established experimental fact.

This new physical process plays a key role in functioning of the multidimensional technical system providing the creation of the “ether twin” as a kind of artificial biofield, which has the vortical-wave quasimaterial nature. The space-time specter of ether movements that we use is limited by the scale, comparable with the sizes of ABD.

At that the cross-shaped diagram of receptivity about $3^\circ - 5^\circ$ in width is developing in space on the 0,7 level. As a main direction we take the longitudinal movements of pendulum, and as a side (orthogonal) direction we take the cross movement. The external disturbance of ether both natural and man-caused origin, which are close to the artificial biofield by their specter, affects the pendulum mechanically through the vortical viscosity, and through the structure of artificial biofield it affects the phase correlations of the electrical signals changing the amplitude of the generated swings. The average vital cycle of ABD is equal to 3-7 hours, but it is known, what we should do with the device to recover its sensibility to the next session of observations.

... to coordinate the work of the solid and ether subsystems we should choose an auto oscillation frequency over the range of 1 - 7 Hz.

At the active (viable) conditions ABD provides the recording of intensity of turbulent disturbances (“temperature”) of ether, anisotropy properties (the direction of the spin polarization) and flows of ether (wind).

The most evident application of ABD is the experimental study of the macroscopic properties of ether and astrophysical observations (at that the ABD itself is studied). Unfortunately, the features of ether are recorded indirectly and they cannot be evaluated metrologically as yet.

The test features of ABD were established according to its reaction on the change of ether viscosity. For this purpose the following laboratory experiments were made:

1. ABD was situated near the window in the clear weather expecting that in 1 hour after it was turned on it will be placed on the direct sunlight (through the

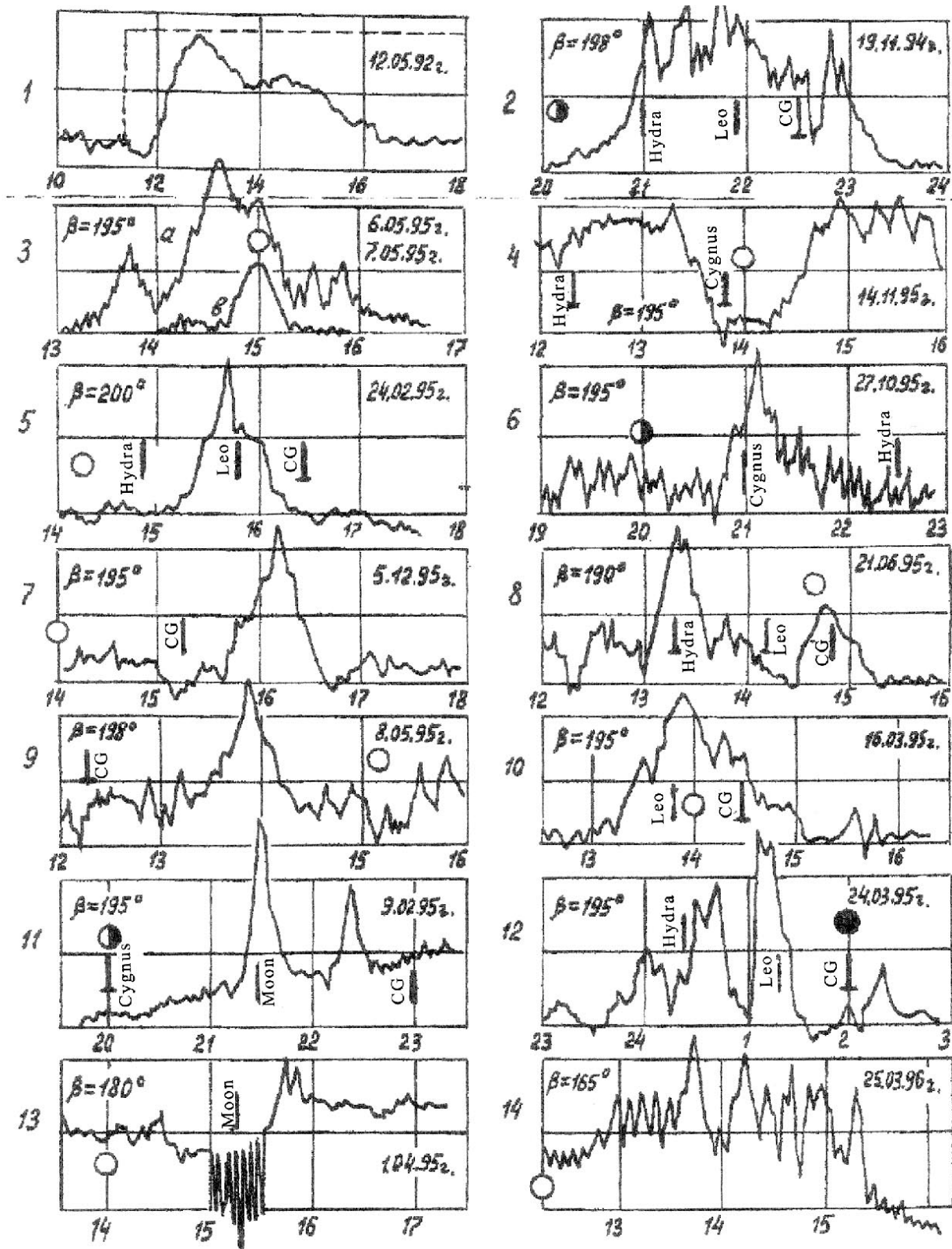


Fig. 2

glass). At the first experiment the pendulum stopped immediately when getting into the sunbeam. At the second experiment the reduction of the amplitude was recorded on the oscillogram. At the third time the device reacted but with a very small result (about the noise level).

2. A jar with ice was put near ABD (on the neighboring table), working permanently during approximately an

hour. The pendulum stopped after few seconds and in the repeated experiments we could see the same results as with the sunlight experiment.

3. On one of the orthogonal directions (position 9 on the Fig. 1) we put an incandescent lamp with a power of 100 wt on a distance of 0,5 m from ABD (the lamp can be situated above the pendulum). With the switching on the lamp for 10 minutes the amplitude of pendulum

swings diminished for 20% and then returned to the previous level. At the following switchings (the period of 1 hour) the reaction of the device decreased according to the "linear" law up to the level of noises after the third switching on.

From the results of these experiments it follows, that the process of producing the energy-informational barrier is subjected to the "triad law" [3,5]. ABD with the permanent conditions "remembers" any laboratory experiment up to one-month period.

The fragments of the oscillogram of ether processes are shown on the Fig. 2, where we showed Moscow discrete time in hours, date of experiment, in case of space selective measurements we showed the geodesic azimuth β under which the main axis of sensibility of the ABD was put (if it is immovable). On the diagram a circle is the location of the Sun disk on the time axis in the moment of matching with the axis of sensibility of ABD (clear circle means the Sun ahead on the main axis; the dark circle means the Sun behind, under the Earth; half dark circle means the Sun in the orthogonal direction).

The vertical lines with the corresponding signatures show the calculated position on the time axis of the main cosmic marks, a short horizontal line indicates the orthogonal direction. We measured only the local horizontal component of the external disturbances of the on-earth layer of ether, i.e. the direct ascend $\alpha' = \beta$ on the Saint Petersburg latitude. Dr. Alexandra A. Shpitalnaya presented general astrophysical data to the author.

At the first diagram, Fig. 2, the adaptation process (creation of the energy-informational barrier) is shown as a reaction of ABD to the graduated non-conventional signal of man-caused origin. (Shown by dot line). In the present case the adaptation constant of time is equal to approximately 3 hours. For the natural processes this time (vital cycle) can be much more due to the natural dynamics of the spectral structure of ether disturbances.

Oscillogram 2 demonstrates the increasing of energy dense of ether 20 hours later. It is known, that at this time we can observe the maximum of electrical field of the Earth. Irregularity of the line can be explained by the change of the flows and anisotropy properties of ether when the device is rotating together with the Earth and this device has a sufficiently narrow diagram of the sensibility.

Oscillogram 3 recorded the gravitational anisotropy of the Sun. The curve *a* is the first switching on of ABD in the new conditions; the curve *b* is data of the next day showing the adaptive lost of receptivity and in the same time the more accurate direction to the source of gravitation.

Diagram 4 demonstrates the effect of the powerful ether flow to the orthogonal channel of ABD in the direction following the orbital movement of the Earth and

practically matching with the direction of galactic orbit of the Sun.

The record 5 defines the anisotropy and ether wind for the direction of the absolute movement of the Sun to the Leo constellation.

On the oscillogram 6 the result relates to the movement of the Sun along the galactic orbit to the Cygnus constellation, recording on the main channel of ABD.

On the oscillograms 7 and 9 the signals are recorded on the orthogonal and main channels, which were accepted from the directions close to the cosmologic vector potential by Dr. Baurov [8]. For the first signal (December) the direct ascend $\alpha' = 283^\circ$, for the second (May) the $\alpha' = 290^\circ$. It is interesting that the magnetic anisotropy has no difference from the other directions during the observation of ABD as well as on the results of human sensor perception. That is why from our point of view the cosmological vector potential is a common ether flow caused by rotation and translation motion of the Universe. We also have the reasons to assert that in ether flows both the longitudinal magnetic fields and the cross magnetic fields can appear.

The main feature of the oscillogram 8 is that the direction of absolute movement of Galaxy to the Hydra constellation, the center of Galaxy (CG), the Sun were recorded, but there are no signals from the Leo constellation. On the records 5 and 6 there are no signals from the Sun and from the Hydra constellation. This is an evidence of occasionally character of the recorded ether processes subjected to adaptation, that require collecting and processing the information of the same kind to enhance the reliability. The diagram 10 shows that the convergence of few anisotropy directions in the space (Leo constellation, Sun and CG) can enlarge the sensitivity of ABD. (The vertical scale of the diagram 10 was reduced in two times).

The evidence of existence of the gravitational anisotropy also can be the oscillogram II recorded near 9:00 p.m. in the moment of non-equilibrium state of electrical field of the Earth. There was got a double image of the Moon, where the first signal corresponds to the real direction and the second ("ether echo") can be related to the "inductive" properties of ether. The unique oscillogram 13 fixes the active ether processes in the Moon neighborhood in 40 hours after the new moon phase. The observed oscillations of the signal are much more high in reality because the powerful filter of low frequencies is situated at the entry of the recorder.

Oscillogram 12 proves the property of good resolution of ABD, which can separately record the relatively close located angle directions of ether anisotropy (Leo and Hydra constellations). We can note inexact match of the calculated directions with the real ones that is usual for a separate session of observations.

On the last record 14 the vortical-wave disturbances of ether by the Hakutake comet were recorded. At the

previous days the oscillations of signal had such a high intensity that the recorder pinned ("ether storm"). Up to March 25, 1996 the comet showed a significant angular speed and disturbances of ether became usual, as on the given diagram. The signal is extended in time because the comet moved in direction of the Earth's revolution. Astrophysical observations by means of ABD and laboratory experiments allowed establishing of the following physical regularities and properties of ether:

... vortex of ether has material properties independently from the size.

