

# New

# Energy

# Technologies

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Research on advanced propulsion systems and new energy sources



**Vortex drive**

Read Alexander V.  
Frolov's report about  
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**Transformators**



# Happy New Year!

**Magnet Generator -  
- Alternator**



**Longitudinal Wave Generator  
under testing**



# 2003



# NEW ENERGY TECHNOLOGIES

## ANALYSIS



Julia V. Sukhova  
Translator

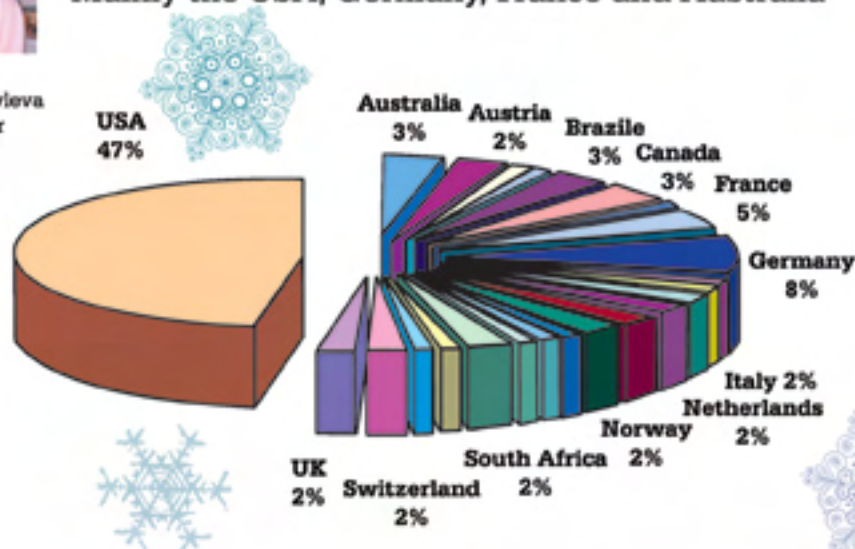


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## INVESTIGATION OF 20kW SINGLE-WIRE ELECTRIC POWER SYSTEM

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## NEW BOOK!!!

### MYSTERIES OF ELECTROMAGNETISM AND FREE ENERGY

by Gennady V. Nikolaev  
[nikolaev@mail.tomsknet.ru](mailto:nikolaev@mail.tomsknet.ru)

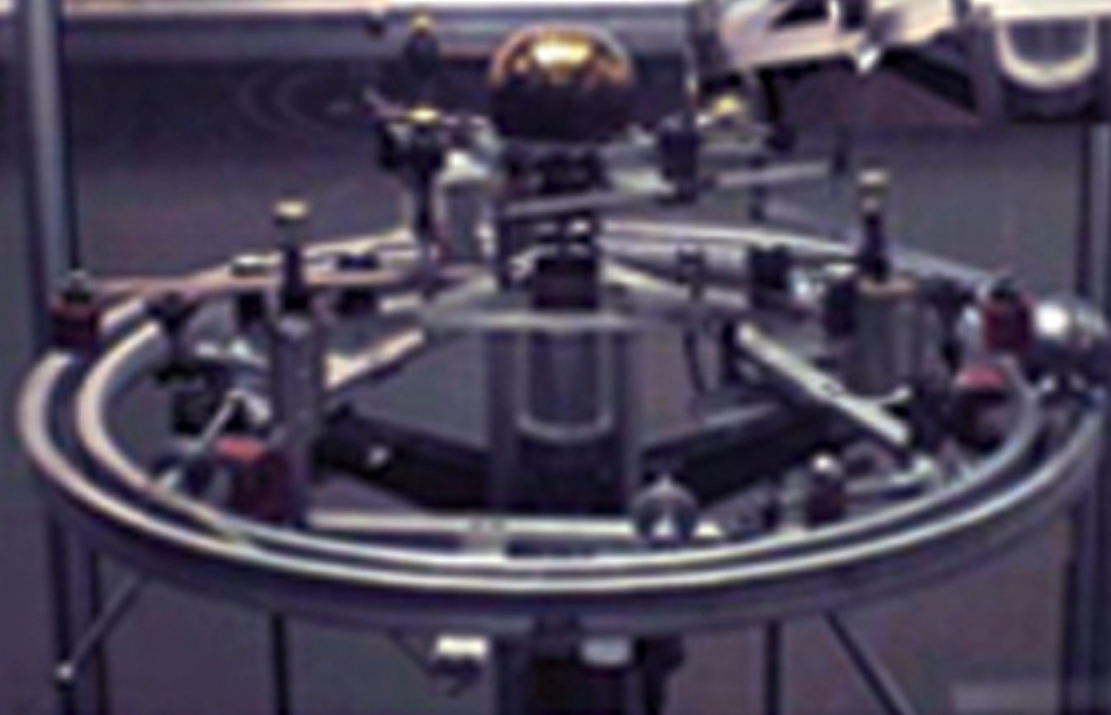
The author makes an attempt to give the theoretic explanation of the phenomena and prove the baselessness of the conclusion made by modern science about the impossibility of the already existent free energy generators, antigravitation systems, perpetual motion machines and other similar things.

Read about Nikolaev's book in this issue.





*Reidar Finsrud's  
Perpetual Mobile*



*Read in this issue original story by John Pasley*





Fig.F

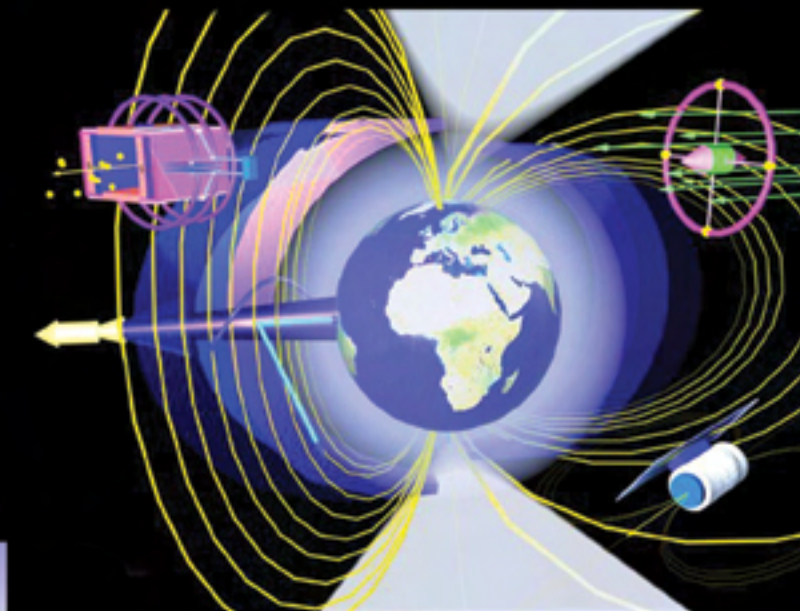


Fig.A



Fig.D

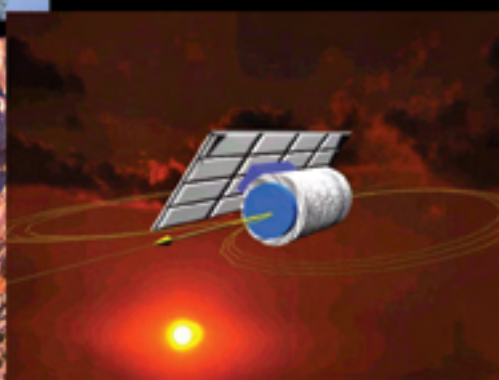


Fig.C

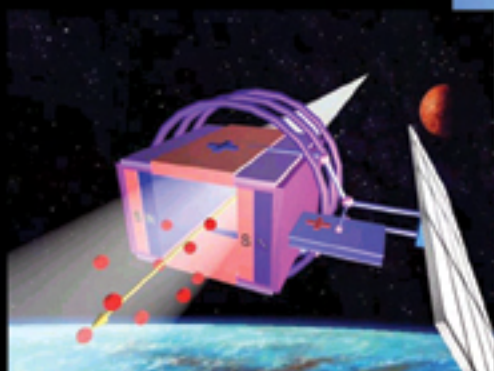


Fig.B

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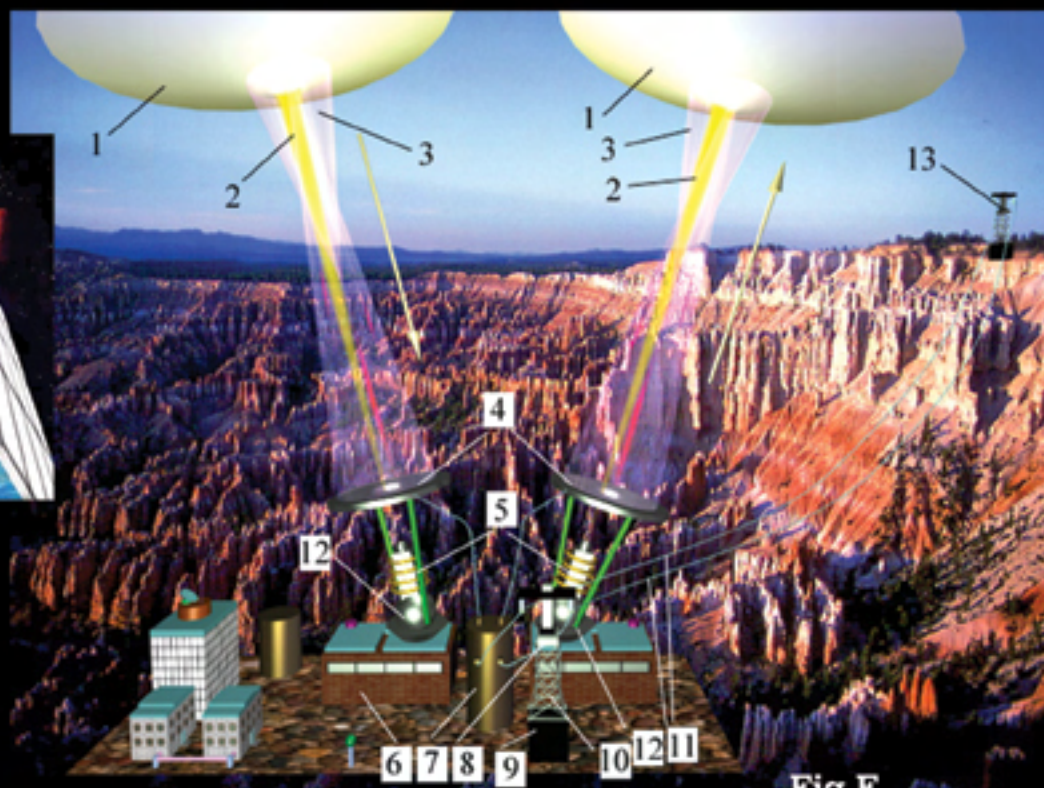


Fig.E

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# Some Experimental News



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In 2002 we have developed several R&D projects. Mainly we have investigated topics related with fuel-less power generation, reaction-less propulsion and longitudinal wave generation. Discussion with our readers on the topics can be useful for us and it is the goal of this publication.

## **Vortex Drive**

This principle in general is known as method of transformation of rotational motion of mass (working body) into translation motion of the system. Experimental unit was designed in our laboratory. After testing of the system it was confirmed that it is possible to create unidirectional thrust (propulsion force) by means of vortex principle. Our company Faraday Lab Ltd filled Russian Federation patent claim #2002128658 of October 25, 2002. It describes METHOD AND DEVICE TO CREATE PROPULSION FORCE BY MEANS OF TRANSFORMATION OF ROTATIONAL MOTION INTO TRANSLATIONAL MOTION. In science and engineering history many different methods and devices for propulsion force generation were proposed. These devices principally differ from reactive systems since they do not require reactive throwing of mass outside of the body of the device. In 1926 G. Shiferstain received Russian Patent #10467 for a method where oscillating mass was used. In 1934 M. Kolmakov (Russian patent claim #45781) described transport without cohesion with road because it moves due to inertial forces. In 1961 S. Kuptsov and K. Karpuhin received patent #151574 for self-propelled system, which had eccentrics making the centrifugal force to get propulsion.

Sure, the development of these technologies is impossible without reliable theoretical basis. Therefore, the theoretical basis of these methods continues nowadays and it requires the analysis of physical sense of the phenomenon of inertia. Development of the notion of inertial mass is presented in modern theories as a

result of interaction with physical vacuum, which is a special medium. The example of this theory is the method, which is described in USA patent # 5280864 [1]. The authors of this patent described method to create weight (mass) changes, which appears in the combination of the vibration process and charge-discharge of electric capacitor, as development of relativistic approach.

Some other authors describe the methods of obtaining of propulsion force due to transformation of rotation into unidirectional impulse or propulsion force. In the most of cases authors of inventions generate propulsion force in mechanical devices due to asymmetry of centrifugal (centripetal) force. At the same time, **uncompensated force is usually directed radially in the flatness of rotation in the direction of gradient of centrifugal force**. This gradient can be provided by continuous or regulated change of radius of rotation of solid or liquid mass. For example, in the description of the invention of Russian patent claim #589150 the method of uncompensated centrifugal force generation due to change of radius of rotation of mass, which moves on internal surface of body, is shown.

In USA patent #4631971 [2] a device with two diametrically placed masses, is described. Each of these masses moves by asymmetrical trajectory, which distance to axis of rotation is changed; as a result asymmetry of centrifugal force in flatness of rotation appears. In USA patent #5427330 [3] a similar device is described, which radial bracing of rotating mass automatically becomes longer or shorter at the different intervals of the trajectory that produces asymmetrical centrifugal force and creates the movement of the whole system. USA patent #5782134 [4] describes propulsion generator, where unidirectional propulsion in flatness of rotation is generated due to regulated disbalance of centrifugal force, that allows generate propulsion force in any arbitrary chosen direction, which also lies in the flatness of rotation of the masses.

Periodical propulsion force directed along axis of rotation is generated in the device [5], where radius of rotation of two symmetrically placed solid bodies is periodically changed.

Using of solid-state rotating masses as eccentrics is not a best method since it is limited by the breaking point of the system. Some other technical ideas are known, which use liquid as working body [6]. The complexity of this system is powerful magnetic field and electric field source for generation of magneto-hydrodynamic effect, and that limits the area of practical application of the patent [6].

The simpler method is described in USA patent #3979961 [7]. In this method rotating liquid is used, which in a certain part of its trajectory comes to a



reflecting device. The interaction with the reflector make the liquid to change direction and to transmit its impulse to the body of the system.

Dr. Spartak M. Polyakov and his son Oleg S. Polyakov describe the method and device for axial propulsion force generation by change of rotation radius of a gyroscope, and they have published their experimental data [8]. According to this method working mass (gyroscope) is set in rotational motion, and then radius of rotation of the gyroscope is changed. This radius of rotation of gyroscope is the controlled parameter of working mass rotation. **At the time of decreasing of radius of rotation of working body impulse of propulsion force, which is directed along the axis of rotation, appears.** Obviously, the change of radius of rotation of working mass in this case has only periodical character; hence, this generated propulsion force is of the short-time impulse type. There is no any thrust in the period of working mass return to the previous state (maximal radius of rotation).

An already known device, which transforms rotational motion into translational motion in one direction, is described in the Certificate of the Russian Federation for Useful Device #20946 [9] by Khrunitchev's Space Research Center. This is a transformer of rotational motion of liquid (mercury) into unidirectional translational motion. The basic element is designed as a cone-spiral tube which is coaxial to the longitudinal axis of the whole device. At the time of operation a electromotor (drive), which is connected with a pump, produces the rotation of the helical-spiral tube with mercury. At the initial period of rotation there is relative velocity difference between mercury (working mass) and the tube, which forms the cone spiral. **Due to this relative velocity there is short time impulse of propulsion force directed along the axis of rotation.** However, this interaction of the liquid mass and the tube body is detected only as short (from some seconds to one minute) impulse of propulsion force, which disappears in that exact moment when the speed of rotation of liquid becomes equal to the speed of rotation of the tube body. Experiments, which were made with such a device, are described by V.A. Menshikov, one of the authors of the article [10].

We tried to create more advanced system and to get continuous propulsion force by means of effective transformation of kinetic energy of rotating mass into translation motion of the whole system. Since the effectiveness of such systems directly depends on the speed of rotation of working mass then application of liquid or gaseous mass allows greatly increase specific characteristics of the device comparably with devices where solid-state rotating masses are used. For that it was designed special cone body (picture on the cover page, at upper left) of the vortex drive to provide continuous relative difference of velocities between the working mass (water) and the body of the system. Our method also includes permanent change of radius of rotation.