1. ABD made the record of ether winds (space anisotropy) for a various directions independently that violate the laws of vector composition of the space movements and additivity.
2. The form of recorded signals proves that ether processes are macroscopically quantified, (especially on the oscillograms 5-9).
3. During the orbital movement the Galaxy, the Sun, planets and their satellites are affected not only by the co-directional ether winds, but also by the turbulence of the other spectral compositions.
4. At the surface of the Earth ether wind exists from the East to the West (planetary magnetic field) as well as the wind from the North-East to the South-West (electrical telluric current) and the wind from the West to the east (super-rotation of the surface atmosphere). It is known that the magnetic field of the Earth moves towards the West at the speed of $0,3^\circ$ in a year.
5. "The energy density (the "temperature") of ether is correlated with the electrical field of the Earth (minimum at 6:00 a.m. and maximum at 9:00 p.m. according to Moscow time). The short-term energy splashes cause the storm phenomena in the atmosphere. During the month the energy of ether is growing and decline at the New Moon phase.
6. The vortical viscosity of ether in horizontal plane is several times more than in vertical plane. It creates an original "wave channel" near the surface of the Earth to disturb ether and that indicate the anisotropy of near-earth space.
7. Disturbed in the local size, ether behaves as an area of increased temperature, which is affected by the gravity. The "watt-less" space heterogeneity, which is residual from the dissipation of the quasi substance, can be monitored up to half a day, staying stationary in spite of movement of the Earth and ether wind, which blows from the all sides. This is the evidence, that the residual heterogeneity belongs to the "solid" subspace, which revolves together with the Earth.
8. The energy-informational barrier can be overcome most effectively in the intellectually new

experiment. For example, by the forcing with a non-convenient radiation in the first experiment we fixed the change of speed of the classical physical process (for example, the photoluminescence) about 15 times (!).

9. Unusual vortical-wave disturbances of ether appear for any changes of mechanical, thermodynamic or electromagnetic condition of the substance (physical body), but when the energy-informational barrier is created this disturbances turn into some special radiation. The energy of this radiation is comparable with the neutrino flow.

Conclusion

Results of experiments given in the article can be placed in the limits of our model of stereodynamically multidimensional, stratified on subspaces of ether and in the same time they are basis of the model. The full match of readings of ABD and sensor control finally proves the objective reality of the studied phenomena and relevancy of the parapsychology as a science. Though the interpretation of recorded ABD signals sometimes can be complicated due to the simultaneous work of two orthogonal channels, at any case the oscillograms on the Fig. 2 demonstrate the unique possibilities of multidimensional physical device, which is not studied yet completely. However the most important is the regular evidence of superfluidity of ether, and its turbulent spectrum covers all thinkable sizes of the Universe. We had convinced one more time, that vortex of ether has material properties independently from the size, and also the non-equilibrium ether-dynamic macro-processes produce the force of viscose interaction with the physical bodies, and the force is decreasing in exponent law. The time constant of this interaction can be significantly increased by means of special informational algorithms those can be introduced in the structure of the artificial biofield of the technical system, which is created on the principle of functioning of biosystems. We should note, that the real physical pattern of the Universe looks much more complex because the mechanics of ether is inseparable from its electrodynamics (electromagnetism of the parallel worlds).

It is impossible to illustrate all the results of 17 years of the physical experiments in this small article. At first I'd like to show that the world around us is very complex, and modern science should avoid the primitive ideas. The author is not alone in his search: the theory of multidimensional Universe was constructed by Dr. Gerlovin [7], the auto-oscillation model of the microworld was supposed by Dr. Rodimov [9], and the hierarchy of the interacting forms of Nature was researched by Dr. Bubenkov [10]. If we take in consideration the foreign publications, there are a lot of theoretical research works on the topic, but mainly they are half valid. To establish the principally new knowledge we need corresponding experimental methodology and laboratory techniques, which can demonstrate and study the discovered phenomena. The

theory of multidimensional physical systems gives a direct way to the practice, showing the principles of construction of non-conventional systems and technologies and it allows joining of the paraphysics and parapsychology with the academic science. This theory supposes studying of the multidimensional physical phenomena, which should become a basis of a new direction of science that is named as "the theory of catastrophe". It is beyond doubt that the superfluid properties of ether lie in the base of inertia phenomenon and principle of relativity.

Further development of the physical principles of a new natural science will require a lot of time and efforts of the scientists of various specialties, while in the third millenium a strict theory will be constructed by means of application of mathematical methods for it. It will be similar to Feinman lectures on physics by its depth and seeming completeness.

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The Main Principle of Etherodynamics

Alexander M. Mishin

Experimental research work by Dr. Mishin leads to astrophysical discovery: The Center of the Universe is determined now. A unique gaging equipment was made by the author. This is the so called "device with an artificial biofield", which reacts to the strength of the ether wind.

Empirical studying of physical principles of the Universe discovers new sides of superfine, superfluid three-dimensional matter. All things existing in the material World were created from this matter. Our predecessors have been called this matter "ether" (it means "fire" in Greece) from the ancient times. They understood that it is a physical essence, which is very mysterious and incognizable in principle. In fact, the vortex-wave disturbances of ether are material, i.e. they contain energy, how we understand it, and thus they are observable. They occupy a space-time spectrum from zero to the Universal scales. A particular interval of this spectrum is given to the known material particles, which constitute the dense physical World. We are connected with this World energetically. The simplest ether vortexes (as in common superfluid liquid) looks like torus, vortex threads, solitary waves, but the long living elementary particles are the peculiar

stereodynamically multidimensional auto-oscillating systems. Their main energy properties were described by V.I. Ilin [1]. Now the experimental methodology and devices, which allow us to observe and study the vortex-wave forms of ether (not belonging to our real World) are developed [2-5].

We should note that the properties of free ether are principally different from the properties of ether, which is a form of steady real matter studied by the official science. In the earth laboratories the laws of classic physics, which describe the processes in matter, are performed at 96% on average [6]. In the limits of Galaxy the laws of free and bound ether act together and dynamics of the entire Universe is subjected only to the laws of free ether since the common matter and anti-matter constitute the insignificant part of its volume.

At the same time special observations and experiments show that in real Nature the well-known elementary particles are accompanied by the topological multitude of other vortex-wave structures of free ether (topological harmonies look like the famous toy Matryoshka), which are situated conditionally in solid, fluid, gaseous, plasmic quasimaterial state as well as in the fifth particular state. This state was recently opened by American scientists and was called "fermion gas". The main laws of multidimensional etherodynamics were given in my previous articles [2-5,7,8]. However, the vortex-wave processes in free ether have unique properties unknown in the material World. The given article is devoted to the consideration of these

7. The notion of physical substance-time, which is the cause of growth of mass and energy of heavenly bodies, is introduced.
8. The supposition on nature of gravitational interaction of heavenly bodies due to physical substance-time is made.

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Experiments on Change of the Direction and the Rate of Time

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Professor N.A.Kozyrev, Russia, who wrote some papers on causal or asymmetrical mechanics, made the first experimental study into the physical properties of Time. Experiments managing the direction and rate of Time were made. Since 1967 in Moscow Aviation Institute some research works were made under the direction of Professor Felix Yu. Zigel (up to his death in 1988) on UFOs, which had some technical forms. According to the work on State Budget topic "Preliminary researches on abnormal phenomena in the atmosphere" a lot of important information was collected on this phenomena. The information was used to determine connections between the cause and effect, and some physical processes were determined by authentic cases of traces and fragments, cinema and photos, and telemeter images of UFOs from 1987 up to the present time. There is data about influences of some parts of these objects and their body (surface of device) on the rate and direction of Time. To confirm this last statement a series of experiments was made with 4 types of laboratory systems (and in the present time one more system for new experiments is developed).

In experiments on deceleration and acceleration of physical Time in a small closed area of space (made since 1988) ***the effect of electromagnetic field influence on space-time continuum was tested***. The experimental system used to investigate such kinds of effects consists of a set of electromagnets connected in series and in parallel and they are installed on spherical surfaces. In various experiments from 3 to 5 Electromagnetic Working Surfaces (EWS) were used. All EWS layers of various diameters were installed inside each other (similarly to a Russian doll "matrioshka"). The maximum EWS size was about meter, the minimum EWS diameter (internal) was 115 mm, which is the quite sufficient to allow experiments

with some control equipment, detectors and animals (various kinds of insects and laboratory mouse) to investigate the so called effects of ***converging spherical electromagnetic waves***.

The measurements of Time rate were made by all known modern means of measurement: all kinds of electronic, quartz, mechanical, nuclear clocks were used; as well as the specially produced duplicated quartz generators (to compare frequencies of standard heat-shielded generators); fiber-optic line diodes and other ways were tested. Though some kinds of measuring devices, for example, quartz clock, can be influenced by other physical factors, the duplication method of measurement allowed us to reduce the error of measurement. Thus a change in the rate of Time was produced (Professor Kozyrev named this "density of Time"). We can write t/t_E , where " t_E " is the normal Time of the Earth space and " t " is the local Time inside of the experimental system. This change in the rate was detected as several seconds per hour, but in one experiment the deceleration of the Time was measured as minus 4 minutes per 8 hours (minus 30 sec per hour) due to some incompletely understood reasons. Slowing down of the rate of Time up to minus 1,5 sec per hour and acceleration up to plus 0,5 sec per hour was produced and explained. If we accept the usual Earth Time as $t_E = +1$ it will become clear that we investigated a change in the speed of Time through a very small range: $+0,99 < t/t_E < +1,01$. So, the tested subjects and animals at any mode of operations (slowing down or acceleration) were moved into the Future faster or slower than those in normal space.

Through experiment it was established that the processes of slowing down and acceleration of Time are absolutely different. The slowing down of Time was smoother and steadier than acceleration, which showed sharp jumps. The mode of acceleration is unstable and it depends on some external factors. In particular, the instability of Time acceleration is connected to the period of day or night and also the Moon phase, probably to other reasons. One of the reasons is human presence near the Time Machine. Even small external effects, for example mechanical vibration, can produce a great result and change the value of the effect.

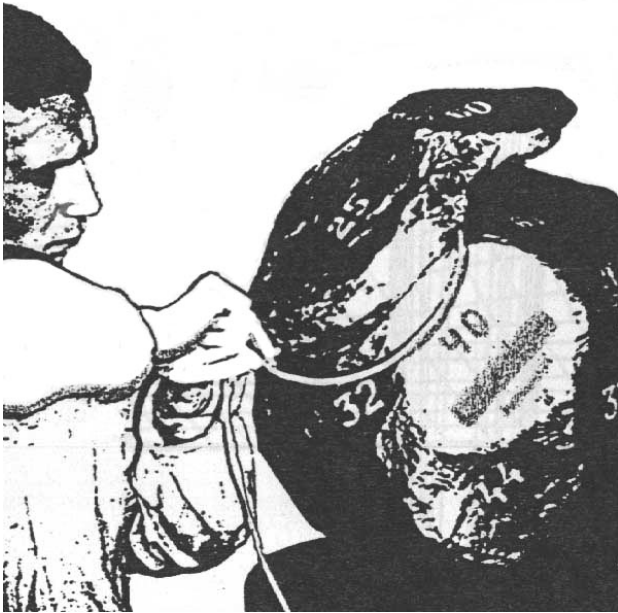


Fig.1 Dr. Chernobrov and his Time Machine

Despite small size of change of Time, even such a small acceleration can be called "trips in the Future" but the slowing down less than - 1 hour per hour cannot be considered as "trip in Past". Physics of Future Time is different in principle to Physics of Past Time.

Present Time is the transition or conversion of a multi-alternative Future Time in the unchangeable Past Time. So, flight to the Past Time (at the "negative density t/t_E ") and flight to the Future Time should be different. It can be compared with moves of an ant along a tree: from any point of a tree (from the Present Time) there is only one way down (to the Past Time) and there are several ways upwards (in the Future Time). However, for different possible ways to the Future there are doubtless and most probable variants, also there are impossible and almost possible variants. ***The movement to the Future will be especially unstable and power-intensive if the Future Variant is close to the impossible version.*** According to the suggested "law of the top of a tree", the return move is possible only if the traveler in Time does not interfere with occurring events and his way to the Past remained unchanged, otherwise the traveler will return to other parallel Present Time of History on another branch of the tree. The penetration into the Future from the Present is hindered by the choice of a branch, but the return move from any variant of the Future Time to the Present Time is possible regardless as to the behavior of the traveler.

Experiments proved that the Person and Time have a very strong influence on each other. The effect of the operator on experiment is detected, but it has not been investigated completely yet. ***It was found also that harmful effect on biological systems is not related to***

the process of movement in Time itself but is the result of the difference of the Time rate value in various parts of a body (a biological system). Inside of the laboratory setup it was also discovered that Time could be changed with some inertia. Areas of space having different Time rates have vague borders. With sufficient difference in Time rate the human can see an area with a different Time rate as some white mist. Higher the difference – the mist is denser, that can be used as an alarm signal for biological systems. It is possible to consider Time-travel as possible and (after experiments with mice) there are reasons to suppose it will be safe for travelers if they follow certain rules. It is especially necessary to emphasize: the trips through Time (due to new discovered properties of Time) can't affect the Past and they can't change our past history. All the so-called paradoxes for traveler in Time (for example when "he meets himself in the Past" or "he kills his grandfather in his childhood") have clear solutions in 3-dimensional Time.

It is possible to consider as a proven fact that Time has more than one dimension, i.e. O. Bartini's theoretical calculations are confirmed by these experiments: Time has 3 dimensions. Hence our Earth world can be considered as a 6-dimensional object: length, width, height, age or date of the Time, variant of a History or erosion of Time, density or rate of Time. The concept of "the Arrow of Time" as fourth dimension (moment of Time) is a particular case of the concept of sixth dimension (rate of Time) that leads to the physical concepts of gravitation and energy and they are simultaneously connected. Concepts of the "Einstein-Rosen bridges" known since 1916 or "worm-holes" introduced into science by John Willer in the 50's, are travels in 5th and 6th dimensions, i.e. the "classical" Time travels, which were described by H. Wells.

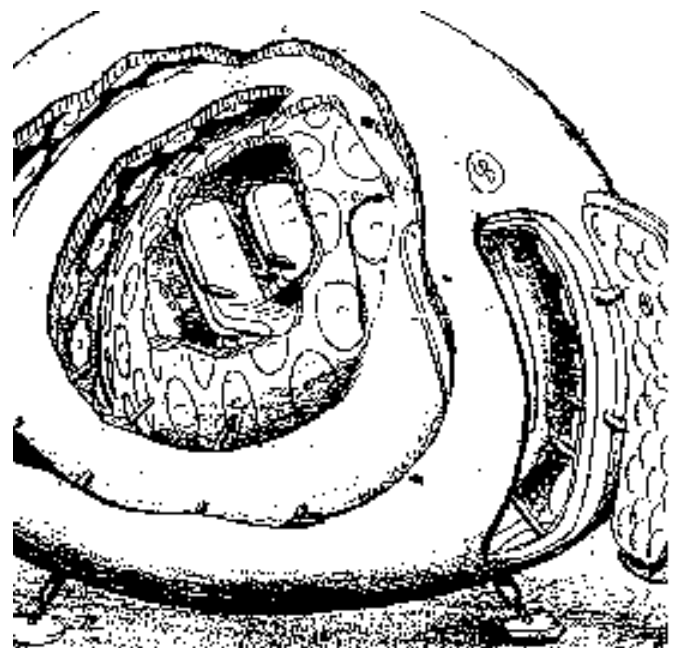


Fig.2
Plans for future experiments

On Some Properties of Physical Time and Space



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The Universe is Substantial Material

A new paradigm for theory is proposed. According to this paradigm, heterogeneous SIMPLE substances - chronal (Greek "chronos" - time), metrical (Greek "metron" - measure, size), rotational, vibrational, thermal, electrical, magnetic and others are initial elements of the Universe Temple. Each such sort of substance has its own specific properties and the substance passes these properties to the object if the object includes this substance. If the object does not have the substance, it doesn't have the properties, which correspond to this substance. Photons, for example, do not include an electrical substance (charge) so photons have no special electrical properties as it has no such sort of reaction.

More than 10 years were spent from 1950 to find a special thermal substance (or vermical in German die Wärme means the heat) and to explain all thermal phenomena by means of this substance. The factual existence of special particles - "satlons" was proved by experiments [1, p.274].

It was discovered that all simple substances for the macro-world level have continuous properties; for micro-world level they are discrete, portion, or quantum; and at a more subtle level (in nano-world) the substance has force properties. The example is the so-called gravitational and electrostatic field (nanofield). Quantum (minimum portion) sizes of chronal, metrical, rotational and magnetic substances are unknown. The Plank constant can be considered as vibration substance quantum, and as electrical substance quantum we can consider the electron charge. Quantum of vermical substance (vermiant) was detected by many methods. Experiments into heat flow and electric current using the Franz-Videman law, give the result: 3.87×10^{-23} [J/K] [1, p.410; 2, p.177].

The so-called element particle is a group of simple substances, which interact in a SPECIFIC way (between

quantums of the same name) and in a UNIVERSAL way (between quantums of the different names). In the electron, for example, universal interaction force between portions of the electrical and thermal substances is equal to 4×10^{-25} N [1, p.412; 3, p.352].

General Theory (GT)

Each simple substance is defined into four quantitative MEASURES: quantity and quality (structure) for substance, and quantity and quality (method) for behaviour (in the common sense) of substance. The substance is primary and its behaviour is secondary, so quantity of behaviour is a function of all quantities of the substance. The differential calculation for this function results in the equation for the first fundamental law, or principle of GT, which is a well-known energy conservation law [1,2,3,4].

In the same way equations are obtained mathematically for the other six principles of GT. This is a complete system of equations and these equations are essential and sufficient for the study of phenomenon at the elemental level. The role of quantity for the substance belongs to the thermodynamical factor of extensivity (extensor) or generalised charge (mass, quantity of thermal substance, electric charge and so on); the role of quality measure for substance belongs to specific capacity and conductivity; the role of UNIVERSAL measure of quantity for the behaviour of any substance is played by energy; the role of the measure of behavioural quality is played by thermodynamical factor of extensivity, or generalised potential, or intensial (square of velocity, absolute temperature, electrical potential and so on).

The second principle of GT is the conservation law of quantity; the third principle is the law of condition, which is a description of the total connection between nature phenomena; the fourth principle is the law of mutuality, which determines the symmetry of mutual influence between phenomena; the fifth law is the law of transfer of substance; the sixth law is the law of entrainment, which describes a symmetry of mutual entrainment between flows of different substances; the seventh law is a dissipation law, or screening law, or plus- and minus-friction law, which joins all the laws above and it makes all these laws incontestable. Also the seventh law defines the energy balance in the object [1,2,3,4].

The second, third, fourth and seventh laws are new. These laws are proved experimentally from different aspects. Onzanger formulated the fifth and sixth laws.

Heat is Not a Chaotic Motion of Particles

So, among the seven laws above there is no second thermodynamics principle, which includes entropy, and heat death of the Universe. There are no such prohibitions in GT, so more than 20 types of operating devices were created. Devices transform heat from a monothermal source (air, water, earth) into electrical

energy and demonstrate efficiency of more than 100% this is a violation of Clausius second law [1, p.447, 470].

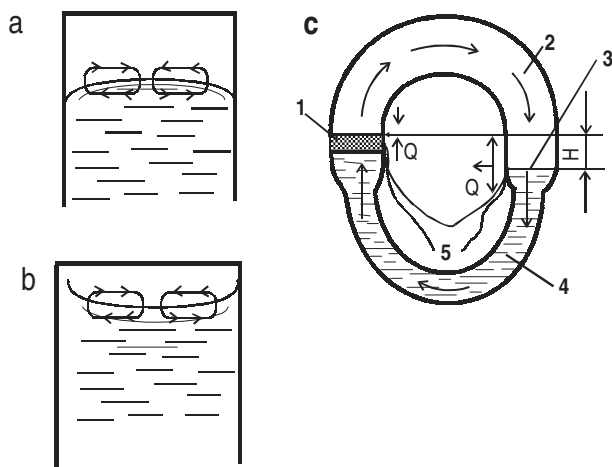


Figure 1

This is the picture of the simplest thermo-phase second type perpetual mobile: in this closed vessel the Thompson-Kelvin equation is violated since liquid is evaporating both in convex meniscus (a) and concave meniscus (b); in a closed circuit (c) of two pipes 2 and 4 the liquid evaporation takes place from the concave menisci of some capillary-porous body 1 (in this place the heat Q is absorbing) and in the flat meniscus 3 the steam condenses (in this place the heat Q is radiated). A temperature difference is created that produces electromotive force EMF 0.5 mkV in the differential thermopair 5. The intensity of the perpetual circulation of steam and liquid in the pipes and electric output of the thermopair is defined by H , i.e. by the curvature of menisci.

R. Clausius of 1865, when he unsuccessfully proved Carno theorem introduced the entropy in science. A.A. Guhman devoted his paper to this gross mistake [5, p.79; 6, p.140]. From properties of the entropy Clausius came to a conclusion about the unidirectional development of the Universe and about the heat death of the Universe. In 1872 Boltzmann explained the sense of the entropy through the statistical mechanics method, which used ACCIDENT and probability notions. This explanation made the problem more tangled, since heat is considered as a chaotic motion of particles. When Boltzmann realized his mistake and the scientific consequences of it, he committed suicide. N. Wiener and K. Shannon made the question more complex by the application of entropy to information theory [1, p.406].

On Some Properties of Time

Chronal (notion, which is connected with time) and metrical (notion, which is connected with space) are new simple and exotic phenomena, which explain a lot of questions. According to Newton time is the "measure of duration", for example, duration of some processes or some events. All simple phenomena should correspond to seven principles of GT, so by means of simple phenomena it is possible to control time (and space) in the same way, used to control the other simple phenomena - rotational, vibrational, thermal, electrical and magnetic, taking into consideration the specifics of each phenomenon.

It is important to note: real physical time " ν " which is defined by chronal phenomenon and our ordinary time

" t " announced by broadcasting, are different in principle.

Duration of " t " is a symbolic description, which is not present in Nature. Man for rational organization of society invented it. Symbolic time " t " "flows" or "moves" strictly even, with CONSTANT VELOCITY from the past to the future, and there is some special time service to measure it.

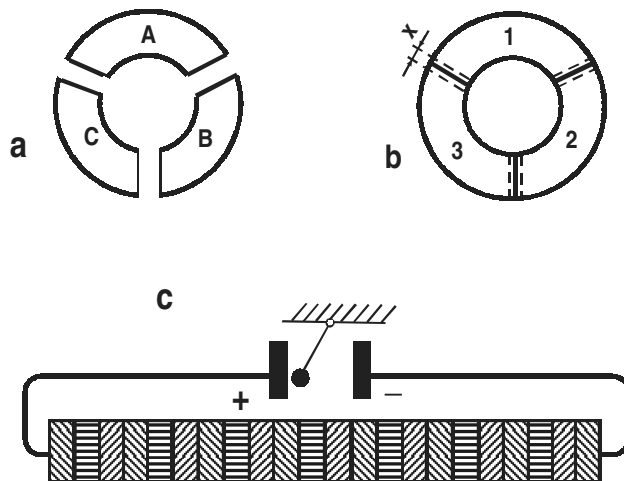


Figure 2

Diagrams of simple thermoelectric (b) and thermoelectromechanical (c) second type perpetual mobile. According to Volt law in an open circuit (a) that is consisting of three (or more) different types of conductors A,B,C the total sum potential difference is equal to zero. In a closed circuit (b) this law is violated by virtue of the non-equal change of thermodynamical properties of conductors 1,2,3 in the area of the contact "x". So, the total electromotive force EMF is not equal to zero (in circuit Cu-Bi-Al-Cu-Te-Al-Cu the EMF is equal to 10 mkV). The wooden ball is re-charges and oscillates between the ends of the circuit eternally (c).