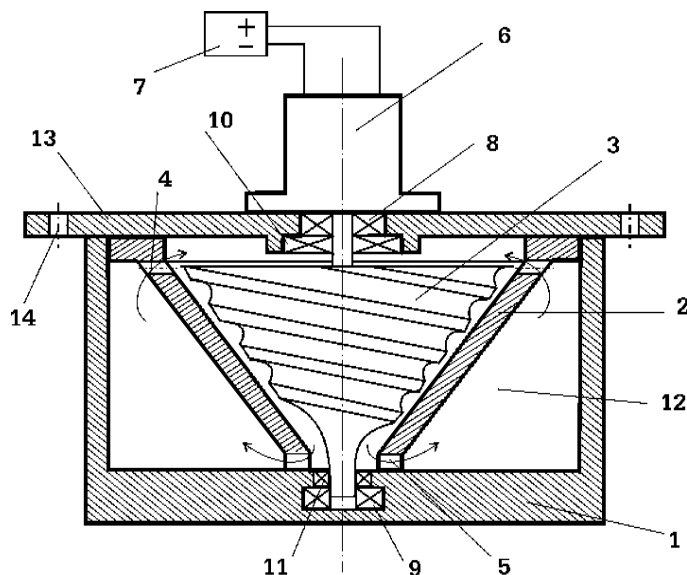


Fig.1

The cone-shaped rotor, which has a helical spiral done on its cone surface is important part of the design. Fig. 1 demonstrates the design of the experimental device. Basic components were made of aluminum. The rotor maximum diameter was about 80 mm, and in the area of outlet of liquid from the cavity of the cone-shaped body the rotor diameter was about 20 mm. A standard electric motor, which power supply was provided by the accumulator of 12 Volt value, was used to create rotation. The electric power input was about 50 Watt. The speed of rotation was regulated by means of change of voltage. Measuring of generated force was made by electric balance which accuracy was to within 0.1 g.

Obtained results allow make a conclusion about efficiency of the proposed method and the possibility of its practical application. Future design should be made to use rotation of gaseous mass since energy is the squared function of velocity and it is more useful to increase rotation speed than the mass.

### High Efficiency Transformers

Many different publications in 2002 were devoted to high-efficient resonant transformation of electric energy. Basis of this research topic is standard transformer, Fig.2 and cover-page photo, at upper right.

**Core of the transformer we have used for research is made of electrotechnical steel; cross section is 50x50 mm. Usually it can be used for 500 Watts – 1kWtts load. By means of special design and digital control unit (under investigation and testing now) we are going to create over-unity mode and then to develop it for self-running operation with some useful load. Some electronics is necessary to build the control unit but it is not expensive and in future the systems of such type (more compact if it is made of permalloy) can become a good commercial product for new energy market.**

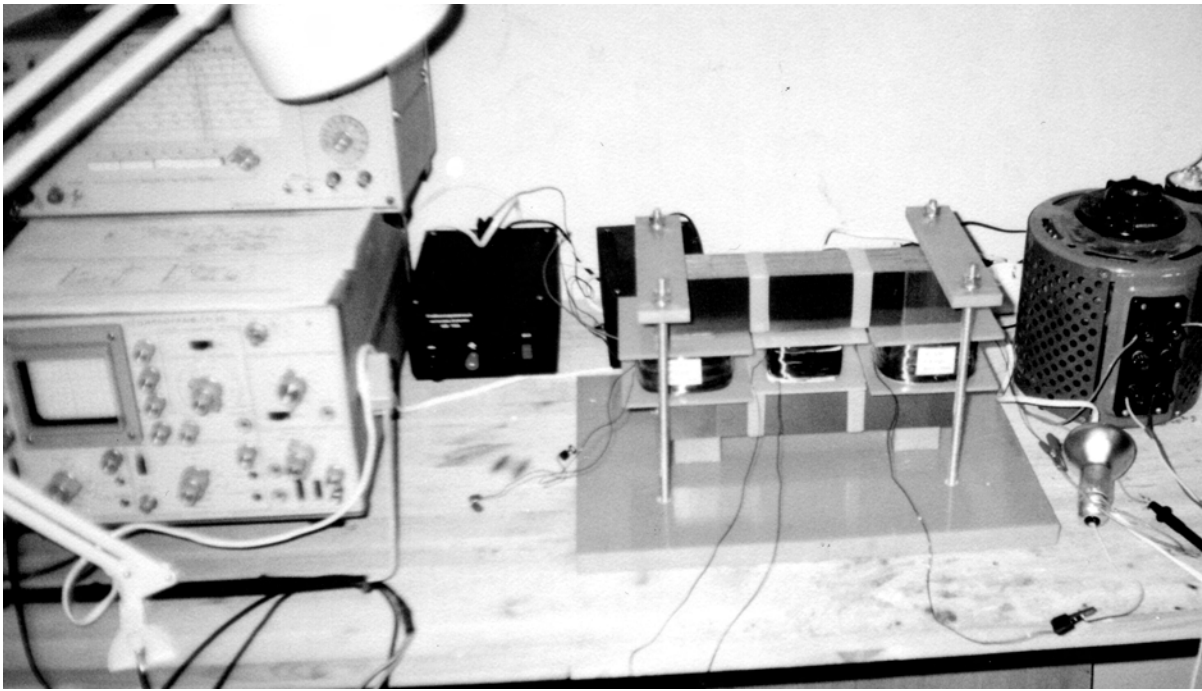


Fig. 2

### **Magnet Generator - Alternator**

This device was built in our laboratory and it includes ceramic Barium permanent magnets, 50x50x10 mm size, block size is 50x50x30, the magnetic field is about 1Tesla. Diameter of the rotor is about 400 mm. The principle of operation is general method of alternation of magnetic flux, Fig.3 and photo at the foot of the cover page, left.



Fig.3

Primary drive is standard electromotor, 12VDC. Original idea is special design (superposition of elements) that allows to create decrease of electric input power if useful load is connected to generator coils, i.e. the rotor is accelerated by load connection. This method was proposed by Alexander V. Frolov. In this design the back-electromotive force EMF is the reason of the acceleration effect. Future development of this principle should be self-running prototype. Theoretically, the motor can be used only for primary start and then it can be used as generator after the self-running mode is created and if

the load is connected. The design of the first experimental unit is very primitive and now we can report only about preliminary results. Only known similar design is described as USA patent, but it seems to be very complicated since plasma is proposed as material of the rotor according to this USA patent. After our patent application is filled then we will continue discussion about our results.

### **Vacuum tube as power generation source**

In this R&D project we have investigated possibility to increase kinetic energy of electrons by means of potential field (scalar field), if they were emitted from heated cathode of a vacuum tube. There are several methods to get positive results and we are going to increase output power from present laboratory level (of several miliwatts if standard vacuum tube GU-74 was used as basis of the system) up to industry level of kilowatts power output with the new design.

### **Longitudinal wave generation and time control experiments**

The longitudinal wave is considered as wave of energy density in space that allows to develop productive aether experimental approach and corresponding technical methods for space-time engineering, antigravitation and time control ideas. We have signed Contract with Dr. Chernobrov, Moscow, on the topic and other authors are also involved in the project. Special conference and workshop are planned (April 2003 in Moscow) to discuss this topic. One of the systems is a spherical design, on the body there are placed several emitters of the longitudinal waves. See Fig.4, Fig.5 and photo at the foot of the cover-page, right.



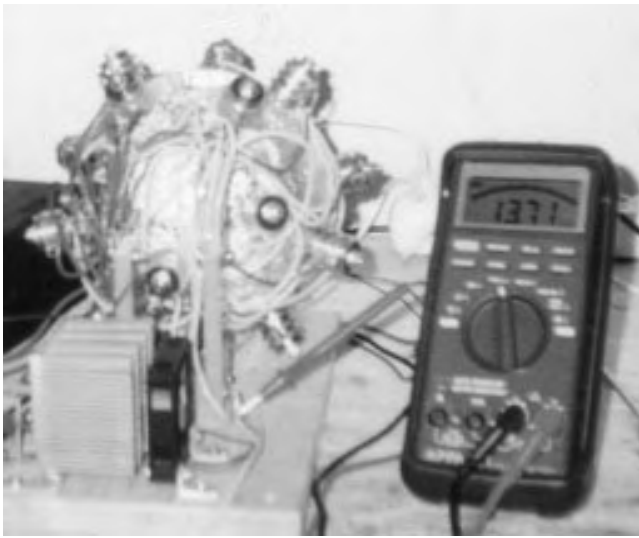


Fig.4

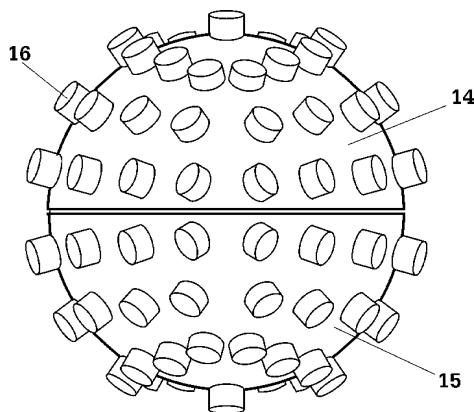


Fig.5

Detection of focused longitudinal waves in the center of the system can be made by means of any radio-electronics element, for example it can be usual resistor of the balanced scheme, transistor or quartz oscillator. The wave should produce changes of its physical properties and it can be detected as changes in the frequency of oscillations. Sure, the element should be screened to avoid usual electromagnetic effects. We have investigated frequencies up to 1MHz. To avoid any unpredictable medical effects we investigate only the very fine effects. The system is powered by 12VDC, 15 A source. But in future after clarification and confirmation of the conception we'll increase power up to any necessary for industry level to get new materials and useful medical effects by means of this technology.

Also there is supposition about possible application of the technology for aerospace as propulsion method but we still have no reliable experimental confirmation of connection between longitudinal wave technology and fact of weigh changes. Design of the longitudinal wave emitter can be made by different ways and discussion of the results is topic of our future publications. We will try to publish more theory about "time and gravity control" conception but now this experimental work can be considered as topic of aether wave technologies.

## Processing of Radioactivity Wastes

We have started this R&D work in collaboration with professionals of atom-smasher laboratory, St.Petersburg and after first tests we cannot report that we have solution of the problem. Some methods we have tested allow us to conclude that influence of the radioactivity source is possible and spectrum shift was detected but in general the level of radioactivity was not changed during the test. We will continue this R&D direction.

## Asymmetrical capacitors as electrograviticis propulsion method

Simplest tests were made to confirm calculations of the effect, which was described by T.T. Brown in his USA patent # 3187206 of 1965. Solid-state dielectric of gradiental permittivity is the topic of modern R&D work. Production of this special material is the main part of the work, which is running with professionals of St.-Petersburg institutes and organizations.

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# ON THE POSSIBILITY OF THE NEW COMMUNICATION METHOD AND CONTROLLING OF THE TIME COURSE

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Report at the VI International Conference  
**Material Science and Material Properties for Infrared Optoelectronics**  
Kiev, Ukraine, May 22-24, 2002

## Abstract

The results of an approach based on the synthesis of standard quantum electrodynamics and of the ideas of self-organization in physical systems are briefly outlined. The quantum model of electron as an open self-organizing system is constructed, with the physical mechanism of self-organization consisting in **the back influence of the own field created by electron on the same electron**. The own field is considered as a physical property of electron, intrinsically inherent in electrically charged matter, which is included in the definition of the particle. The own field of electron endows the particle with wave properties and represents a carrier of superluminal signals, which can be used for the creation of qualitatively new communication systems. Because of the inseparability of space and time, the force in relativistic mechanics is the cause of change not only of the velocity of particle, but also of the course of time along the particle's trajectory. For this reason the flow of time in some area of space depends on the character of physical processes, occurring in it, and, therefore, **time can be controlled by slowing down or accelerating of its course by means of material processes**. The conclusions of the paper are not in conflict with the special theory of relativity (STR); they are a direct consequence of relativistic equations of motion and represent an essential development of the generally accepted notions about space and time. The physical mechanism of nuclear reactions at low energies caused by spatial extension of electron is considered. Nuclear reactions of this type represent intra-electronic processes, more precisely, the processes occurring inside the area of basic localization of electron. Distinctive characteristics of these processes are defined by interaction of the own field produced by electrically charged matter of electron with free nuclei. Because of the existence of simple mechanism of nuclear reactions at low energies, nuclear reactor turns out to be an atomic delayed-action bomb, which may blow up by virtue of casual reasons, as it has taken

place, apparently, in Chernobyl. The use of cold nuclear reactions for production of energy will provide mankind with cheap, practically inexhaustible, and non-polluting energy sources. **At present all the necessary prerequisites are available, both theoretical and technical, for the practical mastering of the own fields of particles and of the physical properties of time.**

## Introduction

As is known, within almost hundred years superluminal signals were tabooed in physics and everyone was confident that such signals couldn't exist in nature. But in the last ten-fifteen years the investigations on superluminal communication are carried out in many research centers of the world. Some of these centers are listed below: **Israel** (Tel Aviv University, Weizmann Institute of Science, Ben-Gurion University of the Negev) - experiments in parametrically amplifying media, **USA** (University of California, Berkley, Los Alamos National Laboratory, New Mexico, Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts) - experiments with photon tunneling, **Germany** (Institut für Theoretische Physik, Universität zu Köln) - experiments on the digital signal propagation in glass fiber and waveguides, **Italy** (Università statale di Bergamo and Sezione di Milano of I.N.F.N) - theory and experiments, **India** (Indian Institute of Astrophysics, Koramangala, Bangalore, Bose National Centre for Basic Sciences, Salt Lake, Calcutta), **China** (Institute of Quantum Mechanics, Beijing), **Brazil** (Universidade Federal de Alagoas) - application to electronics.

A variety of mechanisms is now known to give rise to superluminal (faster-than- $c$ ) group velocities, which express the peak advancement of electromagnetic pulses reshaped by material media [1]:

1. *Near-resonant absorption*. Anomalous dispersion in the linear regime of an absorbing medium forms the basis for this superluminal reshaping mechanism.



2. *Reduced transmission or evanescent wave formation (tunneling) in passive dielectric structures.* This reshaping mechanism has been attributed to interference between multiply-reflected propagating pulse components in the structure.
3. *Soliton propagation in dissipative nonlinear structures.* Superluminal group velocities can occur in such systems via nonlinear three-wave exchanges, as in stimulated Brillouin backscattering in the presence of dissipation. They also occur in a non-linear laser amplifier.
4. *Pulse propagation in transparent (non-resonant) amplifying media.* Superluminal pulse reshaping in this regime has been attributed to either the dispersion or the boundary reflections of the amplifying medium.

Taboo is removed, at last, in analytical investigations as well. According to Drummond and Hathrell [2], in many cases the effect of vacuum polarization is to induce a change in the velocity of light to 'superluminal' speeds, i.e.  $v > c$ . Really, in classical electrodynamics combined with general relativity, light propagates simply along null geodesics. In quantum electrodynamics, however, vacuum polarization changes the picture and the background gravitational field becomes a dispersive medium for the propagation of photons. Now such an approach is intensively developed by many theorists.

Recent manifestations of apparently faster-than-light effects confirmed predictions that the group velocity in transparent optical media can exceed  $c$ . Special relativity is not violated by these phenomena. Moreover, in the electronic domain, the causality principle does not forbid negative group delays of analytic signals in electronic circuits, in which the peak of an output pulse leaves the exit port of a circuit before the peak of the input pulse enters the input port. Furthermore, pulse distortion for these "superluminal" analytic signals can be negligible in both the optical and electronic domains. An extension of these ideas to the microelectronic domain is suggested. The underlying principle is that negative feedback can be used to produce negative group delays. Such negative group delays can be used to cancel out the positive group delays due to "transistor latency" (e.g., the finite RC rise time of MOSFETS caused by their intrinsic gate capacitance), as well as the "propagation delays" due to the interconnects between transistors. Using this principle, it is possible to speed up computer systems [3].

But all these investigations on superluminal information transfer deal with optical signals (packets of electromagnetic waves). Radically new approach to superluminal information transfer is developed by the research group on quantum electrodynamics of self-organizing systems and physical properties of time

(<http://temporology.bio.msu.ru/OLEINIK/oleinik.htm>). The results obtained were partly reported in two previous SPIE-conferences [4,5] and are summarized in the monography [6].

As is evident from the analysis of the newest development of quantum electrodynamics, at present we are on the threshold of revolution in engineering. Already now, when one is at the very beginning of the new ascension, it is possible to indicate with certainty the following trends of development in engineering in the 21st century [7].

Firstly, **there will be created the essentially new means and systems of communication working on superluminal signals whose bearers are the own fields of material bodies.** By their physical characteristics – by the speed and range of information transfer, by the capacity to penetrate through obstacles, by their reliability in service - the new communications facilities will be much superior to the now existing ones.

Secondly, **the physical properties of time**, whose existence was indicated by N. Kozyrev almost half a century ago, **will be used for practical purposes.**

#### **Self-organizing electron, its own field, and superluminal signals**

The standard formulation of QED proceeds from the assumption that electron is a structureless point particle. This assumption results in a serious difficulty – the divergence of self-energy of electron. One more difficulty of the conventional approach is that quantum mechanics is unable to explain stability of the point-like electron. Really, the wave packets, which could have a claim on the role of the wave functions describing the behavior of a free point-like electron, spread out in time, which contradicts the experimental fact of stability of the particle.

The difficulties mentioned above are very serious. According to Dirac, the difficulties of QED "in view of their fundamental character can be eliminated only by the radical change of the foundations of theory, probably, radical to the same extent as transition from the Bohr orbits theory to modern quantum mechanics" ([8], p.403). "Correct conclusion is that the basic equations are erroneous. They should be changed in such a way that divergences do not appear at all". As an analysis of the problem shows, one should abandon all attempts at using the notion of point-like electron and should take into account that the self-action of electron is the key to constructing a consistent quantum model of the particle.

New lines of approach to the problem of electron are proposed in [6,9]. The approach represents a synthesis of conventional quantum electrodynamics and the ideas of the theory of self-organization in physical systems [10]. The physical mechanism of self-organization consists in the back action of the own field created by

charged particle upon the same particle. It is described by the model of open system with the wave function belonging to indefinite metric space.

The essence of the approach developed is that the own field of electron is considered as a physical property intrinsically inherent in the particle and, when formulating the theory, the own field is included in the definition of electron from the very beginning. This means that we adopt as zero approximation not a "bare" electron, but an electron capable to create the own field and to "feel" its back influence.

Mathematically, taking into account the back action of the own field created by particle upon the same particle results in the non-linearity of dynamical equation describing the behavior of electron. Thus, electron becomes a **self-organizing system**, whose physical properties, geometrical shape, and linear dimensions may be determined in a self-consistent way from solutions of the basic dynamical equation. Electron is a quantum (elementary excitation) of the field of charged matter localized in a bounded region of space and subject to the Coulomb self-action.

Since electron represents a clot of electrically charged matter, creating the long-range Coulomb forces in surroundings, its environment turns into a medium, which can have a determining influence on physical properties of the particle. In view of the long-range character of the Coulomb field, electron becomes **an open system** inseparably bound with the environment. In a sense the whole universe takes part in the formation of electron as a physical system.

Obviously, to describe electron as an open system one should introduce into quantum mechanics a radically new point, namely: one should replace the model of isolated system described by harmonic oscillator, which is at the heart of modern physics, with the model of open system. It is pertinent to note here that the quantum particle theory based on the use of the models of isolated system is, strictly speaking, physically meaningless. Really, any observation conducted on a system represents a process of interaction of the system with the means of observation. In the case of microparticles (quantum particles) this interaction is not weak, and consequently it is inadmissible to neglect it, i.e. microparticles should be necessarily considered as open systems.

As open system has the richer physical contents in comparison with isolated system, the essentially new mathematical ideas are needed for such a system to be described. To take into account that real electron, being considered as an open system, is inseparably linked with surrounding medium, we should first of all increase the number of dynamical variables describing it. Really, real electron can be imagined as a system consisting of two components: one of them should correspond, in a sense, to the particle alone (to the "bare" particle) and the other to the surrounding medium, in which the

particle moves. Therefore, in the simplest model of open system one should double the number of dynamical variables. To each dynamical variable of the "bare" particle there should correspond two dynamical variables, which should be considered as components of the wave function describing the quantum state of particle. Besides, the system under study should be subordinated to a condition for openness expressing the fact that real electron is indissolubly bound to environment and its interaction with environment cannot be weak. The condition for openness can be formulated as follows: the open system should make sense only in the event that there are simultaneously both components – the particle alone and the environment, and these components should be equivalent.

From the action principle, the basic dynamical equation is derived taking into account the relativity principle and describing the self-acting electron as an open self-organizing system [6,11]. By its appearance this equation coincides with the usual Dirac equation for a charged particle in an external field described by 4-potential. However, in reality, it differs essentially from Dirac's equation. The distinction consists in that the equation derived is non-linear and non-local, with the non-locality being of spatial and temporal character.

As a detailed analysis shows, solutions to the basic dynamical equation of electron describe the clots of self-acting electrically charged matter, localized in space, i.e. electron is a soliton. The self-acting electron can be in different quantum states characterized by internal energy, dimensions, and geometric shape. The internal energy spectrum of electron is discrete with an infinitely large number of levels. To each value of internal energy there correspond certain linear dimensions and geometric shape of the region of localization of electron's charge. Dimensions and the number of extreme of wave function increase with increasing the value of internal energy.

The distribution of electric charge of electron in the ground state consists of the range of basic localization with the linear dimensions of the order of Bohr radius  $a_0$  ( $a_0 \sim 10^{-10} m$ ) and of the tail stretching up to infinity. Owing to the non-linearity of the dynamical equation of electron, the wave function does not obey the superposition principle. In virtue of this electron acquires the properties of absolutely rigid body: the perturbation acting on electron at an instant  $t$  in the range of basic localization becomes known at the next instant  $t + \varepsilon$  ( $\varepsilon \rightarrow +0$ ) at any distance from it [12].

According to the generally accepted point of view, the velocity of light in vacuum is the greatest possible velocity of transfer of a signal existing in nature. This conclusion was formulated by A. Einstein as a consequence of the special theory of relativity (STR) as follows: "... There is no way of sending the signals which would propagate faster than light in vacuum " (see [13],



p. 157). At the same time the astronomical observations conducted by N.A. Kozyrev and others [14-16] have shown that there exists in nature some mechanism of action-at-a-distance of one body on the other resulting in the superluminal transfer of signal.

An attempt to find in electrodynamics the physical mechanism of superluminal transfer of information is undertaken in [4,12]. It is noted here that **the physical bearer of superluminal signals is the own field of electrically charged particle**. This field is of a dual nature: on the one hand, the own field is governed by the Maxwell equations and consequently it is an electromagnetic field and, on the other, it is created by a charged particle and cannot exist when the particle is absent, i.e. it represents in some sense a constituent part of the particle. It is not surprising that the own field of particle considerably differs by its physical properties from the field of electromagnetic waves: it is of a purely classical character and cannot be reduced to the set of photons. The own field seems to be responsible for the wave properties of particle, which are manifested in experiments on diffraction of electrons. The function of the own field of a charged particle is to transform the environmental space to a physical medium with the properties of an absolutely solid body. One of the physical properties of this medium is that it is capable of transferring a signal, connected with a perturbation occurring at some point of space, instantaneously to arbitrarily large distances.

According to [4,12], **the transverse vortex electromagnetic field consists of two components** significantly different from each other by their physical characteristics - **the electromagnetic waves and the own field of charged particles**. To these components of electromagnetic field there correspond two mechanisms of transferring a signal (information): (1) the instantaneous transfer of a signal via the own field of charged particles, representing the standing waves of matter rigidly linked with particles and going from them to infinity or to other particles, the own field being capable of transferring a perturbation both with the speed of light and instantaneously; and (2) the transfer of a signal with the speed of light by means of electromagnetic waves, which are emitted by particles when they move with acceleration and then separate from the particles. It should be stressed that both mechanisms of transferring information mentioned above work simultaneously as though duplicating each other.

The existence of instantaneous signals necessarily follows from both the laws of electrodynamics and the most general considerations. As the own field of electron is inseparable from the particle, electron and its own field should be considered as a single physical system. In view of the long-range character of the own field, this system fills in the whole space. In order for such a system to be stable, a physical mechanism should exist combining its parts into a unit. The instantaneous transfer of information via the potential and vortex

components of the own field of electron is, apparently, such a mechanism. In other words, the instantaneous signals are indissolubly related to the processes of self-organization, resulting in formation of the internal structure of charged particles.

To specify the physical mechanism of superluminal transfer of information, let us turn to the quantum theory taking into account self-action. According to it, electron represents a soliton - a clot of electrically charged matter having the physical properties of absolutely solid body (because of the violation of superposition principle). It is a complicated dynamical system consisting of a region of basic localization, with the sizes being of the order of Bohr radius for the ground state of particle, of a tail, extending up to infinity, and of the own field. The presence of the tail manifests itself in that the charge density of the self-acting electron proves to be distinct from zero (though rather small in magnitude) far outside the region of basic localization of particle. The oscillations of the charge density, occurring in this region, are instantaneously transferred along the tail via the own field of particle to any distances and excite the oscillations of electric and magnetic fields at each point of space. This process ensures that information about a physical event occurring at some point of space can be gained immediately from a measurement conducted at any place of the universe. It should be noted that the effect is absent for a point-like particle.

As is known, the presence of an environment capable of transferring an oscillation from one point of space to the other is a necessary condition for the existence of waves. For electromagnetic waves, such an environment is, apparently, the own field of particle. The latter is similar to the elastic strings that bind electric charges to the environmental medium and endow it with properties of an absolutely solid body. These strings are inseparable from the charged particle, they are not of photon structure and consequently they cannot be destroyed without destroying the particle, with which they are connected. When a charged particle moves with acceleration, a photon field is split out of its own field, the vortex own field of the particle being deformed and losing its axial symmetry.

Generally, the own field of particle contains four components according to the four now known types of interaction - electromagnetic, weak, strong, and gravitational. Each of these components is a classical field linking the particle to the surrounding world via superluminal signals [7].

The inference about the possibility of superluminal transfer of a signal with the help of self-field of charged particles is in the obvious contradiction with the standard point of view, which for the first time was formulated by A. Einstein as a consequence of the special theory of relativity [13]. A detailed analysis of the problem shows, however, that our conclusion is in agreement with STR. The standard point of view is true only at first sight; it cannot be proved within the

framework of STR. As is obvious from the analysis of the superluminal excitation transfer through the own field of particle [6], the statement that the transfer of signals with faster-than-light speed is impossible is in essence an additional postulate contradicting Maxwell's equations.

The generally accepted standard evidence that superluminal signals cannot exist in nature is erroneous. The fallacy of the evidence consists in that the causal relationship between two events is analyzed within the framework of kinematics without using the equations of motion. The causality problem is, however, a problem of dynamics, because the case in point is the transfer of interaction from one event to the other. Hence, it can be solved only by the analysis of solutions of dynamical equations subordinated to proper boundary conditions. Remaining in the framework of kinematics, it is impossible in principle to solve the causality problem. In the generally accepted reasoning relating to superluminal signals, dynamics is not considered at all and consequently the conclusion about impossibility of superluminal signals is not justified.

### **The change of the course of time in external fields**

In Newtonian mechanics time is of an absolute character, it does not change as one passes from one inertial reference frame to another and represents merely a parameter, whose change, at the will of explorer, results in the change of state of a mechanical system in accordance with the equation of motion.

In relativistic mechanics time remains a parameter describing the development of system. But now time and space are intimately linked with each other to form a single whole – the 4-dimensional space-time. In going from one inertial frame of reference to another time gets entangled with spatial coordinates, so that time in one reference frame represents a “mixture” of time and coordinates in the other. Time ceases to be universal, the same in all inertial reference frames; it takes on a relative character.

The indissoluble association of time and space takes on special importance in the light of the concept of physical field, which was called by Einstein the most important discovery in physics after the times of Newton. According to this concept, the occurrence in space of a force field means that space turns into a physical environment, which is capable to interact directly with other bodies and gains, thus, physical properties, becoming an active participant of physical processes. In view of the fact that space and time are indissolubly related to each other, the presence of a force field in some area of space must necessarily result in the appearance of physical properties of time caused by the motion of body in this area.

Thus, from the synthesis of the notion of space-time and of the idea of physical field it follows with necessity that the course of time in a given region of space should

depend on physical processes in this region, i.e. time, as well as space, should have physical properties [5,7,17].

It should be emphasized that in STR time and spatial coordinates are independent and formally equal in rights quantities, which determine the position of elementary events in space-time. On the other hand, time stands out in relation to spatial coordinates. The special role of time is due, from the viewpoint of geometry, to the pseudoeuclidicity of geometry of the 4-dimensional space. From the physical point of view, it is associated with the dynamical principle (causality principle), according to which the state of motion of a physical system at an instant of time  $t$  uniquely defines its behavior at the next instant of time  $t + 0$ . The significance of dynamical principle lies in the fact that it relates the temporal evolution of system to the physical processes caused by force fields and in doing so it allows one to determine the course of time in the system, its possible dependence upon the character of physical processes, and not just the sequence of events and their duration.

The idea about the existence of the physical properties of time belongs to N. Kozyrev [14]. By introducing into mechanics an additional parameter taking into account the directivity of the course of time, Kozyrev has formulated causal (asymmetrical) mechanics from which it follows that time has physical properties. According to the results of theoretical and experimental investigations conducted by Kozyrev and his followers [14-16], events can proceed not only in time, but also with the help of time, information being transmitted not through force fields, but via a temporal channel, and the transfer of information happens instantaneously. According to [5,7,17], the conclusion that physical properties of time exist follows strictly from relativistic mechanics, without introducing any additional hypotheses. The physical properties of time are of purely dynamical nature: their existence results from dynamical principle. The availability of physical properties of time is manifested in that time has a local inhomogeneity: its course along the trajectory of motion of a point particle in a force field is continuously changed, and this change in the course of time is a result of the action upon the particle of a force field in the inertial reference frame, in which the motion is considered.

The elucidation of the physical nature of time is one of the most important problems of theoretical physics. The purpose of research on the problem of time is to study the physical properties of time, i.e. to ascertain the possible interrelation between time and material processes. In particular, it is of interest to find out

- whether the flow of time depends upon physical processes and whether the back influence exists of the change of the course of time on physical processes,
- what mechanisms of the change of the course of time exist,



- what factors are capable to speed up or to slow down the flow of time.

In our papers on the basis of Lorentz transformations relating to coordinates of points, lying on the trajectory of motion of particle in a force field, the phenomenon of local dynamical inhomogeneity of time is predicted. The main result consists in the proof that material processes occurring in a physical system under the action of a force field necessarily influence the course of time along the trajectory of motion of particle. The case in point is the change of the course of time along particle's trajectory in one inertial reference frame as compared with that in the other. Also the relationship is obtained which relates the course of time on one path section of a particle when moving in a force field to that on the other path section in the same inertial reference frame [17]. The main idea underlying the approach developed results from the analysis of Lorentz transformations and consists in that the course of time of a particle moving by inertia, i.e. not subject to the influence of a force, should be uniform.

As is well known, the existence of the dependence of the course of time on gravitational field, for example, is substantiated in the general theory of relativity (GTR). In this connection the question arises: What is new in the approach being developed?

First of all, it is pertinent to make here a quotation from [18] (see p. 303): "Already in the special theory of relativity the flow of true time is different for the clocks moving relative to each other. In the general theory of relativity (GTR) the true time flows in different ways also at different points of space in the same reference frame. This means that the interval of proper time between two events occurring at some point of space and the interval of time between the events taking place simultaneously with them at the other point of space, generally speaking, are different from each other". As "the gravitational field is nothing but the change of the space-time metrics" ([18], p. 313), one can assert, apparently, that the change of the course of time is due, from the point of view of the GTR, to the change of the 4-dimensional space metrics.

In the approach being developed, the gravitational field is considered as an ordinary force field and the motion of particle is assumed to occur in the pseudo-Euclidean space-time. The formulas received describe the change of the course of time in an arbitrary force field at different points of space in the same inertial reference frame. According to the results received, the change in the course of time in a force field is by no means connected with the change of the space-time metrics. It is caused by the action of the force field on particle in inertial reference frame and follows directly from the dynamical principle underlying relativistic mechanics.

It is known, also, that the GTR predicts the red shift of spectral lines in gravitational field. As is seen from our results, the shift of spectral lines in gravitational field

is connected not with the change of the space-time metrics, but with that the gravitational field is a force field. According to our approach, force is the reason of the change in the course of time and, hence, the reason of the shift of spectral lines of atoms (the case in point is merely that part of the shift which has a bearing on the change in the course of time).

It should be emphasized that, from the point of view of quantum electrodynamics, the shift of spectral lines of atoms is caused by interaction of atoms with force fields. This interaction results in the occurrence of the energy level shifts of atoms and, hence, is the reason of the shift of spectral lines. Evidently, the energy level shifts contain a component connected with the change of the course of time, and its magnitude can be calculated by our formulas.

If the force field is gravitational, the picture should remain the same: the shift of a spectral line of atom, caused by the gravitational field, should consist of two components - one of them is connected with the change of the course of time in gravitational field and the other has no bearing on this change.

The basic result of our research on the problem of time is that the strict proof is given of the Kozyrev hypothesis about the existence of physical properties of time, and a general relationship is received connecting the course of time on one path section of a particle moving in a force field with the course of time on the other in the same inertial reference frame. Briefly, basic conclusion may be formulated as follows [17]: **in relativistic mechanics, the force acting on a particle in an inertial reference frame is the reason of change of the course of time along the particle's trajectory.**

### Conclusion

According to [6,7] the own field of electrically charged particles belongs among the physical fields, which are capable to transfer signals with superluminal speed. The inevitability of existence of superluminal signals is evident from quantum theory of electron treated as an open self-organizing system [6]. In conformity with this theory, taking into account the self-action of electron causes it to become a spatially extended dynamical system, namely: it consists of a region of the basic localization of electric charge, with the sizes being of the order of Bohr radius, ( $\sim 10^{-10}$  m), of a tail of the distribution of electric charge extending up to infinity, and of the long-range own field. Apparently, in order that such a dynamical system can be stable, a physical mechanism should exist combining its parts into a unit. Superluminal signals are such a mechanism, making, thus, an important element of structural organization of matter that provides stability of real physical systems.