Time " ν " really exists in Nature as the chronal property of some given object (body), from the bacillus to the star; it can "flow" or "move" with any ALTERNATING VELOCITY, from zero to infinity.

So, in principle it is impossible to control the "motion" of symbolic unexisting time " t ". To control the velocity of "motion" for real time " ν " it is enough to properly select values for the equations. It is necessary to substitute the value " τ " in the equations. " τ " is a chronal intensitet (or chronal); it is inversely proportional to value " ν ". If chronal " τ " increases, the rate of all processes in the body increases also.

It is interesting to note: some known physical laws include real time " ν ", but some laws use symbolic time " t ", and this leads to serious mistakes. In Newton's second law the denominator of acceleration formula uses real time square ($d\nu^2$). So, for two bodies collision experiment when there is a 10-fold difference in the rate of time, the forces of action are 100 times more than the reaction force. So, Newton's third law; the conservation of motion (and momentum) is violated by this. Some noncompensated force is created that allows movement "by means of inner forces" (so call reactionless motion). According to the third principle of GT (law of state) this

process can be created by many methods: for example, a ball moving on the inner side of the ring surface changes its velocity. Another example is a flywheel, which is rotating, and velocity of the rim from one side is added to the velocity of motion at this point on the planet's surface, but from the other side of the flywheel the velocity of the rim is subtracted from the velocity of planet rotation. For different velocities the ball and parts of the rim have different choral values, so the ball presses on the ring differently; also the rim presses on the axis differently. Some non-compensated force is created as a result. Remember N.A. Kozyrev's experiments, which included rotating gyroscopes, [1, p.444]. According to the third principle of GT more than 30 operating devices were created, which proved the theoretical conclusions [1, p.413,428].

The existence of choral difference in such sort of devices leads to choral substance flow (fifth principle of GT) that allows the use of devices as effective choral radiation generators. By means of such generators it is possible to stimulate or to suppress the vital activity of micro-organisms, to accelerate sugar-spirit transformation, wine ageing, to increase the germinating power of seeds, to increase the velocity of plants development by 2-3 times, to increase the productivity of plants by 1.5 times. In an experiment on aluminium casting, which had been irradiated in the hardening process, it demonstrated an increase of the cohesion limit up to 11%, yield limit up to 46%, and lengthening decreased up to 6%. See the monograph [7] about choral properties for substances.

Another example: All known physical laws of energy transfer - Fourier's thermal conductivity, Fick's diffusion, Ohm's electro-conductivity, Maxwell's equations and so on, included symbolic time t , that allows us to compare the productivity of different technical devices in practice. This point of view is the reason for the principle mistake of Einstein's relativity theory. From this theory the conclusion about the variability of the velocity of time was made on the basis of the analysis of Maxwell's equations and the well-known Lorentz's transformation, those include symbolic time t "moving" with constant velocity.

On some properties of the space

Space is a simple metrical substance, which provides the objects including itself with sizes and mass, so we can see and sense those objects since we are living in a choral-metrical world [1, p.247]. All other substances have no specific metrical properties (sizes and mass) so they are invisible and insensible - they are "smeared" inside of space volume, which is CONTINUOUS extended media. This media is created of portions of the metrical substance (by metriant).

In absolute vacuum conditions, named as paren, all substances, metrical also, exists in the absolute rest state. This is the absolute passivity state since the energy and intencital value is equal to zero (first and third principles of GT). Also paren is an unlimited source

of substance. If energy input takes place, different quantum of substances are activated and particles and objects are created in interaction. Some excited metriants are the parts of the created objects. Other metriants are not included in the object, remaining in absolute passivity state of paren, so they are invisible, insensible and they cannot be measured. This is the scheme for space and objects existing in space.

According to the second principle of GT, sizes of metriants conform to the conservation law, so they are equal to volume (mass) and it is impossible to compress or decompress space. In other words, space has solid body properties - "hardness", and it is confirmed by transverse mechanism for electromagnetic waves propagation in a vacuum. Motion of metrical medium takes place by means of flow passive metriants of paren around active metriants, it doesn't violate the continuous quality of space. In the beginning of the motion active metriants force passive metriants to move and it demonstrates the inertia phenomenon. For even and rectilinear motion the scheme doesn't change, and inertia is not demonstrated (Newton's mechanics first law). In another case, for rotation of the body, active metriants make passive metriants move to centre, so inertia force (centrifugal force in real sense) is directed from the centre to the periphery.

All intencitals (and also the differences of intencitals, and therefore the velocities of the processes) are equal to zero in the paren. So, an absolute vacuum is an absolute system, which also includes ordinary coordinates. But for zero-velocity $w=x/v=0$ some small transferences x are possible since v is equal to infinity.

There is no friction in the paren but motion of active metriants is connected with some insignificant resistance (the seventh principle of GT). The force of resistance (and inertia) should depend on the body composition, size, configuration and so on, that is proved by experiment [1, p.401].

To control space, in principle it is necessary to cover an ordinary body with an out-of-metrical envelope (insulation). In this case inside of the envelop the body has ordinary metrical properties but outside of the envelop this body has zero size and mass. This body can move through the walls. Since thought is a material object, this body can be directed in space by means of thought (teleportation effect). But we have no such envelop yet...

On so called "Fundamentals of Modern Natural Sciences".

The relativity theory, quantum mechanics theory and theory of information are considered to be such fundamentals. All physics textbooks write that it is impossible in any way to change the VELOCITY of atomic radioactive decay, which is used for determination an objects age and the date of some event. Meanwhile the author increased the velocity for Thorium (Th) decay up to 6% [1, p.347].

The VELOCITY of light in a vacuum is constant according to the relativity theory, but in our experiments the deviation was detected for helium-argon laser beam in non-homogeneous chronal radiation area, which was produced by means of 1.9 Kg gyro-motor. The laser beam length was equal to 28 meters, detector was a photoelement. Photoelement output signal was changed from 42mV to 39.6mV.

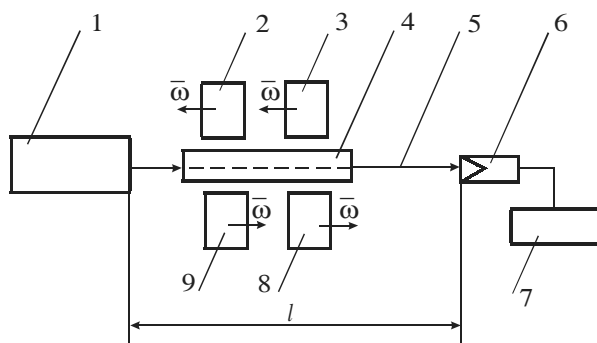


Figure 3

Scheme for experiment to curve a laser beam by means of nonhomogeneous chronal field: 1 - laser, 2,3,8,9 - gyro-motors rotating with frequency ω ; 4 - metal tube; 5 - laser beam; 6 - photodetector; 7 - digital voltmeter; length is equal to 28 m.

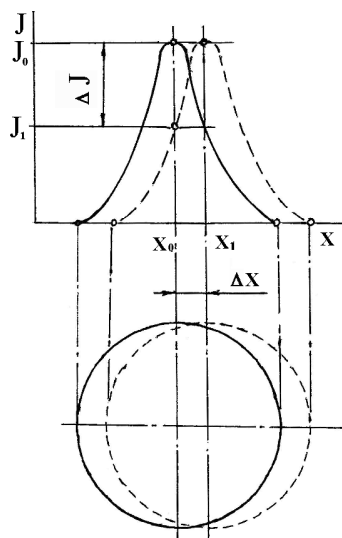


Figure 4

The scheme of intensity change $dJ = J_0 - J_1$ for light flow that is received by photodetector, when the centre of the beam is deviated from point x_0 to x_1 : x_0 is the position of the detector; J_0 is the intensity of the centre of the beam; J_1 is the intensity for some distance x_1 from the centre.

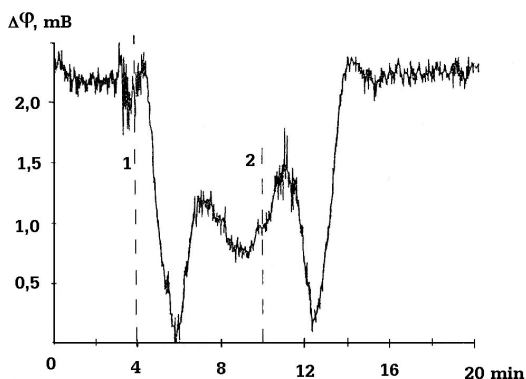


Figure 5

Curve of change of voltmeter data, in the centre of the data $\Delta\phi = 42$ mV. For position 1 gyro-motors are on, for position 2 gyro-motors are off.

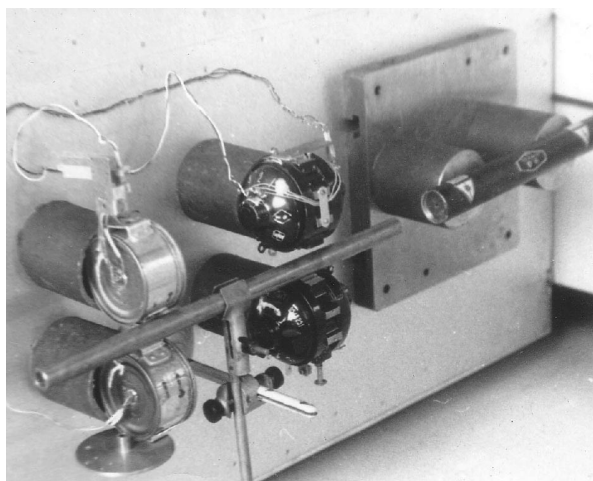


Figure 6 Device for chronal influence to light laser beam.

There are some interesting aspects in relativity principle: sizes of object decreases and mass of the object increases if the velocity of the observer increases. For example, length of your bed is equal to 2 meters and 20 Kg mass, but some observers moving in different rockets with different velocities and looking on the bed will note different sizes and masses in the same moment...

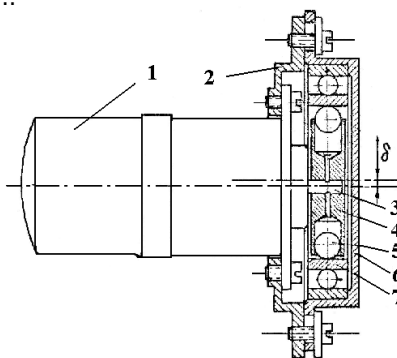


Figure 7

This is the design of a reactionless drive including un-evenly moving balls placed in the ring. This device violates Newton's third law and conservation law of motion. 1 is electromotor, 2 is ring for fastening the motor; 3 is the axis of the motor; 4 is the metal drive, which has 8 radial holes for working balls of 8 mm diameter; 5 are working balls; 6 is top and regulator of eccentricity d ; 7 is a ball-bearing 45x68x12 mm. The uncompensated inner force is directed to the eccentricity d side. In this side the velocity of balls is at a minimum. The force (if eccentricity is equal to 0.7 mm and frequency of rotation is equal to 21000 rpm) is equal to 14×10^{-5} N.

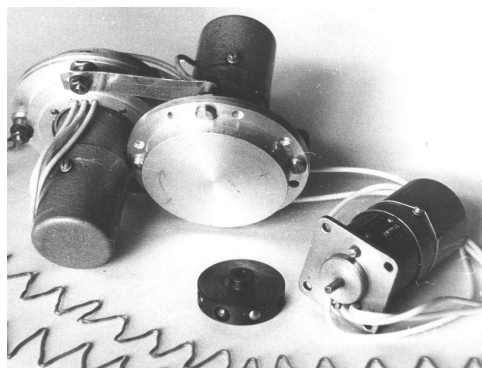


Figure 8

Two paired motors are rotating in opposite directions to compensate the torque.