From the synthesis of the idea of unified space-time underlying special theory of relativity (STR) and the concept of physical (force) field, it follows with necessity that time, like space, has physical properties [5,17]. This

means that the course of time in some region of space depends on physical processes occurring in this region. The change in the course of time, in turn, influences physical processes. The results obtained are unambiguously indicative of the capability, on the one hand, to control the course of time in some region of space with the help of electronic processes and, on the other, to influence the behaviour of physical system by means of physical properties of time. The ability to change the course of time in the process of motion, which can be referred to as "the feeling of time", represents one of the most fundamental physical properties of any form of matter internally inherent in it by the very nature of things.

The existence of superluminal signals does not contradict STR. The conclusion that superluminal signals do not exist in nature, formulated at the beginning of the twentieth century as a consequence of STR, was drawn from purely kinematical reasoning, while the transfer of signal is a dynamical process, which can be correctly described only on the basis of the solution of dynamical equations.

The inferences obtained point to the possibility of creating qualitatively new means of communication, based on the use of superluminal signals, which by their physical characteristics (the velocity and distance of information transfer, the ability of penetrating obstacles) will be much superior to the existing ones.

Note that quantum theory of electron as an open self-organizing system is indicative of the existence of the following mechanism of nuclear reactions at low energies [19].

If there occur in the region of basic localization of free electron, whose linear sizes in the ground state of the particle are several times as large as those for hydrogen atom, two or the greater number of nuclei, each of them attracts on itself the adjoining areas of electronic cloud, resulting in compression of the electronic cloud as a whole. As a result, there appears automatically an attraction of the nuclei, which proved to be "inside" electron, on each other.

Calculation shows that the Coulomb barrier around nuclei is deformed, its height decreases and the probability of penetration through the barrier accordingly increases due to tunnel transition. Under certain conditions this process may result in fusion of nuclei. Obviously, the process in question can occur only at small energies of translational motion of the centers of mass of electron and nuclei: nuclei should be "inside" electron long enough for them to have time to come nearer to each other as a result of electron-nuclear interaction. This mechanism of nuclear fusion is of a universal character. In order for it to be realized, it is necessary to have only a stream of free electrons intensive enough, i.e. heavy electric current, and as long as sufficiently great number of free nuclei.

If heavy nuclei appear "inside" free electron, owing to their interaction with the electronic cloud there occurs polarization of nuclei. Because the own field of electron interacts with protons more strongly than with neutrons, nuclei are deformed (become extended), and this process may result in the decomposition of nuclei to fragments (in nuclear fission).

As is noted in [20], the official version of the reasons for Chernobyl accident contains serious contradictions, a number of facts concerning the accident has no convincing explanations, and this circumstance forces to search for the true reasons for the happening, since "not having understood the mechanism of the one tragedy, we sooner or later shall become witnesses of the other". The authors hypothesize that the reason of the accident was penetration into the nuclear reactor of magnetic monopoles, which have caused the decay of nuclei  $^{238}\text{U}$ , and this has resulted in production of delayed neutrons, growth of power output of the reactor and explosion.

In our opinion, to account for the reasons for Chernobyl accident, there is no need to involve magnetic monopoles. The scenario of development of events during the accident, described in [20], seems to be quite plausible if only to understand by initiators of nuclear fission not hypothetical monopoles but free electrons, whose powerful pulse might arise as a result of electric discharge in the region of turbo-generators.

The existence of simple physical mechanism of nuclear reactions at low energies, indicated in this paper, implies that nuclear reactors are, in effect, nuclear delayed-action bombs which will blow up from time to time. Explosion of nuclear reactor may take place because of casual short circuit at an electric subcircuit, owing to which there appears an intensive stream of free electrons. This stream, having got for any reasons in nuclear reactor, may initiate explosion of the reactor. It follows from here that though nuclear stations may provide mankind with cheap energy, atomic energetics represents a very dangerous way of producing energy (as well as the energetics using controlled thermonuclear fusion). The only acceptable way of resolving the energetic problem consists in the use of nuclear reactions at low energies.

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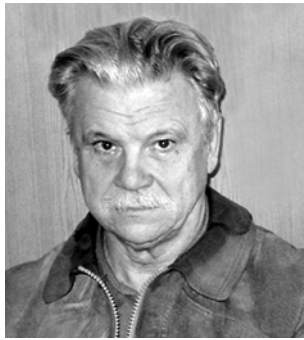
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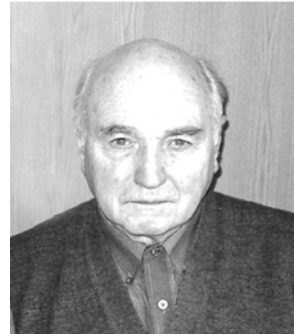
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# Spontaneous Polarization of some Glasses and Inexhaustible Energy Source of Direct Current



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At the beginning of the last century Mary Sklodowska-Curie discovered a spontaneous temperature increase of the radioactive samples in comparison with the environment. Scientific Community met that fact with the greatest distrust, as it seemed breaking the Supreme Energy Conservation Law. But for that moment the latter survived. However, some recently discovered and absolutely unexpected facts hardly let it withstand this time.

Imagine semi-conductor (transistor) approximated in the width of its inhibited zone to the dielectric (non-conductor). Within that inhibited zone there could be arisen some traps, which at the producing of material were orientet by the strong external electric field. The energy (potential) of such traps can be spherically unsymmetrical and looks (1-Dimentional case) like one shown for example at Fig.1.

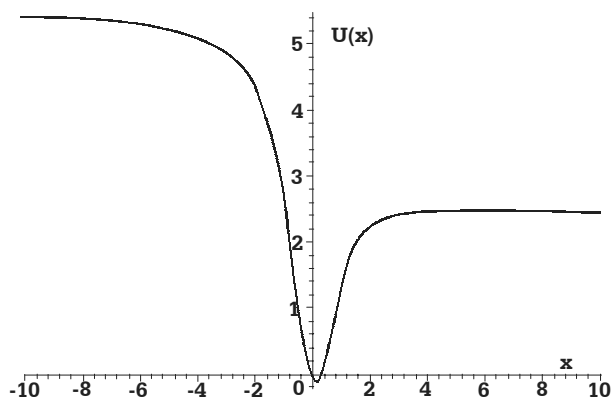


Fig. 1

The electrons' behavior in that potential well trap will bear a strong resemblance to the process inside the Correa reactor described in [1] and in accordance with Unitary Quantum Theory is submitted to some differential equation (see [2-12]). When electrons fall in such traps there the solution called "Maternity home"

can be realized. Electrons according to that solution acquire power after series of oscillations inside the trap and they leave the trap moving in one direction (to the right), in essence *spontaneously*, creating so direct current without any additional outside efforts. The idea of using such effect to create the energy sources normally arises from the Unitary Quantum Theory. The author's comprehended it far ago but worried even to speak about because of its suddenness and improbability. But today there are considerable proofs of the existence of that effect studied and utilized by Prof. Valery M. Sobolev and his group with the use of especially prepared glasses. To our regret we do not know strict scientific publications or reports of that group, but the entire fact of the creation of the inexhaustible energy source by that group is widely discussed in mass media (*Editorial: see the review on Valerian Sobolev's Discovery in "NET", #5(8) 2002, p.70).*

Let us treat these ideas in details.

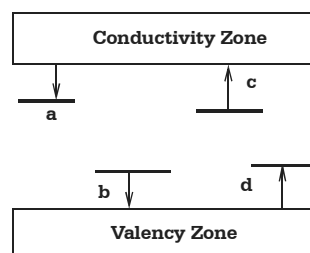


Fig.2a

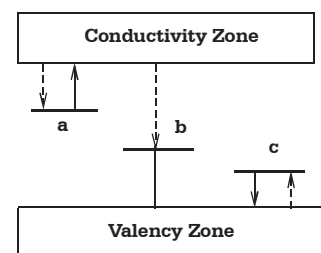


Fig.2b

Usual crystal lattice contains the formations, which break its periodicity. Here electrons' localization (capture) can occur from the conductivity zone or holes out of valency zone. Exactly these formations serve as wells (traps). They can differ by their origin: for example, alien (admixed) atoms in the lattice points or in interstitial space, vacant lattice points (Schottky



defects), atoms displaced from equilibrium positions (Frenkel defects), dislocations, micro-crystals' bounds. According to zone theory of solid state such crystal lattice irregularity are entailed with discrete levels in forbidden zones of the electronic state power spectrum (Fig. 2a). In the quantum states corresponding these discrete levels electrons are localized in the traps. Electron localization arises at its transition from the conductivity zone to the discrete level *a* Fig. 2a. Electrons transition from the discrete level *b* to the valency zone may be considered as capture of the hole by the trap (adhesion). The reverse transfer *c* and *d* – are the effects of delocalization of the electron and holes (liberation, throwing out).

The simplest model of the trap is hydrogen-like atom. If the crystal dielectric coefficient is high enough (for such glass it is  $\varepsilon \approx 10$ ), the influence of the crystal lattice electric field can be described by means of crystal polarization. In this case the binding energy of the electron inside the trap equals to

$E \approx \frac{m^* e^4}{2\hbar^2 \varepsilon^2} \approx 0.1 - 0.05 \text{ eV}$ , where  $m^*$  is efficiency mass, the Bohr orbital radius of the localized electron in primary state is  $r = \frac{\hbar^2 \varepsilon^2}{m^* e^2} \approx 5 \text{ \AA}$ . Thus geometrical

section of such trap equals about  $25 \cdot 10^{-16} \text{ cm}^2$ , as for the examining capture cross-sections their dimensions are limited within  $10^{-12} - 10^{-22} \text{ cm}^2$ . After the capture by the trap electron has two possibilities either to be thrown into the conductivity zone again or pass to the valency zone. If the possibility of electrons thermal throwing into the conductivity zone prevails, the trap is an adhesive center. In the case of predomination of the electron transmission into the valency zone, i.e. in the case when the hole capture is right after the capture of the electron, the trap serves as a center of abundant electrons and holes recombination. Similarly the trap may be the center of the holes adhesion, as it is shown at Fig. 2b. In that case the hole captured from the valency zone returns to that zone again.

The character and the properties of the trap are determined by the position of its power level or levels, if the trap is polyvalent, as well as by the effective electron or trap capture cross-sections or by the electrons and holes densities in the zones. The latter depends on the Fermi level or quasi-levels of the material. The trap may serve as donor or acceptor, center of adhesion or recombination, luminescence activator or extinguisher. Unfortunately in solid-state physics the questions dealing with these phenomena – are the mostly complicated and do not have any conventional technical terms. The energy increasing of all electrons or of their majority inside the traps and their flying out mainly in one direction requires the strong deformation of the spherically symmetrical field of the trap, as well as their definite orientation with respect to some selected direction.

Such a result may be achieved if one use as a material a special glass exposed at the stage of fusion to strong electric field. The exposition is to be stopped after total cooling only. The non-stoichiometric character of the glass (quite general situation for all glasses) results unsymmetrical character of the traps due to the different natures of the neighbor charges (atoms) surrounding the trap.

The glass as a material combines vitreous and crystal phases in either one or other proportion. It can be obtained in the process of metals' oxides and natural materials agglomeration. And in the cases of the glasses partial crystallization there are rather promising materials like glass-ceramic and glasses studied by Prof. Valery M. Sobolev group. For example, the well-known astro-glassceramic has vanishingly small linear expansion factor within quite wide range of temperatures. That means that the atoms belonging to the astro-glass-ceramics structure are positioning inside potential wells with strictly parabolic shape. It is quite astonishing fact.

We have no idea about Sobolev's glasses' technologies. From the reporters and eyewitnesses who attended at the materials production and measurements of their parameters, we know that the result mostly looked like transparent pieces resembling blue quartz (might be because of the cobalt or ferrous oxide admixture). But on the assumption of the above mentioned the said glass in the process of melting should be obligatory positioned inside the strong electric field and has to be cut off after total chilling only. It should be done for the nonequilibrium state freezing. Only then the material will contain the electron traps with strongly asymmetrical field which are oriented by electric field (like dipoles of dielectrics do while its polarization). The entire material by its nature will be similar to the well-known electrets. If positioning that material between condenser's segments (in the experiments of Prof. Sobolev the tension arose has the value up to 1500 V within 100 cubic cm of glass) it could be discharged giving useful load. The condenser will be discharged by delivering its power, but after some time (about 3-4 hours) its charge will be restored to the initial value and the process can be reproduced again and again, in principal unlimitedly.

The operational principle of that glass is the following: electrons in the traps (adhesive centers) start oscillating due to heat fluctuations and if the initial phase is appropriate for the "Maternity Home" solution, then these electrons having conducted some energy **will fly out of the traps moving mainly in one direction**. The negative charge at one side of the sample increases until the electric field arose begins to brake the electrons flying out of the trap and totally stops the process. After the condenser discharging that surplus negative charge disappears and the process can be repeated once again: after 3-4 hours electrons will be accumulated at one side of the sample and so on and so on. The ordered spontaneous motion of the electrons creates magnetic

field that was also fixed during the experiments. In fact if take quite a big sheet of such a glass with the sprayed capacitor plates there will be always direct voltage on them creating the direct current within the unlimited period of time.

We should underline that according to our point of view *the energy does not appear from the outside (gravitational, electric or magnetic fields, heat energy of the fluctuations) but is generated inside the traps from nothing* [4-6,15,16]. These are the laws of motions for the single quantum micro-particle.

The theorists of the Sobolev's group do not have any clear explanations of the exposed facts and intend to create in future "some theoretical model of the ordered structure on the basis of the theory of magneto electric effect, i.e. generation of the magnetization induced by the electric field, arising inside the dielectric crystal. The theoretical model may be created basing on the Landau thermodynamic theory of the 2nd type phase transitions, i.e. by generalization in case of the appearance of magnetization of dielectric matrix of the melt by the electric field of the charge, that is an internal parameter of the melt and belongs to the structural element of the melt". However we should note that contemporary theoretical science is based entirely on conservation laws and every logically correct corresponding analyses does not allow to obtain the results exceeding the limits of these laws. The new physical theory, the new picture of the world is required only for explanation of Sobolev's results. We propose Unitary Quantum Theory [7-14].

Let us note that standard view point terms can not explain the work of any inexhaustible energy source also by using the ideas of energy transformation adopted from the surroundings because of meeting principal obstacle once again (theorems of Carnot and circulation).

Below there is some theoretical illustration of electrons' behavior in such traps, that due to the data lack does not relate any concrete glass model.

For the illustration let us examine the motion of the electric charge inside the potential well, determined by the potential:

$$U(x) = -\arctan(x) + 2.5 \arctan(x^2), \quad (1)$$

corresponding to the diagram at the Fig. 1. The motion equation of such a particle looks in accordance with our theory like (non-autonomous variant):

$$\ddot{x} = \left( \frac{1}{1+x^2} - \frac{5x}{1+x^4} \right) \cos^2 \left( \frac{1}{2} t \dot{x}^2 - |x \dot{x}| + \theta \right), \quad (2)$$

where the particle's mass and charge as well as the Planck's constant for simplicity are considered equal to the unity. The very essential role here belongs to so

called initial phase  $\theta$ , as the solution character  $x(t)$  mostly depends on its value.

Let us examine the graph  $x(t)$  as the function of time  $t$ , obtained by numerical integration (we hardly can expect the construction analytical solution) of that equation for initial data  $x(0) = 0, \dot{x}(0) = 0.1$  (Fig.3) and initial phase  $\theta = 0.6$ .

We can see that the particle leaves the potential well (trap) after approximately  $t = 70$  units of time and after a series of the monotone increasing oscillations. We can see from the corresponding graph  $\dot{x}(t)$  that after sufficiently complicated oscillations before flying out the trap the particle velocity gains the value exceeding initial velocity  $v_0 = 0.1$  nearly 5.5 times. The charge oscillations remain in full measure that is seen from the analysis of the value  $|\cos(\frac{1}{2} t \dot{x}^2 - |x \dot{x}| + \theta)|$  as  $t$  function. That behavior of the particle is typical for the other values of the phase  $\theta$ , except some interval around the value  $\theta = \pi/2$  (that value is critical in a some sense).

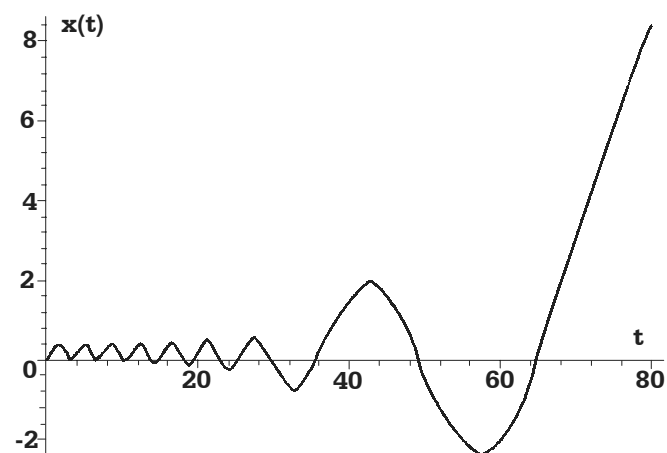


Fig. 3

If the particle motion is considered in the case of the potential

$$U(x) = -0.2 \arctan(x) + 2.5 \arctan(x^2), \quad (3)$$

(the left arm of the potential for  $x \rightarrow -\infty$  is higher then its right arm for  $x \rightarrow \infty$  merely at 0.6, that is essentially less in comparison with the arms potential (1)), i.e. the pattern of the motion is more complicated. Viz.  $x(t)$  at the initial velocity  $v_0 = 0.1$  and phase  $\theta$  within the intervals from 0 to 1.2 and from 2.0 to 3.0 continuously oscillates, at the phase  $\theta = 1.4$  electron flies out the trap after the time  $t = 250$  with the velocity  $v \approx 2.5v_0$ . At the phase  $\theta = 1.41$  we get the reverse flying out, at the phase  $\theta = 1.42$  the result is the flying out with the velocity  $v \approx v_0$ , at  $\theta = 1.46$ , i.e. flying out with

the velocity  $v \rightarrow 0$  without initial oscillation and so on. But if the initial velocity is  $v_0 = 0.5$ , then for the most part of the phases  $\theta$  lying out of the critical range around  $\pi/2$  the particle flies out of the trap with the velocity exceeding 1.2 – 1.3 times of its initial velocity  $v_0$  with velocity nearly equal to  $v_0$ , at the phases  $\theta = 0.2, \theta = 2.6$  we get the reverse flying out and so on and so forth.

In the cases when the initial velocities are between 0.1 and 0.5 we can see an intermediate patterns. Thus we can assert that the computations confirm the general tendency of the particles to fly out the potential well in one direction mainly (to the right) with increased velocity for the potential types (1), (3) and initial velocities lying in the proper intervals.

Meanwhile we are not going to comment the other numerous and highly interesting phenomena, examined with the use of these glasses.

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# New Fuelless Space Power Engineering

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## Abstract

Nowadays civilization cannot effectively obtain and transform energy. The imperfection of technologies and technics causes the progressing pollution of the environment, and, moreover, impending global ecocatastrophe. Power engineering and transport (partially cosmonautics) produce the most ecological damage to the planet. There is a limited amount of fuel on the planet; however, for energy generation more and more fuel is required. Since that the power engineering and transport are low-effective then the amount of poison toxic matters increases.

The only way out of the energy and ecological crisis lies in the research and creation of new pollution-free power engineering and qualitatively new pollution-free nonwaste technologies for obtaining and transformation of energy. The Nature is the best teacher for the civilization since it is ecologically and energy-wise perfect. In point of fact, the humanity always learns from the Nature. As first we learnt to obtain fire so now we learn to obtain pollution-free energy and electricity. This will be repeated forever. The deeper we penetrate into the essence of the Nature of our planet, the more possibilities to create better energy sources are opened. In particular, many possibilities to create new energy sources for cosmonautics appear.

## Natural Electricity of Planet

The investigations made by some scientists, and in particular by the author of this article, helped to disclose the secrets of natural electricity and some other natural phenomena. It is clear that super-power natural generators of electric energy and engines have been effectively working in the near-planet space and on the surface of the planet for millions of years. Natural electricity comes to our planet from the Sun through geomagnetic polar cusps. (The cusps are intersection points of magnetic force lines, which are located at 30-40 kilometers height above the poles of the planet). The natural plasma is caught by geomagnetic force lines, and then supplied in the ionosphere and radiation belts of the planet. Since the flow of solar wind interacts with the geomagnetosphere of the Earth then a near-planet magnetogasdynamic generator continuously works around the planet. This generator has huge power, which is inconceivable for a human mind. It generates powerful electric currents in all conductive spheres around the Earth and inside the planet. These currents interact with the geomagnetic field and generate

electromechanical rotation force of the planet and its movable mediums, for example, oceanic currents, molten magma motion inside the Earth. Therefore, our planet is not only a huge electrically charged cosmic sphere or a huge magnet but a cosmic ecologically perfect natural electric transformer (engine-generator) of solar energy. All the processes which occur on the planet and around it, i.e. northern lights, seasons change, the continuous round of all the natural phenomena, and even the rotation of the planet, are in their essence the continuous, cyclic processes of transformation of the solar power into the electromechanical and heat types of energy of natural phenomena. This mechanism of our planet is viewed in the article [1], and the physical base of fuelless cosmonautics is represented in [2].

## Physical Base, Methodology, and Prerequisites of Generation of Fuelless Space Power Engineering and Cosmonautics

Let us learn from the Nature to competently obtain and transform energy. The author of the article proposes new nonwaste pollution-free power engineering. In other words, the energy and ecological problem of the civilization is proposed to solve by means of rational technical using of a small part of the energy of natural electricity and magnetism, i.e. we should learn to connect our load units to these natural generators. This is the basic idea of the new fuelless power engineering and cosmonautics. The simplest ways of realization of this idea into practice are viewed in this article. Technical realization of nontraditional transformers of free electric energy of the near-Earth space aboard orbital apparatus is quite possible in the nearest years. It is not Utopia but the quite near reality. This new cosmonautics and new space power engineering are first proposed in Russia. The essence of this new scientific-technical branch lies in the working out and investigation of new methods and devices for using of the renewed energy of the near-Earth space (natural plasma of the ionosphere, electric and magnetic fields of the planet) to obtain propulsion force and electric energy aboard fuelless orbital space apparatus. The author of this article has already made the basic scientific-technical investigations in this area of cosmonautics. This article is devoted to the technical possibility and prospects of future applying of renewed energy of the near-Earth space for creation of the perspective fuelless orbital cosmonautics in XXI century.

## Basic Engineering Solutions of Fuelless Power Engineering

The constructions of nontraditional airborne transformers of the energy of near-Earth space differ from each other due to their types. The types depend on the types of the applied renewed energy and the aim of its applying. In this article the basic nontraditional methods and devices for obtaining of energy from the near-planet natural electricity and magnetism are enumerated and clarified by numerous figures and illustrations (See Fig. 1-5, and Fig. A-F on the cover page).

Fig. A (see the cover page) shows the reductive general structure of the energy bands of the near-planet cosmic space (view from the outer space). The ionosphere toroid located around the planet is in blue color, and the geomagnetosphere is shown as geomagnetic force lines (yellow lines). The flow of charged particles of natural solar and cosmic plasma continuously comes to the magnetosphere of the planet. It is reductively shown as light cones situated above the magnetic poles of the planet. Against this background some devices of fuelless orbital cosmonautics are shown to be around our planet, i.e. in its ionosphere and magnetosphere. In the same Fig. A the basic devices of the fuelless orbital cosmonautics are demonstrated. Up to the left from the planet a hollow magnetogasdynamic transformer of the natural plasma is shown in the ionosphere of the planet. Up to the right a conductive circuit is demonstrated in the magnetosphere of the planet, and, at last, down to the right airborne solenoid is represented. All these and other devices of the fuelless orbital cosmonautics are demonstrated in details in the individual figures (see Fig. 1-5 and the cover page).

The construction of a fuelless cable energetic system is reductively demonstrated in Fig. 1. The basic elements of this system are an outside insulating cable (4) of necessary length, chargecombining inflatable electrodes (6, 7), a board source of electric energy, for example, a solar battery (1) and/or an electric load unit (5). Position (8) is a transformer of parameters of electric energy, (9) is a satellite body, and (10) is a sphere of recombination of electric charges.

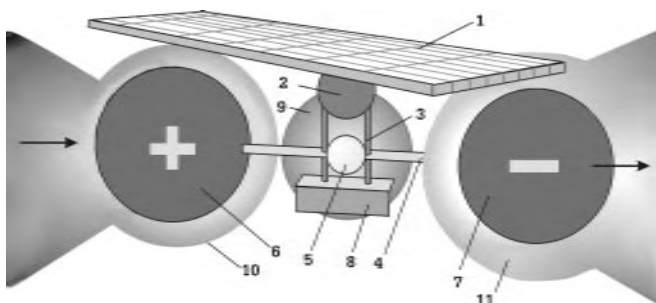


Fig.1

Orbital Cable Electromechanical System

In Fig. 2 the simplest device of magnetogasdynamic type is shown. It works on the near-planet natural plasma of the ionosphere of the planet. This device transforms the plasma into propulsion force and electric energy aboard an orbital satellite. The basic elements of this nontraditional energetic system are a solar battery (1), a hollow chamber with magnets (5), which are located at the input of the chamber in the same flat with the chamber as well as chargecombining plates (6), (7), placed in the same quadrature with magnetic force lines. Cleats (4) join electric load unit. There are also a solenoid (3), which is a concentrator of the natural plasma, a system of orientation of the hollow chamber along geomagnetic lines (it is not shown), and the very near-planet plasma (8).

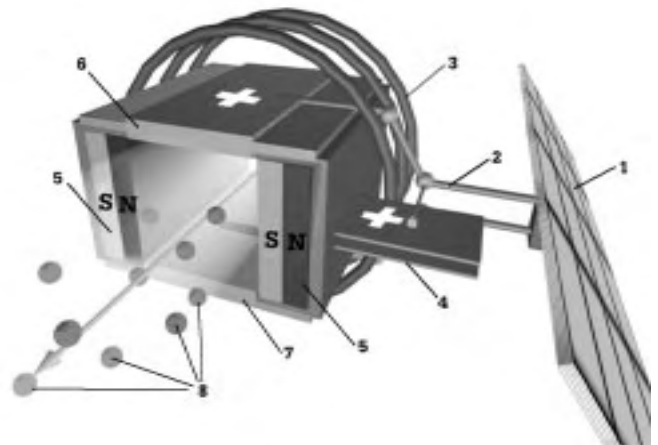


Fig.2

Magnetogasdynamic Transformer of Energy

A board solenoid, which works on the energy of geomagnetic field of the Earth, is shown in Fig. 3. It contains a solar battery (1), a transformer of parameters of electric energy (2), a solenoid coil (3), and a magnetic circuit (4). A new fuelless magnetic generator-propulsor is shown in Fig. 4. Its simplest variant is a load closed conductive circuit, which is insulated from outside. It can be designed, for example, as a metal ring (1), which is serially connected with electric load unit (2). Moreover, the device includes stiffening ribs of the construction (3) and the very orbital satellite (4). This is the simplest device for transformation of the energy of the Earth geomagnetic field into electric energy and (or) into propulsion force of a space apparatus in the near-Earth space.

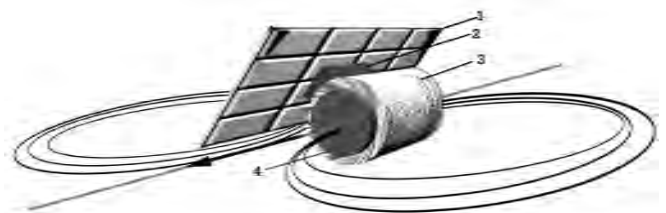


Fig.3

Airborne Solenoid in Magnetosphere of the Earth

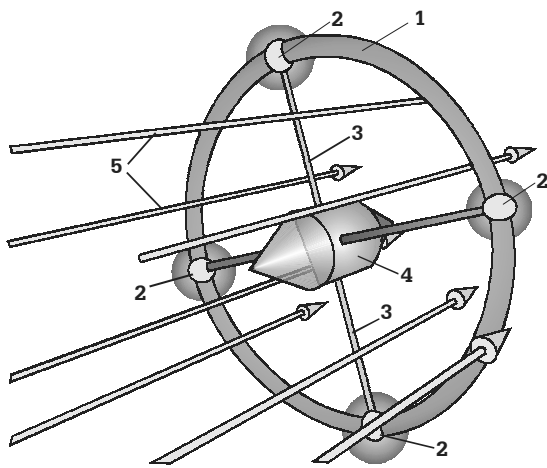


Fig. 4  
Closed Ring Current Circuit

In Fig. 5 it is shown a device, which uses electric discharge, current of a natural near-planet capacitor "ionosphere-The Earth" for electric energy generation from the ionosphere of the planet. The device, i.e. its land variant, includes an ionizer (6), which is placed on an electric isolator (7). Chargecombining toroidal electrodes (4) are located above it. They are connected to an electric load unit (3) and a grounding electrode (5), which is recessed into moist ground (2). The ionosphere is represented by the position (1). The cone of discharge of the ionosphere current at the load unit (3) is represented by the position (8). This land-ionosphere device is demonstrated in real conditions on the spot (see Fig. D, E at the cover page). In these figures separate working elements of the device can be seen in the real conditions of uninhabited highlands. (i.e. the ionizer, the load system as electric light, a power line designed for electricity transmission to remote consumers, the relative position of these elements, and discharge current which is generated by the ionosphere, and acts upon the electrodes and the load unit; at the same time the ionosphere is curved above the ionizer).

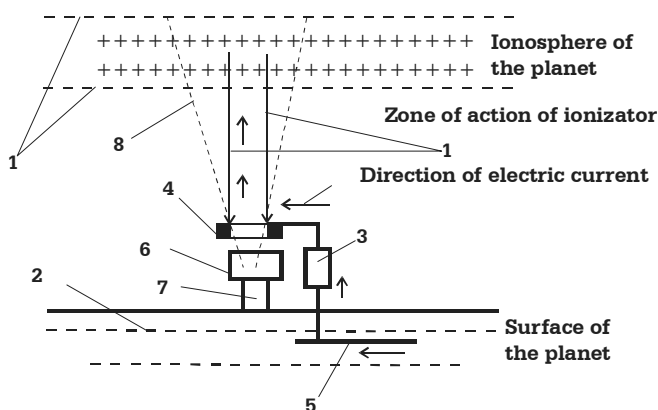


Fig. 5  
The Device of Discharging of Natural Capacitor  
"ionosphere-the Earth"

1. ionosphere (upper plate of the capacitor)
2. lower plate of the capacitor
3. useful electric load unit
4. ring electrode

5. grounding electrode
6. device, which generates ionizing emanation
7. insulator
8. band of discharge current of the natural ionosphere capacitor

In Fig. D (see the cover page) it is demonstrated the construction of a land-ionosphere electric energy station, which has one ionizer. Fig. E shows the construction of a land-ionosphere electric energy station, which has two ionizers. The general notes for Fig. D, E are given below:

1. The ionosphere of the planet represented in the band of its electric discharge;
2. The beam of the ionizer;
3. The band of electric discharge of the ionosphere capacitor, which runs by the beam of the ionizer into the conducting envelopes of the planet;
4. Ring electrodes made of high-temperature alloys;
5. The ionizer (xaser);
6. The insulating plate designed for fastening of the construction (i.e. the electrodes (4) and the ionizer (5));
7. The high-tension transformer, which is a tension distributor;
8. The insulator of the transmission line;
9. The electric cable designed for connecting of the electrode (4) to the electric load unit;
10. The mast of the high-tension transmission line;
11. The high-tension transmission line (i.e. high-tension wires);
12. The device designed for regulation of parameters of the ionizer (5) (of the incidence and power of the ionizing beam (2) of the ionizer (5));
13. The remote mast of the high-tension transmission line;
14. The insulating rods designed for fastening the electrode (4) to the basement (6);
15. The electric load unit placed in the zone of the electric energy station (for example it is shown as a system of electric lighting).

In Fig. F (see the cover page) a prospective system of global wire-free Internet is represented, which operates on cheap fuelless orbital satellites. This line of wire-free connection works at about 10-20 GHz frequencies and directs electromagnetic radiation between two remote personal computers. In a similar way a global telephone connection between two satellite telephones may be organized.