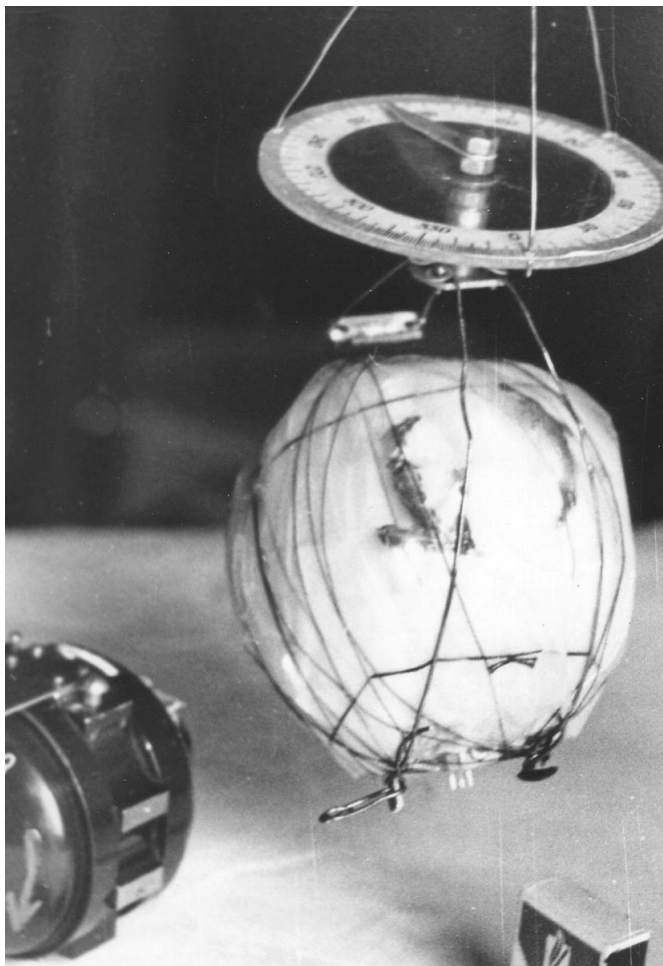


Figure 9
Gyro-motor that produce non-compensated inner force
of about 100×10^{-5} N.

In the fundamentals of the quantum mechanics and theory of information the CHANCE principle is accepted, and probability of some event is a quantitative expression for it. Usually in conventional physics CHANCE is considered as objective properties of Nature. Below we will consider it in detail.

Non-occasional chances

In the process of the comparison of experimental results, some thought is coming about falsehood. Somebody has led us to believe in a wrong notion about the Universe, Nature and Humans. There is the question: who and why created this falsehood, and what is the real goal?

From the factual existence of choral and metrical phenomena unknown before, the factual existence of invisible out-of-choral/out-of-metrical world follows. This world is living out of time and space, without choral and metrical substances.

More exactly, this world (called as spiritual world) is parallel to our visible choral-metrical world and it is

generating all so call anomalous phenomena: UFO, poltergeists, parapsychological ...[1].

The World of light forces is true in principle, so the dark forces are the reason for our scientific declaration about the invariability of some velocities and CHANCE as a property of Nature.

What is the goal? The goal is to divert human attention from the understanding of the following: in the days of the creation of the Earth, its choral and rates of all processes, including the speed of light and atom decay rate were millions, billions of times higher than today. So, the billions years of evolution is a mistake.

Also the goal of the falsehoods is to inspire false belief about the CHANCE basis for Nature. In reality, the probability and CHANCE are CALCULATION METHODS we use in the situation, when we can not or we don't wish to study the phenomenon in all its complexity.

In Nature there is no CHANCE, everything is determined and all is essential.

So, ideas about accidental organisation of life from the lifeless matter, about primary matter and secondary spirit... lead to a false conclusion: the Universe was not created, God and soul do not exist, the Devil also does not exist, then we have nothing to afraid of. This wrong conclusion makes Human beings equal to animals, and allows them to live like animals. This false idea makes mankind free of any moral responsibility because nothing exists after death.

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As we can see from this figure, the initial effect of lightning of the sheet reached 6-7 mg with the gradual recovery to its common weight in 15 minutes. The usual weight is shown by the lower line of recording. In the case of reversible deformation the change of weight of the body is not observed. So, compressed rubber or compressed steel spring shows their common weight. We should expect such result, because the **entropy of the system doesn't change with reversible processes** (as well as with elastic collision). That's why **decrease of the weight of the bodies should be discovered in the processes of a big increase of entropy**. It appeared, that initial heating of the bodies really leads to the very significant decrease of their weight.

Studying of this phenomenon gave a big material, which allows deeper understanding of the way, how active properties of time call decrease of mass and weight of the body.

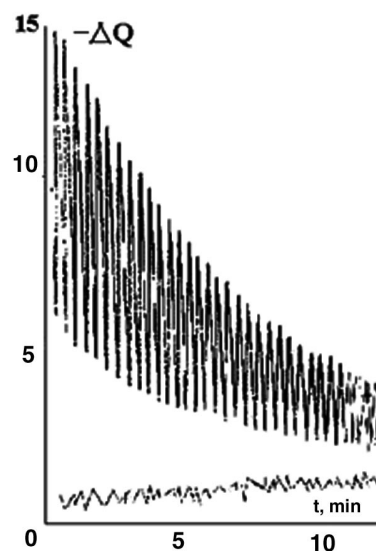


Fig.2

The Causal Mechanics

by Kozyrev N.A.



Review by Alexander V. Frolov

This is a short review on research work of the well-known Russian scientist Nikolai A. Kozyrev. Most of these papers are not yet published in English. There are important practical applications for new technologies, which are based on Kozyrev's theory and we'll be discussing this in our book. There is a project to publish an English language book about the time rate control technologies that will include all Kozyrev's papers devoted to this topic.

"The Nature of Stellar Energy Based on Analysis of Observational Data"

A conclusion about stellar energetics was made from astronomical observations: any given star is a machine that transforms incoming energy into heat radiation; there is no inner source of energy inside the star. The possibility of using incoming energy-flow exists in all area of space-time. ***It is proposed that through the power of some active properties, time can influence the energy of matter, and thus, time is a source of life in our universe.*** The density and other parameters of stellar matter in the mode of transformation (time-flow energy into heat energy) are calculated. It is concluded that output-energy depends on the volume of matter. It was proposed that time is not simply spreading, but being created throughout the universe at any given moment and for this reason telecommunications by means of time-properties can be produced as instantaneous signal instead of electromagnetic methods, which have some limited velocity.

"Cause or Asymmetrical Mechanics in Linear Approximation"

N.A.Kozyrev calculates the qualities of stellar matter where it is a transformer of time-form energy into heat-energy. It is concluded that the transformation involves several electrodynamic processes, but, generally, any closed mechanical system can also produce energy if it is an asymmetrical system. ***The asymmetry for mechanics according Kozyrev is a cause-effect asymmetry and if the mechanical system includes the non-reversible cause-effect connection it can take the energy from time-flow.*** (In my opinion, this is the theoretical basis for any kind of over-unity systems. Editor)

The notions of cause and effect are defined in the papers. N. Kozyrev postulates 5 properties of cause-effect connections. A definition and formula for the velocity of time-flow are given. It is proposed and experimentally demonstrated that in special case the time-flow can introduce two time-paired equal and opposite forces into the system.

N. Kozyrev demonstrates through gyroscope experiments the fact that time-energy can be transferred to the experimental system. It is also proposed that the energy of the system can be transferred to time-energy. In other words, the time flow can be accelerated or decelerated by means of energy exchange with a special asymmetrical mechanical or electrodynamic system.

In this paper N.A.Kozyrev describes two extreme cases for mechanics: there is the quantum mechanics of the atom world (microcosmos in other words) where there are no cause-effect connections since velocity of time is equal to zero; and if the velocity of time is equal to infinity there are only stable cause-effect connections for any process, that is classical Newtonian mechanics. The real world exists for a real time velocity between zero and infinity.

Experiments with vibrational gyroscopes and weight machines (scales) are described in the paper. Important conclusions are made about the possibility of increasing vital anti-entropy processes into biological systems if they are interacting with the time-flow.

"Causal Mechanics and the Potential for Experimental Investigation of the Properties of Time"

In this paper N. Kozyrev writes about the connection between matter and time. He describes three cause-effect axioms, determining the physical qualities of the velocity of time-flow, and publishing important experimental data. In his experiments, the weight of gyroscopes was changed when they were connected to weight machine (scales) by means of a vibrational system. Weight changes were detected at about 100 mg levels. These weight changes depend on frequency due to a discrete law. So, it is one of the real demonstrations of the discrete quantum world laws in our real world of classical mechanics.

"Unknown Worlds"

This work is a demonstration of organic matter possibility to get free energy for vital processes by means of transforming time-form energy. The "density of time" is defined. Experimental data for measurement of the density of time at different places on the planet is given. It is claimed that the density of time can be changed: near any given Cause process it is thinner and near any given Effect process it is denser. N. Kozyrev wrote about the possibility of using the physical properties of time for biological forms of telecommunications, i.e. for telepathy. This telecommunication cannot be screened and it is instantaneous signal system.

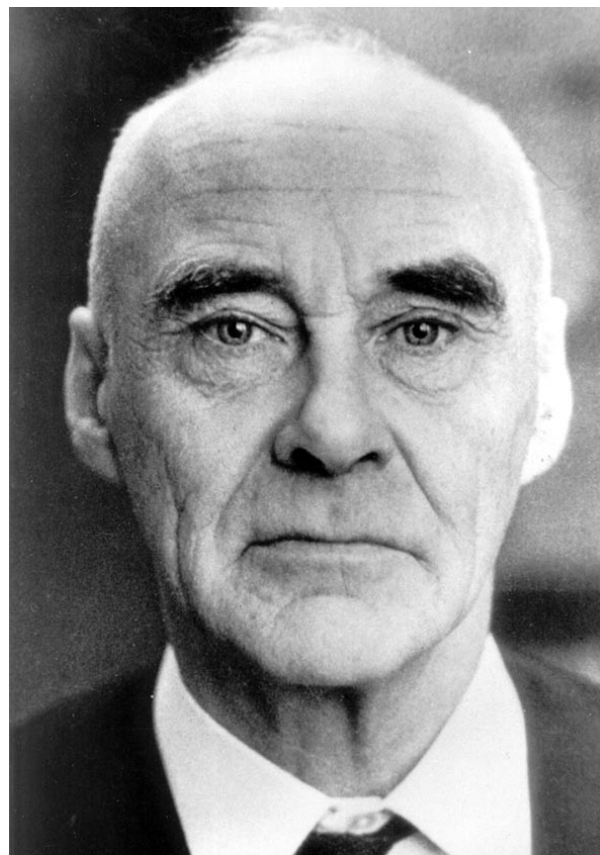
In this paper it was proposed to screen time by means of certain processes; i.e. it is possible to create compensation of natural time-flow by corresponding physical processes in some local space-time area.

"The Way to Space"

N. Kozyrev writes about the irrationality of rocket methods for space exploration and he proposes his theory to find gravitation - time relation to build antigravitation spacecraft. The force that would propel the spaceship in this case would be produced by means of changing of the physical properties of time. *(In other words it is warp drive topic, which being developed by many research teams today. Editor)*

"On the Potential for Experimental Investigation of the Properties of Time"

There is some potential for biological systems to use time-flow as a source of vital energy or life energy. N. Kozyrev describes experiments with gyroscopes and



several methods how to introduce some cause-effect asymmetry into a mechanical system. The value of the velocity of time-flow is calculated. Seasonal changes in the density of time produced by vital processes of Nature are detected. In this paper, functions existing between the density of matter and the density of time are determined and it was tested in experiments.