### Energy Parameters and Methodology of Natural Electricity Using

Concrete data about the natural electricity (i.e. about the concentration and intensity of the natural plasma, about intensity values of the electric and magnetic fields in the near-Earth magnetosphere of the planet,



depending on a season, time of day and some other factors) are collected and generalized by scientists and can be found in either Russian or foreign reference books, for example, [3], [4]. Panoramic vision of the essence of this mechanism was required. Nowadays this new comprehension of the processes of functioning of the natural electricity has appeared. The natural plasma should be used for energy obtaining. The natural near-Earth plasma has not been used in orbital fuelless cosmonautics until now. On the contrary, space apparatus have been prevented from it. Paradox of fuelless cosmonautics development lies in the fact that the natural near-Earth plasma has until now stood in the way of orbital cosmonautics. Nevertheless, the progressing of energy and ecological crisis, the same way as the listed shortcomings of the known orbital space engines, which are based on plasma technologies, confirm that the new ways of the plasma applying are expedient and necessary. Using of the natural near-Earth plasma as a working body in jet space propulsors would be most effective. The plasma can be most beneficially used in the near-Earth ionosphere and in the radiation belts of the planet. For example, the nearest maxima of electrons concentration are at a height of 300-1000 km. Using of the natural near-Earth plasma in space thrusters and in some other space electric technologies is prospective since it is ecologically harmless. Here are some causes why the technologies are harmless.

- The resource of the natural plasma energy and its concentration in the near-Earth space are so great that using of one thousandth of a percent of its power would meet the electric energy demands of the humanity for thousand years ( $10^{20}$  J/year). At the same time the plasma envelope of the Earth is stable even if its 10% are perturbed as at the time of magnetic storms which are caused by solar flares [4].
- The natural near-Earth plasma is continuously renewed with charged cosmic particles (mainly of solar wind), which are entrapped by the magnetic field of the Earth mainly through polar cusps (chaps). Then the plasma is speeded up to  $10^5 \pm 10^7$  m/sec by natural space accelerators.

Let us consider the basic devices of the future fuelless power engineering, which are designed for beneficial using of the renewed energy of the near-Earth space.

### **FUELLES ORBITAL COSMONAUTICS**

It is known that cosmonautics is quite necessary for the civilization; however, it demands great expenditures and is an ecologically dangerous branch of technics. There is low resource of work of near-Earth orbital satellites; therefore, it is often needed to launch carrier rockets again and again. Since that modern cosmonautics make great damage to the nature, in particular, it damages the atmosphere and ionosphere of the planet, provokes hurricanes appearance, and

wastes the near-planet space with numerous out-of-work devices and their fragments. How is it possible to increase technical and ecological effectiveness of orbital cosmonautics? How is it possible to solve the problems of cosmonautics and the energetic problem of the civilization by means of the near-planet space? This topic is discussed below.

### **Orbital Cable Electromechanical System**

Orbital cable electromechanical system (Fig.1 and Fig. B at the cover page) is placed into the ionosphere of the planet. It is directed by the radius to the Earth and located on the Earth orbit. The system contains concentrators of the natural plasma made in the form of open-worked inflatable conducting spheres (6, 7) and conducting cable (4), which has an electric load (5) (generator mode) or an external airborne electric energy source (a solar battery (1)). The essence and the principle of operating of this cable energy system are based on the effects of the natural electricity generation and the laws of electrotechnology, i.e. on Ohm's law. It is known that in the near-Earth space an ionosphere plasma magnetogasdynamic generator continuously works on the solar plasma. Its operating is based on Hall Effect, i.e. force interaction of the solar plasma, which flows around the magnetosphere of the planet, with the geomagnetic field. As a result, opposite charges are divided in all the near-planet spheres and huge natural capacitors appear. This very mechanism produces the great natural difference of electric potentials above the planet. This intensity is very high and comes to 300-500 kilovolts at 50-100 kilometer height above the surface of our planet. The electric intensity of the natural electricity decreases depending on height increase. Nevertheless, it can still be observed in the ionosphere of the planet. Therefore electric energy can be obtained by the following way. A cable, which is conducting inside and insulating outside, can be drawn beyond an orbital satellite. Then it should be directed (centered) mainly by the radius to the planet. At the same time the difference of electric potentials, which is already existent in ionosphere or in radiation plasma of near-Earth space, would be extracted at the ends of the cable.

### **Generator Mode of Cable System Operating**

Electric energy obtaining becomes possible if an electric load unit (5) is connected to the gap of this outside insulating cable (4). Electric current of the particles of the natural plasma runs in this circuit through the chargecombining electrodes (6, 7), which concentrate plasma, and through the cable (4), which has the load unit (5). This current runs due to the extracted difference of the electric potentials of the near-Earth natural electricity and to high conductivity of the cable and the ionosphere plasma. In its essence the cable system (Fig. 1) is a concentrator and a "pass" for the natural plasma. The essential of obtaining of the maximal useful effect lie in the co-ordination of the plasma resistance and the cable resistance. In Fig.1 arrows

indicate the direction, which the current runs in the cable.

### ***Moving Mode of Cable System Operating***

If instead of the load such an electric energy source as a solar battery is connected to the gap of the outside insulating cable (4) then it will become possible to change the direction and strength of the current by means of the cable (4). According to electromechanics, current strength appears when current runs in a conductor, which is placed into static magnetic field. At the same time the conductor with electric current begins to move in the magnetic field in such a way as to stand parallel to the force lines of the magnetic field. Therefore this cable can be used to produce electromechanical propulsion force. In cosmonautics it is often necessary to maintain the orbit of a satellite at maneuvering. It is very prospective to fasten this cable hardly to a space apparatus for obtaining of electromechanical propulsion force of an orbital satellite. To achieve this aim it is necessary to connect airborne fuelless source of electric energy to the gap of the cable. For example, if the potentials of a solar battery are connected to the gap of the cable then electromechanical propulsion force can be obtained aboard the orbital satellite by means of this cable (Ampere force).

It is quite possible in the ionosphere of the planet since the great resource of the natural plasma exists in the ionosphere, and, moreover, there is the difference of electric potentials in the plasma.

### **Calculations and Experiments Made on Cable System**

The made calculations of the orbital cable electromechanical system and the experiments, which were made on working models, prove the possibility of generation of electromechanical propulsion force of the cable that is caused by the interaction of the current conductor with the Earth geomagnetic field. The possible length of the cable is from tens of meters to 2-4 kilometers. The intensity of the Earth geomagnetic field is enough to compensate frictional force and to greatly accelerate the orbital fuelless apparatus, which is located at the height of from 200 to 3000 kilometers. Operating at the generator mode this cable system can ensure electric energy generation aboard an artificial Earth satellite (AES). If the several-kilometer cable is placed at the shadow side of the orbit, which is situated at about 300-500 kilometers above the Earth surface, then the generated energy may come to 30-50 kWt. The particular advantage of this nontraditional orbital cable engine-generator is its relative simplicity and cheapness. In the start state the cable and the inflatable electrodes are compactly rolled up and placed in the capsule of the orbital space satellite. It is quite easy and handy to unroll the cable at the orbit if a device for

its unrolling (i.e. the device should be like a fixed-spool reel) and inflatable constructions of chargecombining electrodes are available aboard the satellite. Moreover, the materials having rod memory should be used to produce the cable.

### ***Hollow Magnetogasdynamic Transformer of Energy of Near-Planet Natural Plasma***

The invention of this method of the fuelless cosmonautics is based on using of the near-Earth natural plasma as a working body in hollow magnetogasdynamic (MGD) transformers of energy. Methods of using of **artificial** plasma in orbital cosmonautics are known for a long time. It is used to obtain low jet thrust aboard a satellite by means of accelerating of the artificial plasma, which is produced of primary raw materials (see the analogous example in [5]). However, fuel supply is limited aboard a satellite. In the case of using of the ionosphere plasma such an engine-generator would work without time limitation. The magnetogasdynamic transformer of energy of the renewed natural plasma of the ionosphere is reductively demonstrated in Fig.2 and Fig. C (see the cover page). The device operates in the following way.

### ***Generator Mode of Operating of Magnetogasdynamic Transformer of Energy***

First the hollow chamber of this nontraditional transformer of energy of natural plasma should be placed in the ionosphere of the planet and directed along force geomagnetic lines. Permanent magnets (5), which are placed at the input of the hollow chamber, would assort the particles of the plasma according to their charge, i.e. they divert the opposite electric charges of the flow of the natural plasma (8). Then the charges deposit on the opposite chargecombining plates (6, 7). The electric load unit (it is not shown) is connected to the plates by cleats (4). As a result, the natural electricity is accumulated on the plates (6, 7), and the difference of potentials appears between them. At connecting of these plates (6, 7) to the electric load unit continuous current of these charges recombination occurs. As a result a new effective type of airborne fuelless source of energy will be obtained. Airborne electromagnet (3) will provide the hollow chamber for the concentration of the natural plasma (8). This source (Fig. 2) can be especially useful for obtaining of energy in the shady side of orbits of the Earth satellites.

### ***Moving Mode of Operating of Magnetogasdynamic Transformer of Energy***

In this variant of applying of the device electric potentials of an independent source are connected to the cleats (4). For example, these potentials can belong to a solar battery (1). Electric current runs between the plates (6, 7) and magnet force lines which are generated by the magnets (5), and passes

through the flow of the natural plasma to the hollow chamber. At the time of this process Lorentz-Ampere force appears and accelerates this plasma in the chamber. The strength and direction of this acceleration of the plasma depends on the strength and direction of this current. As a result the hollow chamber obtains the required impulse of propulsion force. The value of this impulse of propulsion force is variable and depends on the current strength, parameters of the natural plasma and the magnet field.

In prospects the applying of this system will allow cosmonautics solve the energy and ecological problems and precipitate the creation of mobile fuelless space orbital transport.

This hollow MGD-system was tested by means of working physical and mathematical models of real operating of the system. The tests were made at different height points in the ionosphere of the near-Earth space. There were made calculations of concentration and intensity of the ionosphere natural plasma as well as parameters of such a compact airborne MGD-transformer. Laboratory experiments were made on working models. All these demonstrate working capacity of the device. Moreover, it appears to be possible to compensate frictional force of an orbital apparatus by using of the ionosphere natural plasma in the wide interval of altitudes of orbital space apparatus (i.e. in the interval from 200 km up to 36000 km above the planet where there is the geostationary orbit of the apparatus). At generator mode it is possible to obtain electric energy aboard a fuelless satellite. The amount of this obtained electric energy can come to the interval from some watts to many tens and hundreds of kilowatts. It depends on the design parameters of the device and presence of concentrators of the natural plasma.

#### **WAYS OF USING OF RENEWED ENERGY OF GEOMAGNETIC FIELD OF THE PLANET**

As it has been already proved, the planet geomagnetic field, i.e. the magnetosphere of the planet, extends in the outer space for the distance, which is more than 10 radiuses of the Earth. The density of this field energy on the busiest routs of the near-planet space is quite enough for beneficial using of the energy. Electromechanical propulsion force and electric energy can be obtained by an electromechanical method aboard such fuelless electromagnetic orbital satellites. Two basic methods for using of great energy of the magnetosphere of the planet by the fuelless orbital cosmonautics are clarified below.

##### ***Airborne Solenoid in Magnetosphere of the Earth***

There are proposed new methods and device for fuelless maintaining and change of the mechanical trajectory of an AES, which is located at the near-polar near-Earth orbits. The method lies in force interaction between

airborne electromagnet and the geomagnetic field of the planet (Fig.3). The device contains the airborne electromagnet (3, 4), a fuelless source of electric energy, for example, a board solar battery (1), and a switch-regulator (2) of electric current which runs through the winding of this electromagnet. A system of orientation of the satellite in the Earth geomagnetic field is also necessary for effective control of the trajectory of this satellite. The essence of the effective force interaction between the orbital airborne electromagnet and the magnetic poles of the planet lies in heterogeneity of the geomagnetic field by latitude and longitude round the planet. The main point of the invention is the producing of cyclic electromagnetic force interaction of this AES with the Earth geomagnetic field. This interaction is obtained by means of cyclic switching of polarity and by change of current strength in the windings of the airborne electromagnet, which is powered by aircraft solar photo battery.

The advantage of this device consists in designing of a new fuelless near-polar space propulsor by means of using of the renewed energy of the Sun and the electromagnetic energy of the geomagnetic field of the planet that generates the impulse of propulsion force of the orbital satellite. This electromagnetic energy of the geomagnetic field of the Earth is enough to compensate the frictional force of the AES on this orbit. It is also enough to continuously maintain this AES on the polar orbit and other orbits, which are close to this one. The device can also be used either to do a fuelless maneuver of the AES on the polar orbits of our planet (as well as near other planets, which have their own magnetic fields) or to be an accelerating propulsor for interplanetary apparatus.

It is possible to maintain the trajectory of such a nontraditional orbital AES and regulate it in relatively wide limits due to using of the renewed electromagnetic energy of the geomagnetic field and solar energy. In this case the process will not demand any consumed fuel or electric energy of aircraft storage battery.

Such a fuelless orbital propulsor will allow realize in practice the cyclic electromagnetic force interaction of this airborne magnet, i.e. electromagnet (solenoid), with the geomagnetic field of the planet. As a result it becomes possible to design a long living "perpetual polar Earth satellite" which polar orbit height can be changed. The solenoid could be powered with electric energy by different nontraditional ways, for example, with free electricity generated by a solar battery. Since current direction is cyclically changed in the solenoid then it is possible to ensure the acceleration of the orbital satellite on its primary orbit, i.e. to realize in practice a fuelless maneuver in the outer space. It becomes possible since airborne solenoid generates monodirected electromagnetic force, which is directed in turn to each of the magnetic fields of the planet. The power of the electromagnet should be switched off when the satellite passes through the band of the planet poles. Then it should be switched on again after some



period of time or at the period when the satellite makes angular motion on the orbit.

This device allows accelerate the orbital speed and change the polar orbit of the satellite. Thus it can be possible to overcome the Earth's attraction and go to the outer space. Basically, such a solenoidal propulsor can be used at men-tended landing of a space apparatus in the zone of the magnetic fields and magnetic anomalies of the planet. In these conditions it will work as a device for electromagnetic deceleration of speed of the space apparatus. Calculations made according to mathematical models of such devices and laboratory tests of working models prove that this technical proposal is realizable and prospective in almost every part of the near-Earth geomagnetosphere.

#### **Closed Ring Current Circuit in Magnetosphere of Planet**

The closed ring current circuit is reductively shown in Fig. 4. The device is rather simple and consists of a closed wire circuit (1), which has an electric load unit (2). Some elements of the construction are demonstrated in Fig 4, in particular, stiffening ribs (3) and a transformer of electric energy (4). The principle of operating of the device is based on using of the renewed energy of the geomagnetic field within the limits of the magnetosphere of the planet. The movable circuit should be placed within the limits of the magnetosphere of the planet and fastened aboard a fuelless orbital propulsor. This simplest device operates as a reversible electromechanical transformer of magnetic energy of the planet into electric energy or even into break rod that depends on its purpose. When the circuit crosses geomagnetic force lines electromagnetic induction appears inside it and causes electric current appearance inside the circuit. This circuit also allows realize moving mode, which can be used, for example, for fuelless correction of the space apparatus position. Moreover, electric energy can be obtained by the interaction of this current circuit with the magnetic field of the planet. If the circuit is superconductive then the generated current may be rather strong and run for a long time. This current circuit may be most beneficially used to obtain electric energy in the shady side of the orbit of fuelless space AES.

#### **OTHER PROSPECTIVE COMBINATIONS OF DEVICES OF NONTRADITIONAL FUELLESS POWER ENGINEERING**

It should be noted that if these above-listed devices are rationally combined, i.e. some of them are used at moving mode and the others are used at generator mode, then cosmonautics can be maneuverable without any fuel aboard. It is in future prospects to refuse expensive bulky and unreliable solar batteries. It is expedient to combine these above-listed methods and devices in real fuelless orbital propulsors. For example, it is expedient to use airborne solenoid for obtaining of the impulse of propulsion force; at the same time it is

expedient to use MGD-transformer of energy of the Near-Earth natural plasma.

It is quite advisable to combine these devices in the other way for making an accelerated and (or) large-scale maneuver from one orbit to the other one, and for quick orientation of a fuelless orbital space station. For example, it is quite useful if the airborne solenoid, the cable and the hollow MGD-propulsor running on the natural plasma, would be combined and simultaneously operate aboard a space apparatus. In this case the airborne solenoid and the hollow MGD-transformer of natural plasma will work as engines that are powered by the cable energy device, at the time of a maneuver. At the same time the cable and the solenoid can be used as propulsors, and the MGD-transformer can be used as a generator of electric energy. In this case the life ability and maneuverability of a satellite increase.

#### **Using of Great Renewed Energy of Natural Near-Earth Electric Capacitors in Orbital Cosmonautics**

There are two near-Earth capacitors near the planet. The first one is located between the ionosphere and the surface of the planet, and the other one is between the radiation belts of the planet.

#### **Method of using of the energy of the natural electrocapacitors between the plates of the radiation belts of the planet**

The aim of the proposal is beneficial using of a small part of the great discharge electric energy of this near-planet capacitor, which is aboard a fuelless orbital satellite. The satellite is placed at the height of about tens of thousands of kilometers above the planet. This aim can be achieved by the following way:

- First it should be made the circuit of electric discharge of the capacitor plates. Unlike charges of current of discharge of the capacitor plates run by an ionizing ray, which comes from the ionosphere and the electronosphere of the Earth radiation belts (ERB). These charges concentrate current of discharge by means of directed irradiation of these plates. The irradiation is generated by airborne ionizer, which is placed aboard a space power station (SPS) located inside the ERB. The ionizer is powered by solar batteries;
- The electric circuit of concentrated charges of the ionosphere and electronosphere of the ERB should be closed by conductive ray of the ionizer on the airborne load unit, for example, on ohmic resistance;
- The difference of potentials of this natural capacitor, is transformed on special electrodes into, for example, electromagnetic waves of required frequency and phase by means of an electromagnetic oscillator, an ionizing xaser, and microwave generator;
- Electromagnetic waves of the mentioned intervals are directly emanated by transmission devices onto

certain objects, for example, land receiving antennas.

- Then on the Earth this energy of electromagnetic emanation of the outer space is transformed into electric energy of required parameters;
- The electric energy of the ERB discharge is transmitted as a directed electromagnetic emanation onto space and other objects, which are located out of the direct electromagnetic connection with SPS. For example, the energy can be transmitted by means of three geostationary energy retransmitters, which provide covering of almost 100% of the Earth surface.

In conditions of generation of electric energy aboard an orbital AES it is rational to supplement this device with a transmitting antenna, which is designed for transformation of the difference of potentials extracted on the mentioned electrodes into electric energy of continuous and alternating current of required parameters. It can be realized aboard the SPS by means of a low-frequency inverter (i.e. a sort of electromagnetic oscillator) and transforming-rectifying device. The concentration of electric charges in the zones of the ERB discharging can be additionally realized in practice by airborne magnetic traps. (It is shown in Fig.2)

### **Powerful Space Energetic Complexes**

Since the concentration of energy obtained aboard SPS is limited by the size of the constructions then the above-listed fuelless space power stations do not allow design powerful energy complexes, which would be able to meet electric energy demands of the civilization on the Earth. It is quite another matter if land-ionosphere energy complexes are designed. In this case a fuelless power station can be of great size, and the concentration of energy removal from the ionosphere to the Earth that is realized by means of the ionosphere discharging by an ionizing ray, can come to thousands of megawatt. This project is viewed in more details below.

### **Method of Using of Energy Generated by Ionosphere Capacitor**

A great natural "reservoir" of natural electricity exists in the near-Earth space. It is produced around the planet as a powerful electric capacitor with plates of "ionosphere-Earth surface". This near-Earth capacitor is naturally powered by solar plasma. A natural MGD-generator running on natural plasma operates in this space and recharges the plates of the capacitor. The power of this generator is huge and many times exceeds the total power of all the power stations in the world. Paradox lies in the fact that sometimes this natural near-planet electric capacitor is simultaneously discharged at the time of anomalous natural phenomena, which occur in different parts of the planet, for example, at numerous thunderstorms, cyclones, hurricanes, and

earthquakes. This discharging is useless and sometimes even dangerous. Nevertheless, it turned out that this great renewed energy can be used more beneficial. Simple and effective methods of its discharge by a useful load are proposed. Electric energy can be generated either on the Earth or in the outer space by these methods. It is necessary to organize a regulated discharge of the plates of this capacitor by a useful electric load to achieve this aim. The proposed method of using of the renewed energy of this generator to meet the demands of world power engineering is based on the simplest principles of electrical engineering and electrical power engineering. These are the principles of connecting of parallel load units to a source of electric energy. The partial regulated discharge of this ionosphere capacitor is ecologically safe since it constantly occurs in real nature. Since that a part of the discharge energy of this natural capacitor can be used to obtain electric energy in a land load unit.

### **Powerful Fuelless Land-Ionosphere Power Station**

New energy sources of this type, which are proposed by the author of this article, are reductively demonstrated in Fig. 5 and Fig. D, E on the cover page. The land-ionosphere variant of the device (Fig.5) contains an ionizer (6), which is placed on an electrical insulator (7). Tore-shaped chargecombining electrodes (4) are placed above the ionizer. They are connected to an electric load unit (3) and a grounding electrode (5), which is recessed into moist ground (2). The ionosphere is represented by a position (1). The cone of current discharge of the ionosphere at the load unit (3) is represented by the position (8). It is expedient to use a xaser as a source of ionizing emanation.

To realize such a powerful fuelless land-ionosphere EPS (Fig. 5, D, E) in practice on the Earth it is necessary to connect one end of a useful electric load to the ionosphere by an ionizing ray and safely ground the other end of the load or place it into a natural electrolyte, for example, into the World Ocean. At the same time the ionosphere is positively charged relatively to the planet surface. The ionizing ray is either directed from the Earth surface to the ionosphere or, quite the contrary, from the outer space to the Earth.

Let us describe this device operating according to the reductive scheme (Fig.5), i.e. its land-space variant. First the directed ionization of the atmosphere is generated by the ionizer (6) from the Earth surface. The atmosphere is ionized up to its upper stratus and ionosphere periphery (i.e. about 20-30 kilometers above the planet surface). The intensity value of these natural plates (1) of the ionosphere capacitor is huge relatively to the intensity value of the planet surface (i.e. about 300-400 kilovolts). Since that the process of ionization of the atmosphere is finished soon by a still glow or corona discharge of the ionosphere potential, which runs to the electrodes (4) and to the grounding electrode (5) by the ionizing ray. The ionization source may be switched off after a reliable electric breakdown of the ionosphere

onto the load unit and after generating of the cone (8) of current discharge of the ionosphere onto the Earth. Then, depending on the increase of the discharge current of the ionosphere capacitor, the electric load unit (3) should be connected in parallel to the electrodes (4). The required load current is gradually extracted due to regulating of the load parameters. At the same time the load unit has maximal resistance. Thus, the ionizing ray generated by the ionizer (6) produces a conducting canal (8) of the ionosphere (1) discharge, which leads to the conducting stratum of the Earth (2). The conducting canal passes through the grounding electrode (5), the electrode (4) and the useful electric load unit (3). It is possible to create such a nontraditional power station due to the great resource of electric energy of the natural near-Earth capacitor, which is continuously naturally renewed by the natural ionosphere plasma and the solar wind.

This method and device can provide with electric power a separate power consumer (of hundreds of megawatts power). Power removing can be regulated by regulable load unit. The whole civilization can be also supplied with electric power on condition that these devices would be placed in deserted uninhabited places and do no damage to the environment. The intensity of electric power, which is removed from the ionosphere, is maximal in winter since the flow of solar wind directed to our planet is maximal in this period.

#### **Methods of Using of Ionosphere Natural Electricity**

It is most expedient to transform current discharge energy into heat by electrical heating of water reservoirs. Super-power steam generators should be used as load units to obtain heat energy of steam from discharge energy of the ionosphere capacitor (Fig. 5, D, E). Powerful currents of the ionosphere discharge are passed through these steam generators. The obtained steam can be used according to a certain purpose, i.e. for heat supply of cities, for obtaining of electric power by means of traditional steam turbines and heat power stations. The more rational method is to transform electric energy, which is at a load unit, into electric energy of standard parameters. It can be realized, for example, by means of powerful high-voltage frequency transformers (inverters); however this method is technically more complicated.

The method and devices have yet been examined only in laboratory environment. This type of devices of useful discharge of the capacitor has already been investigated by the author of this article on working and mathematical models. The calculations and experiments show that this method of electric energy obtaining from the natural electricity is ecologically appropriate and can be an alternative to the existent methods of traditional electric energy obtaining. Moreover, in prospects this method can be effectively used to control the weather and the climate of the planet.

#### **Weather and Natural Phenomena Control**

It is useful to revise the physical essence of anomalous natural phenomena to understand the way, which can be used by the new nontraditional power engineering to control these natural phenomena [1].

Earlier it was investigated and proved that the physical essence of many anomalous natural phenomena lies in electromechanical transformation of energy excess of natural electricity into mechanical or heat energy of cyclones, hurricanes and earthquakes [1]. The ionosphere of the planet is arranged in such a way that it can hold just a certain amount of charged particles of the natural plasma. Therefore, it disposes of energy excess through the atmosphere and (or) transmits its electric and electromagnetic energy into the Earth at the time of magnetic storms. Thus, the excess of the natural electricity is a starter of these anomalous natural phenomena and, at the same time, it serves as an energy source for them. Underground capacitors become excessively pumped with natural electricity; and it causes earthquake. It occurs at the moment of an electric breakdown of plates of natural underground capacitors that is accompanied with huge energy release as an electrohydraulic underground shock. A powerful and wide breakdown of the ionosphere directed to the Area of water of the World Ocean causes hurricane. The breakdown causes the strong vortex of ionized air and ionized sea-water which, according to the laws of electromechanics, is produced by Ampere force. Therefore the aim of the new power engineering lies in the necessity to usefully remove the energy excess of the near-Earth space into a useful load unit. The process must occur under human control. For example, according to the scheme of the device (Fig.5, D, E), by using a part of energy of the natural electricity and magnetism, especially the excess of this energy, it is possible to control the weather of the planet in order to achieve beneficial aims rather than destructive ones. It is needed to artificially provoke the breakdowns of the ionosphere for the appearance of cyclones and precipitations in certain points of the World Ocean of the planet. The climate of the planet can be regulated and many anomalous phenomena can be prevented by this method [2]. For example, magnetic storms, earthquakes, hurricanes and other anomalous phenomena can be prevented.

In brief, it would be enough for natural phenomena control to stabilize the strength and value of the resource of the natural energy in the Earth magnetosphere, which is continuously renewed by the Sun. This aim can be achieved by means of transmission of the energy excess of natural geoelectricity and geomagnetism of the near-planet space to the Earth. This energy can be transmitted as directed electromagnetic emanation by the described above special energy systems. For example, the climate control can be realized in practice by means of transmission of electric energy of the natural near-planet generator from special space

transmitting antennas of satellites-transformers (Fig. 1-5, Fig. D, E) directly to receiving antennas of the Earth.

### Basic Areas of Applying and Advantages of New Space Energy Systems

1. **Fuelless cosmonautics and familiarization of the outer space.** It is ascertained that the great renewed electric energy of the moving charged particles of the natural plasma is concentrated in the magnetosphere of many planets, i.e. Mars, Saturn, Jupiter, Io, and renewed by the Sun. This energy has not been used until now. Since that it is really possible to use the devices, which are described above, in the ionospheres of other planets and the ionosphere of their satellites. This new power engineering is quite realizable; and this fuelless manned orbital cosmonautics would greatly reduce the expenditures for the familiarization of the outer space.

#### About the author



Valeriy D. Dudyshev was graduated from Samara Technical University in 1974, where he studied electromechanics. He successfully finished post-graduate course, defended his thesis for Doctor's degree on the subject of nontraditional power engineering. Nowadays Valeriy D. Dudyshev is a Professor of Samara Technical University and a Corresponding Member of Russian Academy of Science (Ecology).

He has already published more than 300 articles and reports. He is the author of a great number of interesting inventions of different spheres of technics; about 200 of them are registered (i.e. he has copyrights and patents).

Valeriy D. Dudyshev is the founder of new scientific branches in **Global Ecology**. It is a new theory, which explains all the natural phenomena by means of electromagnetism and natural electromechanics. Moreover, the interrelation of these phenomena has been discovered. The methods of natural phenomena control (in particular, of prevent of hurricanes, earthquakes, volcanic eruptions), new ways in cosmonautics (fuelless orbital cosmonautics) are proposed. A new electric fiery technology of pollution-free burning of matters in blame, methods of burning control and contactless extinguishing of flame are worked out.

2. **Solution of Global ecological problems.** Applying of renewed energy of the natural electricity and magnetism to meet the demands of cosmonautics and power engineering would greatly amend the global ecology of the Earth. Since it is not necessary to often launch rockets and to burn rough materials

and fuel on the planet then the harmful effect of cosmonautics and the whole planetary power engineering will be decreased.

3. **Cheap and fast-acting world-wide space communication.** The fuelless orbital cosmonautics allows greatly reduce expenditures for all the systems of space communication and telecommunications and increase fast-acting of the systems. For example, the simplest wire-less fast-acting system of communication, which can be realized in practice by two or more fuelless orbital satellites, is demonstrated in Fig. F (see the cover page). It is possible to produce wire-less two-way Internet, which can operate without telephone cables, and satellite telephone connection. Such communication has direct access for customers and is realized due to the "perpetual" Earth satellites.
4. **Weather and many natural planetary phenomena control.** It is possible to eliminate or decrease strength of many planetary natural phenomena. (See the part of the article cited above).

It becomes possible and prospective to create the new pollution-free fuelless power engineering and the fuelless orbital cosmonautics due to beneficial using of small part of energy of the natural sources of electric energy of the near-Earth space, which is renewed by the Sun. As a result the ecology of the Earth would be amended. Basing on this space power engineering and fuelless cosmonautics a revolution will occur in all the systems of information transmission. The systems will become wire-less and cheap to use. In other words, using of these systems will become cheaper, and their fast-acting and carrying capacity will increase. Nowadays just telephone lines impede the progress of development of the systems of communication. The fuelless space power engineering will allow prevent many anomalous natural phenomena and cataclysms. Thus, the new space power engineering and fuelless cosmonautics clear new ways for the humanity progress.

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# Electrodynamic Explanation of Ball Lightning

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**The author of this article demonstrates that ball lightning is self-closed longitudinal electromagnetic waves. Ball lightning is considered as self-closed alternating displacement current, which produces air luminescence (electroluminescence).**

*"These facts bring out clearly that ball lightning can generate electric currents. ... Ball lightning explosion makes the impression of electric discharge upon many people, especially upon competent observers. ... Physiological action of ball lightning as usual lies in electric trauma." [1].*

Thus, all facts prove that ball lightning as well as streak lightning is electric current, i.e. ball lightning is self-closed alternating displacement current (according to electrodynamics, current is always self-closed).

*"For some seconds it was quiet then from the receiver there was heard some growing rustle gradually turning into boom. The receiver had to be turned off, but hissing and acute crackle was already heard from the direction of the river. Looked out the tent Dmitriev saw a ball lightning which was slowly moving above the river in the direction of the tent." [1].*

Appearance of radio-interference is the real confirmation that ball lightning is electric current because chemical reactions cannot produce such interference.

The properties of both streak lightning and ball lightning are well-known, therefore basing on electrodynamics it is possible to imagine electromagnetic processes proceeding inside them.

In Nature self-closed alternating displacement currents (**self-closed longitudinal electromagnetic waves**) can be observed as luminescent spherical formations at thunderstorm. Great alternating (high-frequency) displacement current gradually heats up ambient air, generating luminescence of the ambient air. This can lead to such electric breakdown as an explosion (flap). These self-closed displacement currents can put electrical appliances out of operating; in addition, contacting with these appliances a human can be rushed with electric current. At thunderstorm prebreakdown displacement current flows before streak lightning. It is polarization current which is invisible before the moment of breakdown. This displacement current value is comparable with the value of current inside lightning. If the lightning changes its direction, for example, branches out, then "gaped" displacement currents close themselves, as

currents are always self-closed, and can produce air luminescence (prebreakdown processes).

*"Current strength value in the basic discharge of lightning reaches tens and hundreds thousand of Amperes." [2].*

*"...energy content enclosed in the ball lightning of an average size, probably, comes to 20-50 kJ." [1].*

For example, if the radius of self-closed cyclic displacement current is 10 cm, and the current strength is 50 kA, then the magnetic energy of current is about 30 kJ.

*"...some canals were crossed in the point of branching. After the discharge was stopped a luminescent sphere remained in this place, ..." [1].*

*"...a sphere, which glows as excited nitrogen atoms do." [1].*

*"Seemingly, rain drops which fell onto the lightning, evaporated, because a steam was going up from it. It was heard hissing which resembled sounds of electric welding. Then the sound became higher; the lightning was exploded with loud flap and disappeared. At that it fell to cascade of small sparks." [1].*

After the ball lightning stopped, air was gradually heated due to polarization current, and the electric breakdown occurred. Self-closed alternating displacement current changed into conduction current. This phenomenon can be observed at contact with conducting objects. Ball lightning representing displacement current can come through the solid dielectrics of small thickness, for example, through thin glass. If lightning is not exploded, i.e. the electric breakdown does not occur, then displacement current gradually becomes decaying. At the same time the excitation and ionization of air atoms decrease, effect of waveguide for self-closed longitudinal electromagnetic wave disappears, and displacement current is dispersed in the space.

*"The sphere changed its colour from scarlet to garnet, then a dark stain appeared in its centre and, at last, it disappeared." [1].*

*"If non-linear dielectric or plasma are irradiated with powerful electromagnet waves then self-sustaining dielectric waveguides can be generated inside these mediums, ..." [4]*

Displacement currents have magnetic energy, i.e. self-closed alternating displacement current has alternating magnetic field, and therefore attraction can appear. It follows from observations that this character of attraction can be produced only by electromagnetic interaction.