"Astronomical observations by means of physical properties of time"

In this paper N. Kozyrev experimentally determines value and sign of the time-flow; which is positive in clock-wise co-ordinate systems. The changes of density in time are experimentally proven: In the area of entropy processes (dissipation, heating of matter, melting of ice, evaporation of liquids, fading of plants) the "production of additional time" was detected. In the area of opposite processes (cooling of matter, freezing of water, crystallization) the "absorption of time" was detected. There is a description of mechanical and electromagnetic detectors monitoring the density of time changes.

"On Time-to-Matter Influence"

The paper is about N. Kozyrev's experiments to detect the production of additional time-flow by means of

special detectors in the area of dissipation and evaporation processes. It was assumed that the Sun is not only a time-absorption system but also a time-flow production system. This small component of the time structure is very important since it is ordered and it introduces the anti-entropy organizing effect to any natural process and especially in biological processes. ***It is proposed to use this organizing life effect to increase the vital processes of biological systems.***

"On the Possibility of Reducing Mass and Weight under the Active Properties of Time"

Experimental data were published to demonstrate the weight changes during some non-reversible deformations or heating. The nature of time and matter-time interaction was investigated in this way.

On New Energy and Political Authority

Alexander V. Frolov

The article "New energy in hands of politicians" [1] by A. Davidov, Head of Department of Strategy Analysis and Information, Council of the Russian Federation puts forward some interesting points. It demonstrates a great interest of Russian officials to the new energy technologies.

Mr. Davidov thinks that the electrochemical cells are the most perspective method to produce hydrogen as a fuel. Also he wrote about real possibility of working with plasma, resonance effects and other fuel-less systems since any system involved in energy exchange with environmental and by this way the over-unity efficiency can be explained.

Mr. Davidov also wrote about the main aspect of the autonomous energy system, which is their property to produce power directly on demand. It will lead to global changes in industrial relations, increase in personal and business independence, decrease in the authority of mediators in energetics, new kinds of business.

Davidov's conclusion is: that financial power will be replaced by new energetics, which should become a new direct tool of economic control.

I suppose the changes based on autonomous energetics should be really a global one, but it will not lead to destruction of the world financial system because the gold equivalent can not be replaced by the KWtts-hours for all financial operations at the moment.

It cannot be organized until the majority of energy customers use the centralized energy networks, for example in cities and towns. But in the future the currency stability of any state will be connected with the technological level of its autonomous energetics. The replacement of the gold equivalent in the financial system means an obligation to make an exchange a certain amount of KWtts-hours for the corresponding amount of money (currency). There is clear logic in this system since the money should be an equivalent of the work and work in physics is related with the KWtts-hours. It was great to read Mr. Davidov's statement about some completed research work into new energy and antigravitation started in the Soviet period of Russian history. He has promised to demonstrate the prototypes in 2 years if the financial problems were resolved.

Davidov's forecast and his conclusion on the change in balance of political forces correlate with my own conclusions of 1996, "Free energy" a written report was made for the Russian State Duma. In a few years the new political power may become the main force in Russia and power should be based on the technologies of fuel-less autonomous energetics.

Mainly this will lead to the strengthening of regional authority especially in far from Moscow areas of Russia and with a low population and low-tech industry as a result of their weak energetics. It may be also necessary to note that the new energy technologies are the key to new methods of space exploration. The advanced propulsion aerospace systems are the start of civilian access to space, which is a new large market.

Reference:

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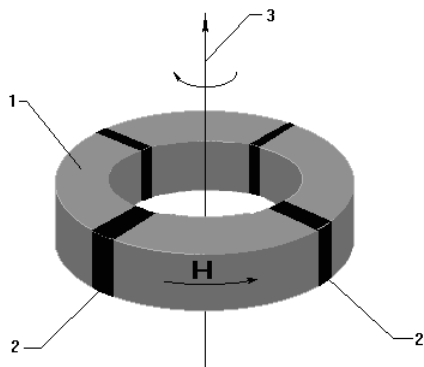
Spin (Axion)-Field Generator

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The generator consists of a rotating hollow cylinder (ring) which is made of ferrite-magnetic material with the axis of rotation coinciding with the cylinder's main symmetry axis. Four (wedge-like) permanent magnets inserted into the cylinder. The magnets are magnetized perpendicularly to their own plane. The cylinder can take the form of either a flat ring or a tube. It is possible to produce the cylinder's rotation by different methods (by means of some motor), but it is necessary to take into account that external EM-fields and the materials of the motor can significantly affect the properties of the "spin-field". One of the possible variants is:

1. Ferrite ring 20x12x6 mm
2. Ferrite-barium magnets
3. The rotation axis.



The ring should rotate counter-clockwise at the rate of several thousands rpm. The magnets inserted into the cylinder should create a magnetic field H directed against the direction of rotation. All other elements should be made of non-magnetic materials. The motor can be removed at a distance of about ten radiuses of the cylinder (ring) in perpendicular direction to the axis in order to prevent the interference. The attachment and equipment elements are not shown because they don't affect the radiation in the case of fulfillment of the above-mentioned requirements. Nevertheless, it is recommended that the following materials be used for them: silver, cadmium, aluminum, wood, rubber glue.

The experiments with the active "spin-field" generators revealed the following results:

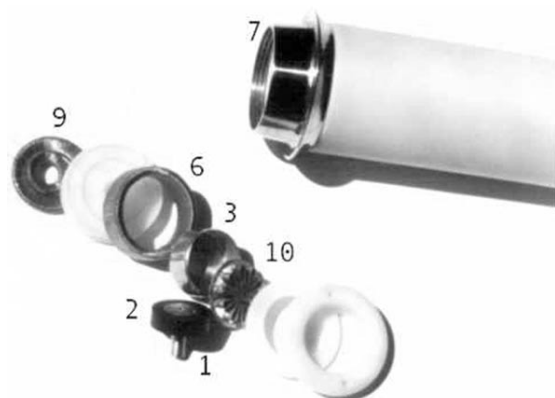
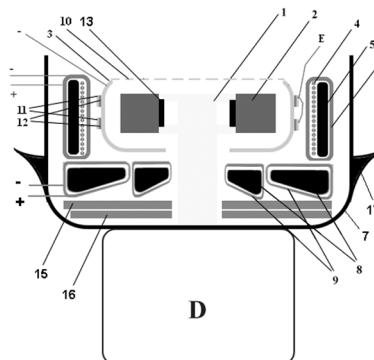
The "spin-field" does not interact with the crystal lattice of matter. Thus, it has strong penetration ability (it propagates through both ferroconcrete and even lead). Isotropic substances that could screen the "spin-field" were not found in the experiments. Some delay in the propagation of the field can be produced only by zinc and steel, because they themselves become induced sources of the "spin-field". Basically, the interaction of the "spin-field" and also some transfer of energy of spin waves were observed for the cases of resonance

interaction between the field and spins of electrons and nucleases of matter. **Thus, the effective control of spin orientation in material objects is possible, and this is a completely new method for the control of its physical and chemical properties.** This theoretical hypothesis was confirmed experimentally. Interesting results were achieved when producing effects in biological objects, which were radiated by the "spin-field". Some parameters of this radiation can call some increase of "vital energy of plants" and some improvement of immune system of animals.

Ordinary detectors cannot detect the «spin-field». In some cases (with the special illumination) the "spin-field" can be seen without use of any instruments. Perhaps the oxygen atoms of the air change its spin state and in this case we can see some visible radiation.

The "spin-field" produced by the generator described above is concentrated in two opposite beams propagating along the rotation axis at a distance of tens meters. These beams can have four different attributes depending on the mutual orientation of their magnetic induction vector and the direction of rotation. The beam that propagates along axis 3 is the most harmless for human beings. Nevertheless, it is unsafe to be positioned in the area of this beam for more than several minutes.

When the rotation is stopped, the intensity of the "spin-field" decreases exponentially up to some constant value and it will exist in the same area of space for several weeks, i.e. the "spin-field" (and it's influence on the objects) can remain even when the generator is turned off.



this movement their masses increase according to (11). This increase takes place because the mass of the field of particle, which is called "gravito-inert mass", increases. With a top speed ($v=c$) an antiparticle appears from it. But antiparticle is the same formation as a common particle, but its spins are opposite to spines of common particles. Gravito-inert mass is a mass of magnetic field of particle. Kinetic energy of

magnetic field is equal to $m_{gi} \frac{v^2}{2}$ and when it becomes

equal to $m_g c^2$, then a new antiparticle will form from this magnetic field, i.e. with energy of $m_{gi} v^2 = 2m_g c^2$.

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On the Eve of the Sixth Revolution in Physics

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Condition of modern theoretical physics and the ways of its development

Methodological crisis in modern theoretical physics.

Modern physics achieved outstanding results in the field of cognition of laws of nature and in many applied fields. The twentieth century is characterized with such great achievements as splitting of nucleus and creation of atomic energy on this base, creation of quantum generators, discovery of astronomic objects with unexpected properties, research of properties of "elementary particles" of the matter and many others. Absolutely new directions of natural science appeared, which not only solved many theoretical problems, but also put them to serve the all mankind.

However, in spite of this, it becomes more evident, that in some fundamental fields of natural science, first of all in theoretical physics, some contradictions appeared and they keep on accumulating. They are nicely named as "divergences", which have the fundamental character and which are the serious hindrance of further development of fundamental and applied science.

The numerous attempts to combine the basic fundamental interactions on the base of conceptions existing in modern physics turned out to be practically unsuccessful. The amount of opened "elementary particles" of matter does not correlate with the full uncertainty of their structure. Energy of radiation of the stars including the Sun is not explained because its radiation shall wear out long ago taking into consideration the time. Even in such a developed field as electrodynamics we have the whole classes of problems, which cannot be solved in the frames of

existing theory. For example with the movement of two similar charges a paradox appears: quiet similar charges should repel from each other by the law of Coulomb, but they attract each other because they are the currents. If they are still immovable in relation to each other, then why do they attracting in the movement?

In spite of many public appearances, statements and popular and special articles having the aim to prove the greatness of modern physics and great possibilities, which are waiting for the mankind in relation with its achievements, we should state that there is no anything similar in reality. There are a series of contradictions, so called "paradoxes" in physics; some of its theses became discrepant with the theses of dialectical materialism. For example, the idea of "Big explosion" is in contradiction to the thesis of dialectical materialism about the absence of origin, birth or creation of the Universe. But some theorists suppose that dialectical materialism should be corrected because some parts of it are in contradiction with the universally recognized theories in physics, for example with the relativity theory.

In the applied physics different promises do not realize nevertheless. Many years passed from the moment when the "stable plasma" was created and existed for 0,01 second. Since then the numerous units were constructed to get a thermonuclear energy, which should provide the mankind with the energy. However the units exist, institutes and plants were built for this purpose, conferences and meetings are hold, awards and academic degrees are given... The only problem is: we have no thermonuclear energy itself, and nobody knows if it will ever appear.

We have spoken a lot and for a long time about STR – scientific and technical revolution, about achievements of science; the nuclear weapon and nuclear power were created, the flights into the close space were organized, the numerous materials were developed, computers of high complexity, robots and other things were created, and so on. However with all this we should state that the quantity of new discoveries decreases and development has a quantitative character, and even with the studying of "elementary particles" of the

substance we do not use qualitatively new ways but simply increase the power of atom-smasher blindly believing that the new energy level may give us something new, though we have nothing qualitatively new from it.

The presence of “paradoxes”, absence of qualitatively new ideas means that the ideas existing in the natural science are known already, and the natural science and theoretical physics in particular are in a deep crisis. Fundamental researches became unimaginably expensive and the results became poor. It is the second aspect of crisis in natural science, i.e. economic aspect.

But the main feature of crisis is that the theory and methodology of the modern fundamental science appears less useful to help the applied sciences in solving of the problems, which are set by practice. It means that the methods of modern fundamental science became a real hindrance in development of production forces, in usage of nature by the man and therefore, in development of the society itself.

Similar difficulties, which appeared in the most of fields of natural science, are not objective difficulties of development of cognitive activity of the man as we usually consider them. Misunderstanding of the essence of processes, preference of phenomenology, i.e. external description of the internal mechanism of internal essence of phenomena inevitably generates all this difficulties and disorders in the modern physical pattern of the world. This pattern is far from the unified physical pattern of the world.

As we know, the modern methodology of theoretical physics is mainly based on the postulated ways. The scheme is the following. If we take as a basis of analysis the results of the limited quantity of experiments, then we can formulate some contradiction of facts with the existing theories. Further we set the postulates, which are hypothetical statements that they should correspond to the nature, as the author believes. On the base of the postulates the new theory is created, which gives some corollaries. And then these corollaries are compared with the results of new experiments. If the results of these experiments correspond to the predicted ones, then it is considered that the theory got an experimental confirmation and it is true, and therefore the postulates set in its base are also true.

However with all this we miss, that every finite total of facts can be predicted by various theories and these theories often mutually exclude each other. Thus some fact can prove two different theories.

It is interesting to note, for example, that all “experimental confirmations” of special and general theory of relativity by A. Einstein can have different interpretation. Thus STR – special theory of relativity, which rejects the existence of the ether in nature as a principle uses as a main instrument the transformations by Lorenz. Lorenz derived it in 1904 for the case of movement of charges in ether, i.e. the year before

Einstein created his theory of relativity. That is why the coincidence of experiment's results with the calculations on STR can mean the “confirmation” of Lorenz's theory, which is contrary to STR. But we can have other interpretations of the same results. Besides, in every experiment there are unaccounted facts, which are thrown away illegally, if the results of experiments are adjusting to the agreed scheme.

Regarding this the formation history of the special theory of relativity is significant. If in 1880-81 and 1886-87 A. Maikelson and E. Morly really didn't get the positive result in their search of “ether wind”, then in 1901-1905 E. Morly in his new experiment (by Maikelson's advise) got the speed of ether wind equal to 3 km per second. And in 1921-1925 D.K. Miller made a measurement of ether wind on the mountain Mount Wilson (1800 km above sea level). Here he got a value of the wind speed equal to 10 km per second. It is interesting that A. Maikelson himself later in 1929 together with F. Piece and F. Pirson repeated this experiment and got the wind speed on the same place equal to 6 km per second (conditions of the experiment were changed). But up to that time the STR had quite solid positions in science and the leading physicists rejected all the received positive results on ether wind. These results are not recognized until now.

The theory of relativity itself brings the variety of forms of matter movement to the space-time distortions, which in principle do not allow understanding the real essence of phenomena. The conclusions of theory of relativity are applied much more far outside the conditions of its initial experiments and its philosophic conclusions bring us to very sad thoughts.

The situation is not better with the second principle of modern theoretical physics, i.e. quantum mechanics, which was the origin of the quantum theory of field. Quantum mechanics propagates the structure-less essence of particles and absence of any reasons for the particles to have their features, i.e. presence of magnetic moment, charge, spin and so on.

The particles are considered to be the points, i.e. they are non-dimensional. But though this circumstance leads to the energy paradox, this fact does not confuse anybody. Nobody prejudice the initial planetary model of atom, developed by Reserford in 1911, and in view of its limited nature led to the various contradictions, though its success at first was indisputable.

Instead of studying the particular structures and mechanisms of interaction finally all was brought to the external, superficial description, which led to consideration of the probabilistic assessments of the processes.

It came to the situation when some mechanism in phenomena of microworld became an impossible fact. Also the cause-and-effect relationship in the phenomena of microworld became to be rejected, that imposed the principal limits on the cognitive properties of the man.

"Common" mathematical dependencies in the theory of relativity and quantum mechanics got the status of absolute truth and all new theories are checked on the compliance with them. These theories are thrown away if they do not comply.

However we should remember the trivial fact that every physical phenomenon has numerous sides and features and to describe a simple phenomenon we should have infinite quantity of equations. And in no circumstances we can consider that the equations we are working with describes the phenomena completely, whether these are Shredinger's equations of microworld phenomena, equations of Maxwell for the electromagnetic field or the "law" of gravity by Newton. It means that improvement of the fundamental laws and improvement of their mathematical description should be a general case. Also the aureole of impeccability of some initial formulas today should be dismissed.

Today many people know that the theory of relativity as well as the quantum mechanics in its modern statement leads the scientists from attempts to learn the internal essence of phenomena. It replaces the essence with the external, superficial description based on some particular postulates and assumptions. That is why we shouldn't be surprised that such an approach appears to be less productive. Narrowness of the directions of researches resulting from such a methodology das not allow us to discover the fundamental processes in nature, which reasonably leads to the situation when many substantial factors in experiments and theoretical researches appears to be unaccounted and many useful possibilities appears to be untapped. The phenomenological method, which took root in the science today, shows its feebleness.

The given situation in the theoretical physics is the evidence of a deep methodological crisis in the theoretical physics. Accumulation of contradictions, dissociation and differentiation of its directions, superficiality of descriptions of phenomena, a misunderstanding of fundamental essence of the phenomena leads to the loss of the leading role at the setting and making of the applied researches. And we have no reason to suppose that this crisis can be solved by the same ways, which are used now by the theoretical physics or by creation of "crazy ideas" according to Niles Borh recommendations (when nobody will be able to understand something).

To find a way out from this deadlock, to solve the accumulated contradictions and move further in fundamental as well as in applied researches we should remember, that the method different from the phenomenological, i.e. dynamic one always have been existing in science. This method makes us to find the internal mechanism of the phenomena, to investigate the structure of material formations and interactions on the fundamental levels of material organization. With the dynamic approach every structure is implied to consist of parts and every part consists of the smaller ones. The phenomenon is just a movement of these parts

and their interaction in some particular case. The explanation of phenomenon as a whole by dynamic approach is led to observation of cause-and-effect relationship between the elements of phenomenon. Description of the external sides of phenomenon by dynamic approach is only an effect but not the main cause of phenomenon as it follows from phenomenology. The dynamic approach implies the possibility of creation of the obvious models on the all levels of matter organization.

The dynamic approach in natural science always justified itself. The main way of development of natural science was a stepwise extension in the structure of matter, transfer to more fundamental levels of its organization. Transfer on the new level always meant the radical turn from the common conceptions, that is an ordinary revolution in physics and provide the way out of the crisis.

The history demonstrates us examples of effectiveness of the dynamic approach to the solution of accumulated contradictions. When the quantity of various molecules became huge, atoms were set in the consideration. And when the kinds of atom became huge, than the concept of "elementary particles" appeared, which constitute the atoms.

With this the structures of higher levels of matter organization became clear. It appeared that material formations of the higher hierarchic levels of material organization are different from each other in the set of elements, which are the material formations of the lower hierarchic levels. And these lower formations, for example atoms or "elementary particles" at first has been provided with the simplest, the most essential attributes, it reflected in their names: atom ("indivisible"), "elementary particles", i.e. the simplest particles. And the crisis has been solved well.

Disclosure of the structures, understanding of the internal mechanism gave a chance to the directed actions. The directed researches were made, the new methods appeared, and increase of variety of the higher level didn't frighten anybody, because the reasons were clear.

Absolutely new perspectives of theoretical and applied researches and adaptations were opened. The next revolution in physics showed its new possibilities to the whole world. These new possibilities immediately became the property of applied scientists and served to mankind.

Thus in VI-IV centuries B.C. took place the transition of natural science from the nature in a whole to the substances, i.e. earth (solidity), water (liquid), air (gas) and fire (energy). This gave the development of philosophy.

In XII-XIII centuries A.D. different substances were set into consideration, this gave the development of pharmacology.

In XVI century the idea of molecule (small mass) was introduced and mechanics appeared.

At the end of XVIII century a concept of atom was introduced, and chemistry and electricity appeared.

At the end of XIX- beginning of XX century an idea of “elementary particles” was introduced, and it stimulated the development of nuclear power.

May be today we must take into consideration the fact that the number of “elementary particles” constitutes from 200 to 2000 (it depends on calculation), that they all can transmutate one into another, and we can apply the same method and introduce into our consideration the new, more “elementary” particle, new “brick” of the Universe. Then we will found that all so called “elementary particles” of the substance are the complex formations built from these “bricks”. Thereby we legalize the building material for the “elementary particles” and a possibility to analyze the structure of these non-elementary particles of the substance appeared. This particle should be called “amer”, because it was called in such a way by Democrit. In his opinion the amer is a part of an atom and is indivisible particle of matter, and the assembly of amers is ether. Ether is a medium, which fills all the world space and it is a building material for all kinds of substance. It provides all kind of interactions with its movements including the nuclear interactions, electromagnetic and gravitational and although some unknown ones.

Just so we should do the next, sixth revolution in physics, which should give the new possibilities to the mankind to coexist with the nature as its part.

The Etherodynamics

It is experimentally proved that the physical vacuum can generate the “elementary particles” of the substance. It makes us to believe that the components of such particles, its “bricks” are already exist in the physical vacuum. Therefore the uniformity of physical vacuum matter and the matter of “elementary particles” of the substance is presented. But the “elementary particles” of the substance is the base of the atom structure – their nucleons and electron shells and the atom is the base of molecular structure in the substance, and the substance itself is the base structure for all bodies up to the stars and galaxies. Thus we can state the uniformity of essence of all material formations, which approves the idea of monism in the Universe on practice.

With the selection of model of the physical vacuum the most important is to determine the general physical invariants, i.e. the categories, which are permanent with all the transformations of material structures. The role of general physical invariants can be played only by the categories, which are absolutely general and their determination should be made from the analysis of the experimental data but not from the postulates. A simple analysis shows that the absolutely general categories

are the matter, space and time, because in all real processes the matter takes part and these processes take place in the space and time. It means the movement of matter. And all these mean that four categories, i.e. movement, matter, space and time should be considered to be initial and general physical invariants in all constructions and argumentation. They should not be changed with any circumstances and they should be the arguments but not the functions when we are considering some physical dependence of the values from each other.

General physical invariants appears as the initial values and they initially have a range of properties, which are: presence in all structures and phenomena; primary position; conservation for any transformations; unlimited divisibility; additivity, linearity and unboundedness. The enumerated properties result in the following:

- movement and its components, i.e. matter, space and time could not be ever created and can not be destroyed anyway;
- the real physical space is linear (Euclidean);
- the real physical time is linear and unilateral;
- there are no preferable scales, and that's why on all the levels of matter organization the same physical laws are acting, in particular there are no special laws for the microworld.

The result is that the physical vacuum is filled with the medium, which properties can be defined on the basis of analogy with the common microscopic mediums.

Isotropy of space, small resistance to the movement of bodies together with the high specific energy lead to the one conclusion that ether, i.e. the medium, which fills the world space is a gas with the common properties of a real viscose coercible gas.

As far as on all the levels of matter organization the same physical laws are acting and ether is a common gas, then its parameters can be defined on the base of analysis of known physical non-equilibrium processes by mathematical tool of the common gas mechanics.

In the base of calculation we should set the corresponding etherodynamic models of well-known physical processes and interactions. To calculate the parameters of ether we took the energy content of electrical field of the proton and a strong nuclear interaction of proton and neutron in the deuterium as initial ones. Principally we can take any other initial parameters.

As the author showed in his papers, the only form of gas movement, which provides the localization of coercible gas in the limited volume, is a toroidal vortical movement. With this the steadiness of toroid essentially increases if it has also a circular movement of the toroid.

The received spiral vortical toroid of the coercible ether is identified with the proton, i.e. the main part of the microworld.

Neutron is different from the proton only with the fact that on its surface the gradient boundary layer is created, which prevents the penetration of circular movement to the internal medium and it is considered as absence of electrical charge of the neutron. That's

why the energy of circular movement of ether around the proton is the energy of its electrical field.

Comparison of an expression for the energy of mechanical circular movement with the known expression for the energy of its electrical field leads us to a conclusion that the electrical charge is the circulation of quantity of orbital movement of ether's density on surface of the proton. With this the dielectric

Qualitative definition of the main properties of ether

Properties of the real world	Properties of ether
The macroworld	
Invariants of all physical phenomena – matter, space, time, movement	Invariants of ether – matter, space, time, movement
Isotropy of the features of substance and fields in the space	Natural filling of space by ether without any vacuum or dislocations
Small resistance to the movement of bodies	Small density and viscosity
High speed of spreading of the interactions	High elasticity
Microworld	
Mutual transformation of all elementary particles	Possibility to form the various structures of the substance
Condition of mutual transformations of the stable “elementary particles” is the mutual impacts with keeping of mechanical parameters of the movement, which are energy and impulse	Elements of ether should provide a possibility of mutual impacts with keeping of mechanical parameters of the movement, which are energy and impulse
Keeping of the matter in the boundaries of stable “elementary particles” of the substance	Presence of the forms of movement, which provide the keeping of ether as a component of material formations
Difference in the specific densities of “elementary particles” of the substance	Coercibility of ether in the wide limits

Conclusion: Ether is gaseous substance with the properties of real gas

Parameter	Value	Unit
Ether as a whole		
Density	$\rho_e = 8,85 \times 10^{-12}$	Kg m ⁻³
Pressure	$P > 1,3 \times 10^{36}$	H m ⁻²
Specific energy content	$w > 1,3 \times 10^{36}$	J/m ⁻³
Temperature	$T < 10^{-46}$	°K
Speed of the first sound	$v_1 > 4,3 \times 10^{23}$	m c ⁻¹
Speed of the second sound	$V_2 = c = 3 \times 10^8$	m c ⁻¹
Coefficient of temperature conductivity	$a \approx 4 \times 10^9$	m ² c ⁻¹
Coefficient of thermal conductivity	$k_t \approx 1,2 \times 10^{89}$	kg m s ⁻³ °K ⁻¹
Kinematical viscosity	$\chi \approx 4 \times 10^9$	m ² s ⁻¹
Dynamic viscosity	$\eta \approx 3,5 \times 10^{-2}$	Kg m ⁻¹ s ⁻¹
Adiabatic index	1-1,4	-
Thermal capacity for constant pressure	$C_p > 1,4 \times 10^{91}$	m ² s ⁻² °K ⁻¹
Thermal capacity with the constant volume	$C_v > 10^{91}$	m ² s ⁻² °K ⁻¹
Amer (the element of ether)		
Mass	$m_a < 1,5 \times 10^{-114}$	Kg
Diameter	$d_a < 4,6 \times 10^{-45}$	m
Quantity in the unit of volume	$n_a > 5,8 \times 10^{102}$	m ⁻³
Medium length of the free path	$\lambda_a < 7,4 \times 10^{-15}$	m
Medium speed of the thermal movement	$u_a = 5,4 \times 10^{23}$	m s ⁻¹

permittivity of vacuum appears to be the mass density of ether. The measure "Farads per meter" corresponds to the measure "kg per m³" which allows us to define the density of ether in near-Earth space, which is equal to $8,85 \cdot 10^{-12}$ kg per m³.

Strong nuclear interaction is an interaction of nucleons through their general gradient boundary layer. The pressure of ether in this layer decreases due to the high gradient of speeds and the external ether push the nucleons to each other. Since the energy of proton-neutron bond in the deuteron constitutes 2,2245 MeV, the distance on which the interaction decreases to zero is equal to 1 Fermi and the square of the cross-section of nucleons is equal to 2×10^{-30} m², then the pressure in ether will be not less than 2×10^{32} kg/m². But according to the refined data the pressure constitutes not less than $1,3 \cdot 10^{36}$ kg/m², accordingly its energy content is equal to $1,3 \cdot 10^{36}$ J/ m³. The other parameters of ether are defined by the common formulas of gas mechanics. The parameters of ether in the near-Earth space and the parameters of ether (its molecule) are shown in the table below.

As we know, nucleons have the highest energy of interaction when they are components of alpha particles. In this case the energy is equal to 7,1 MeV. We can simply explain it in etherodynamic of the alpha particle: every nucleon is connected with the others through two surfaces, in comparison with the deuteron it immediately gives $2,2245 \times 2 = 5,225$ MeV, the other part of energy is additionally gathered due to the deformation of proton's vortexes and extending of the square of their connection since ether push them to each other. Also part of the energy is derived from the common flows of ether inside and outside the alpha particle. You can see it clear on the model.

From this we can immediately receive the advisability of construction of the atomic nucleus on the base of alpha particles (even-even nucleuses), i.e. nucleuses of helium, beryllium, carbon, oxygen, neon, and magnesium up to zinc. We can naturally explain the changes in energy during increasing of the quantity of nucleons in the nucleuses (considering their deformation) that is so called "magic nucleus", which are the basic structures for all isotopes of oxygen, calcium, ruthenium, gadolinium and so on. From the structure of nucleuses we can get the natural explanation of their spins, form co-efficient, magnetic moments and so on. Thus etherodynamic modeling appeared to be very productive.

Consideration of the properties of proton allows making a conclusion on its three possible states: as a proton itself, as a neutron or an atom of the oxygen. In the first case the toroidal as well as the circular movements of ether exceed the bounds of the body of proton and the spiral flows of ether are formed around it. They have the same spiral factor as the body of proton. These flows are considered to be the magnetic field (toroidal movement) and electrical field (circular movement). It should be mentioned that Bio-Savar law can describe

In the second case the toroidal movement exceeds the bounds of the body of proton and circular motion is localized in the bounds of gradient boundary layer that is why the magnetic moment remains existing and the electrical charge is absent. In the third case there is the circular movement around toroid and toroidal flows are locked not though the body of proton like in the first case but outside of the body. This leads to the change of sign of the spiral movement to the opposite sign. This is considered to be the electrical field, which has a sign of charge opposite to the proton case. This adjoined vortex is the electron shell of the atom.

Thus we can get the vortex model of atom and on this base we can construct the models of electron shells for any atom or molecule, with this all quantum correlations remain valid and they get a simple interpretation. In particular, the psi-function have the sense of the mass density but it is not the "density of probability of appearance of the electron" that Eddington knew in 1940.

The corpuscular-wave dualism gets the natural explanation, because the structure of photon appeared to be similar to the known "Karman's track", which consists of linear vortexes situated as a checkerboard pattern with regard to each other. Here the length of wave is the distance between centers of co-directed vortexes of one range and the mass is the mass of every vortex. As to speak about the de Broglie waves, then their formation with the movement of particles can be explained only as a result of particle's movement in the medium, but not in an empty space.

If the strong nuclear interaction is the result of decrease of the pressure in the gradient field of the speeds of ether flows between the nucleons, then the weak nuclear interaction is the result of passing of the surface wave along the body of nucleons. If the crests of the waves from two nucleons are passing though the mutual boundary layer, then the nucleons slide apart and the forces of strong interaction become weaker. Beginning from some distance the forces of repulsive circular movement (that is the electrical field) become strong enough to destroy the nuclear. The waves can be created by the external impact of other particles (induced radioactivity) or they can be a result of development of the oscillations in the complex nuclei (natural radioactivity).

Finally, the gravitational interaction as the most general one can be explained only on the base of the most general kind of the movement of ether, i.e. by means of the thermo-diffusion. When ether is flowing in the gradient area on surfaces of the particles of any body, the temperature of ether decreases and around every body the zone of lower temperature of ether is forming. Since the gas pressure is proportional to the temperature, then around every body a zone of lower pressure is forming. The gradient of this pressure stipulates the mutual attraction of the bodies as well as absorption of the surrounding ether by the bodies. Due to this process the mass of all the bodies is

increasing constantly. We are the first who analytically got the law of gravity of the masses from the known equation of thermal conductivity. Appeared that on the relatively small distances (in the bounds of the Sun System) the law of gravity by Newton remains valid, but on the larger distances the sudden decrease goes on (Gauss integral), which naturally solves the famous Zelinger's paradox of gravity.

As a conclusion we should note that in the bounds of a stable galaxy of a spiral kind there is the circulation of ether. Ether moves from the periphery of the galaxy to its center (nucleus) by two spiral branches. This becomes apparent as a weak magnetic field (8-10 micro Gauss). In the nucleus of the galaxy there is the impact of two strings as well as there is formation of the spiral

toroidal circles (protons). Then the protons form the adjoined vortexes around themselves (electron shells) and from the proton- hydrogen gas the stars are forming, which are moving to the periphery by the same branches. There they dissolve in ether at the periphery since the protons will lose their energy and stability due to the viscosity. Ether which has got the freedom will return to the nucleus of the galaxy and this process is going on in our galaxy for hundreds milliard years and it will keep going until the new center of vortex formation will begin to concentrate ether. Then the new galaxy will appear and our galaxy will disappear. But it will not happen soon and we have enough time to understand that we should return to the concept of ether in modern science.

Experimental Demonstration of Cosmic Influence on the Earth Life in N.A. Kozyrev's Researches ("On the Influence of Time on Matter")



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Editor's note: this article represents a part of the big scientific conception "World models in the new scientific progress". On applying of this conception a great number of practical technical devices have been created (as an example of such device we offer the description of universal electrical bio-heater, which was created by the group of researchers from Bishkek, Kyrgyz Science Technical Center "Energy" during the work on ceramic electroconvector).

We have to note that the position of our editorial board concerning "time" and Kozyrev's work is not in a good correlation with the authors' one.

Nicolay Alexandrovich Kozyrev scientifically and experimentally discovered the action of relations' interconnection, which was falsely named as time. Time cannot cause action because it is absolute and does

not have any physical sense (Samat Kadyrov. Monograph "Theory of unified field").

Author's note: relations' interconnection is an interaction of structurally similar objects. It is a nuclear resonant gain-frequency process: in a stationary electric field, which is modeled by systematic organization, there is a development of similar to structural one, in-focus rays of powerful regular coherent radiations. These coherent radiations are determined by properties of chemical components of interrelated substances.

According to N.A. Kozyrev, it is ought to expect not identical density of relations' interconnection in space. Some processes decrease density; others on the contrary increase density of relations' interconnection. Action of the increased density is weakened according to the law of reversed squared distances; it is shielded by a solid matter, at thickness about 5cm, and is reflected by a mirror, according to the familiar optics law. The action of the decreased density on a detector is shielded, but does not reflected by a mirror. Properties of a matter can be changed under the influence of relations' interconnection. In this sense there is a big advantage in changes of electric current conductivity of resistor, which is brought into Witson bridge and is located near some process. For instance, in order to increase density it is useful to realize the process of evaporation of a volatile liquid; and for density decrease the process of cooling of a warmed-up agent can be realized. Due to these processes, change of conductor resistance is actually realized with opposite signs. Increase of density of the conductor with positive temperature coefficient leads to decrease of its resistance. At negative temperature coefficient there is an effect of the opposite sign, in the direction of changes, caused by temperature changes. Such correspondence to fall in temperature should be observed at changes of other properties of a matter, **because disorder in a matter structure is reduced along with fall in temperature.** The researches have shown the following results at the resistor, which was situated near processes of acetone evaporation on cotton wool and of solution of sugar in water. The