*"Maxwell attributed to displacement current just the ability to produce magnetic field in ambient space." [3].*

*"Then the ball lightning was attracted to a central heating radiator and disappeared with acute hissing having fused cross the 3-4-milimeter thickness metall of the radiator." [1].*

*"Suddenly the sphere was abruptly attracted to an oak which was in several meters from observers. A metal hook fixed on a long wooden handle was leaned against the oak. Having raised the sphere struck the hook. A blinding flash appeared, and something like the canal of average lightning was generated between the hook and ground. The extensive cascade of sparks fell, and the sphere disappeared. ... the hook was much fused, some streaks of as-fused metal appeared on it, the edge was fused at all and turned into a shapeless cone." [1].*

*"These fusions take place only in the case of direct contact with ball lightning, and are the evidence that at this contact the great amount of energy can be generated. They do not prove that lightning matter has high temperature value. The proof of this is the fact that in many cases when metallic parts of an object were much fused, non-metallic parts were remained untouched." [1]*

Thus only if displacement currents are changed into conduction currents that can occur in a conducting object then the object is fused, since displacement current, in contrast to conduction current, is not accompanied with heat generation but only produces magnetic field.

Displacement electric current as well as conduction current can be direct or alternating. For example, if bound charges of a dielectric displace to one side and then to another side then it is alternating displacement current. If displacing like-sign bound charges are in circular motion then it is direct cycle displacement electric current. Electric currents are always self-closed, i.e. if conduction current is broken then it is closed with displacement current, and vice versa, if displacement current is broken it is closed with conduction current. Conduction current is always accompanied with certain displacement current; therefore net current is equal to the sum of conduction current and displacement current. Displacement current, in its part, can exist without conduction current, for example, as vortex electric field.

*"Net current, which is equal to the sum of displacement current and conduction current, is always self-closed." [5].*

Thus net current is self-closed even if there is only displacement current (without conduction current), for example, as vortex electric field. Displacement current was observed in free state (without conduction current) in many experiments. All known experimental results prove that in free state displacement current is always self-closed, i.e. run in closed cycle. For example, if self-closed displacement electric current runs in transverse electric wave then its effective radius is  $r = \lambda / 2\pi$  if  $\lambda$  is the value of electromagnetic wave length, i.e. the orbit is equal to wavelength.

It is useful to remember that displacement current (invisible before the moment of breakdown) as well as conduction current participates in the generation of any lightning. This displacement current may become apparent as ball lightning. All properties of ball lightning are explained by the properties of prebreakdown self-closed alternating displacement current. Streak lightning is conduction current, ball lightning is displacement current. In streak lightning current runs straightly, in ball lightning it circles. Ball lightning is the visible proof of the fact that displacement currents exist in nature along with conduction currents. According to the laws of electrodynamics, these displacement currents in free state are always self-closed. In other words, natural electric phenomena (celestial electricity) could be explained by electrodynamics and there are no causes to consider them, because from the point of view of electrodynamics it is an average electric phenomenon as well as streak lightning. The uncommonness of the phenomenon lies in the great strength of displacement current that generates air luminescence (electroluminescence). Thus, it is possible to defend against ball lightning action by means of metal screens. Contacting with a conductor, displacement current changes into conduction current, and ball lightning disappears. Ball lightning has energy and is a rather stable field form of matter. As all energy (mass) of ball lightning is field one then it practically does not have weight value.

*"It emits light as a heated body, but at the same time it practically does not radiate heat. Its movement almost is not connected with gravity, which usually determines the movement of bodies which surround us." [1].*

Longitudinal electromagnetic waves (as alternating displacement currents) are applied only for energy transfer in waveguides as yet. The mechanism of producing and keeping of longitudinal electromagnetic waves is known. Therefore, the familiarization with self-closed longitudinal electromagnetic waves can lead to, for example, to production of "vacuum storage (accumulator) of energy" designed for energy accumulating in the form of the excited state of vacuum (field). In this case even the great amount of accumulated energy will have very minute weight, according to the expression of  $W = mc^2$ . Vacuum is an "ideal conductor" for displacement current. If the whole

lengths of waves are confined to orbits (in-phase wave movement is Bohr's orbits) then emanation does not occur. For example, if it is possible to accumulate and emanate "bunches" of electric energy as impulses then it will be possible to fuse or weld conducting objects from great distance. Displacement electric current does not radiate heat before changing into conduction current.

*"Displacement current, in contrast to conduction current, is not accompanied with heat generation."* [2]

The properties of longitudinal electromagnetic waves are viewed at the author's website <http://alemanov.da.ru>

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## NEW BOOKS!

### The Foundations of Physchemistry of Microworld

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The new axiomatic of natural sciences is given in the book; on its basis, quantum physics and quantum chemistry have been returned to the classical way of development. The first steps are made on this way, which have led to discovery of the structure of the photon, the electron, and the principle of the formation of the atomic nuclei, the atoms and the molecules.

The Planck's Law of radiation of perfect blackbody is given on the basis of classical concepts, and the connection of quantum phenomena with the laws of classical physics is proved. The application of the new theoretical results to the solution of practical energy tasks on the basis of plasma electrolysis of water is shown. Due to this electrolysis, additional heat energy generated as well as hydrogen and oxygen are the energy containing gases. Cold Nuclear Transmutation of the atomic nuclei of alkaline metals and the atomic nuclei of the cathode material takes place during plasma electrolysis of water.

**The book is intended for physicists, chemists and other specialists who are seeking the new directions for understanding the foundations of the microworld and the new energy sources.**

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### Mysteries of Electromagnetism and Free energy

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In the new book written in an easily understood, popular manner, there is the review of the serious crisis of modern fundamental physics. This very crisis of fundamental physics, and especially of our knowledge about electromagnetism laws of the environment, has caused the situation when the most of electromagnetism phenomena of our reality seem to be strange. The limited nature of our knowledge about the reality becomes obvious when we face with so-called anomalous phenomena. Moreover, some representatives of the official science declared this field of knowledge about anomalous phenomena to be a pseudoscience. To make this actual problem clear, the second part of the book is devoted to such things as free energy generators, perpetual motion machines, antigravitation, and the official academic science attitude to the problem.

The author makes an attempt to give the theoretic explanation of the phenomena and prove the baselessness of the conclusion made by modern science about the impossibility of the already existent free energy generators, antigravitation systems, perpetual motion machines and other similar things. All these and similar to them energy systems and generators, as well as anomalous phenomena and UFO, have all rights to exist both from the philosophy and science points of view.

To show the possibility to realize these still fantastic for the mankind projects, the author offers vivid descriptions of just the small part of all existent devices (*in the review there are devices and designs of nearly 70 authors and inventors from all over the world!*). Actually the number of the devices is much more. Authors and inventors of different ages and professions continue to make new experiments contrary to the official academic science prohibition in order to penetrate into the unexplored mysteries of the environment.

# Nature of Torsion Fields

V.V. Uvarov

<http://www.madra.dp.ua>

*It is the greatest truth that compiled and disembodied facts come to harmony if a hypothesis is put on them*

after Herbert Spenser

*It can be undoubtedly affirmed that every well-known physical phenomenon originates from the depth of matter; therefore we should look for the causes and laws of phenomena neither on matter nor among matter but in the most inaccessible for our perception areas of matter...*

A. Chizhevskiy "Problem of Matter"

## Torsion Field and Its Spin

Nowadays torsion fields are widely discussed. On their basis the newest scientific theories are composed; by their means diseases are treated; metals with unusual qualities are produced. Experimental science has accumulated rather extensive information about the display of these fields. Nevertheless, there is still no rational explanation of their nature.

One of the first attempts to give the only explanation of torsion field was made in "Physical Theory of Vacuum". The creators of this theory offered to consider the torsion field as generated by spin, that is some quantum-mechanical magnitude. According to quantum mechanics, every elementary particle has a spin whether it is an electron or atom. If the spins of elements, which constitute one or another material form, have some primary direction then it can be said that the subject is *spin-polarized*. Such a *spin-polarized* form creates Torsion, Axion or Spinor field (the name is depended on individual preferences). Nevertheless, in the present time nobody knows exactly what spin is. There is an opinion that spin is connected with the angular moment of particles, i.e. with their rotation. However, this idea is contrary to such postulates of theoretical physics as the postulate that matter cannot move at super-light speed. Let us illustrate the postulate. In physics atoms and other material particles are accepted to be shown as little sphere bodies, i.e. bodies, which have real mass and volume. (Probably, there is some sense in the heart of this idea). These bodies rotate on their axis. The angular velocity of rotation of the bodies increases as their geometric size decreases. The angular velocity of rotation of some atoms and elementary particles is equal to the light speed. This is where a contradiction is revealed. There is no problem in the fact that angular velocity of rotation is equal to the light speed because it is just the speed

of 360-degree turn of an imaginary axis. However, if given particle has no imaginary but real size then every point of its volume will have linear speed, which value will exceed light speed value that depends on the distance of the point from the axis of rotation. The more the distance is the more the speed. This very notion is contrary to the basic postulate of theoretical physics, viz matter cannot move at super-light speed. To avoid this contradiction quantum mechanics considered spin as just quantum-mechanical magnitude without going to the heart of its nature.

It turns out that the offer to consider spin to be a torsion field source does not clarify the essence of the phenomenon. On the contrary, it makes the essence much more incomprehensible. Thus it should be admitted that the attempt to explain the nature of mysterious torsion field by the more mysterious spin was obviously unsuccessful. There can be objections caused by the fact that electric field generated by some unknown charge is considered to exist. It is the truth but in this situation the intermediary, the charge carrier, i.e. electron, is known. Thanks to this intermediary electricity exists. As for spin, its intermediary is unknown to the science. There is no particle, which is the support of unit spin. Spin is just mechanical turning moment veiled by quantum mechanics. This magnitude is just the evidence that Something must rotate to generate a torsion field.

## About Sphericity of the Earth and Something More

Indeed, the Earth has sphere shape. This is a well-known fact. What is the cause of torsion field? What is that Something the rotation of which generates this field? The exact answers for these questions do not exist. However, there are some doubts in the modern science ability to answer these questions. Of course, it must be something that can help to untangle the problem.

When material matter moves a peculiar gravitational field is generated alongside with the appearance of the common gravitational field. This special kind of field is generated only by moving bodies and interrelates only with moving bodies. This field can be used as that something, which can help to untangle the problem of torsion fields. By analogy with generation and structure of similarity with gravitational one this field was named **gravimagnetic**. The other name of the field is **gravidynamic**, i.e. gravity field generated by motion. This name was given to the field by Soviet physicist and mathematician, Academician A.F. Mitkevich, who described this type of fields by combined equations, which are similar to Maxwell's equations of electromagnetic dynamics [1]. However, Academician Mitkevich was not the first to begin to speak about gravimagnetic fields. In 1912 A. Einstein published a brief article named "Does Gravitational Influence Analogical to Electromagnetic Inductance Exist?" [13]. In this article he derived an affirmative reply for the question.



Further the idea of gravitation magnetism was developed in Thirring and Lense's works. They proved that if any gravitational mass is rotated then along with gravitational static field the other field of vortex type (gravimagnetic) is also observed. This field is similar to the magnetic field of a charged sphere [2], [3], [12]. Later on this phenomenon was called Thirring-Lense's effect. Only after the publication of Academician A.F. Mitkevich's works gravidynamic fields have got the official status. They were recognized but soon forgotten because according to the opinion of the most of scientists these fields could not be practically applied.

Some time later torsion fields became to be discussed in science. Spin theory failed. Probably, there has come time to appeal to Academician A.F. Mitkevich's works. Especially since private solution of his equations demonstrates that his gravidynamic fields are similar to so-called torsion fields by their properties and characteristics of interactions with the other field or matter. So-called "reduced equations" are especially convincing. In these equations the Academician uses energy flow instead of mass flow, as Maxwell used displacement current in his equations. These equations allow cover the whole spectrum of phenomena connected with torsion fields. Moreover, they allow affirm that any energy flow (or the system of flows), which cubic density satisfies the conditions of continuity, and generates gravidynamic (or torsion) field in the ambient space. The value and direction of the field depends on the value and direction of this flow.

Thus, gravidynamic theory based on Academician A.F. Mitkevich's equations, regards objective and really existent energy flow as the main source or cause of torsion field appearance in contrast to quantum-mechanical magnitude of spin. However, gravidynamic theory does not refuse spin as a magnitude of field source. It offers to extend this notion and regard spin as summarized gravidynamic moment. This moment consists in the gravidynamic moment of rotation and gravidynamic moment, which is obtained due to the energy exchange between a particle and medium.

### **Causes and Consequences**

In gravidynamic theory an elementary particle, either electron or atom or molecule, is endowed with gravidynamic moment. It is considered that torsion field actively interacts with substantial matter. This interaction becomes apparent in the phenomenon of matter polarization. Physically phenomenon of polarization means that under the action of external gravidynamic (torsion) field molecules, in a matter atoms or free electrons obtain strict orientation toward the field, which acts upon them. This ordering of the structure of matter outwardly becomes apparent in different effects, for example, in ponderomotive effect or Myshkin's effect at which the freely pendulous body acquires the moment of rotation. Partly the so-called "zero drift" effect caused by the use of high-precision dial measuring instruments is connected with this

effect. For the first time this effect was noticed and partly investigated by Russian professor V.P. Myshkin in the beginning of the last century. Basing on the phenomenon discovered by him there was designed a measuring instrument of the type of torsion balance. This instrument was designed to measure the intensity of torsion field, which is generated by the beam of light [5].

The other effect is the changing of matter cubic resistance to continuous current. This changing occurs due to the re-orientation of free electrons in metal or semi-conductor (the so-called Kozyrev's effect). This phenomenon was discovered and firstly used by Soviet astronomer N.A. Kozyrev in his sensor designed for the registration of plant bio-fields and stars locus [6].

In addition, it is indicated in gravidynamic theory that since the direction of magnetic moment vector coincides with the direction of gravidynamic moment vector then stable magnetic fields can be used as gage fields for sensitivity enhancement of registration devices.

However, the most interesting consequence, which follows the gravidynamic theory of torsion field, is the statement that torsion fields are generated during the process of chemical reaction. The intensity of these fields is proportionate to the energy, which is generated or absorbed in the process of those chemical reactions, and to the intensity of this power exchange. Moreover, generated torsion fields have well-defined polarization, which depends on the type of chemical reaction. The reactions can be exothermal or endothermal, i.e. they can proceed along with generation or absorption of energy. Basing on this field asymmetry it can be supposed that if some value of interacting chemical matters is placed to external torsion field then the change of speed of this chemical reaction can be observed. If the direction of one field coincides with the direction of the other one then the speed of chemical reaction will increase; if the directions are opposite then the speed of the reaction will decrease [8].

This ability of chemical reaction to be the source of torsion field allows affirm that so-called bio-field of living objects is the superposition of torsion fields. Bio-chemical processes, which proceed in the cells of an organism, are sources of torsion field [8].

In conclusion it should be noticed that since in reality energy flows are variable value then torsion fields generated by them would be variable as well. This means that analyzing the character of the interaction of a matter with a torsion field many factors should be taken account. It is not only the intensity of acting field should be considered but also the frequency characteristics of the own torsion field of an investigated matter and the frequency characteristics of the field acting upon this matter. The intensity of gravidynamic fields is lower than the intensity of electromagnetic fields. However, this point of view allows explain why the gravidynamic fields make visible effects, which by

their force are comparable with the effects by electromagnetic fields. Sometimes the effects of gravidynamic fields even excel them. For example, Myshkin's effect, Kozyrev's effect can be mentioned. Kozyrev made experiments with fast-rotating gyroscope. In these experiments to demonstrate the weight decrease of the gyroscope it was required to tune the system of the gyroscope balance in appointed oscillation frequency value by an external oscillator. According to Kozyrev's remark it was necessary to meet this condition. Only in rare cases, if as a result of degradation in gyroscope bearings there were appeared mechanical beatings, then weight defect could be registered without the oscillator use [6]. It can be explained from the point of view of gravidynamic theory. According to this theory all known physical effects connected with the interaction of torsion field with matter, are resonant phenomena. For their appearance the basic oscillation frequency of acting field does not need to coincide with the basic oscillation frequency of the field of matter. It is enough if the harmonic constituents of these oscillations will coincide.

### Final Reflection

In conclusion it is worth to cite the words of Alexander Chizhevsky: "Ability to generalize, find the similarity of different by appearance subjects and phenomena is one of the basic and remarkable qualities of our mind and, therefore, of Nature itself because our brain is its coordinated part. Thus, our mind establishes similarity, generalizes natural phenomena; and this very generalization is a scientific fact, which later on an exactly and briefly formulated law is derived from.

Since it can be said that the method of analogies, which has in its base series of features inherent to different phenomena, is one of those methods which help different areas of knowledge to unite together and approach us to the comprehension of those routs where the grandiose genealogical tree of physical laws or, probably, of physical unified law grows from!"

These words were said in 1920; nevertheless, they are still present-day and very actual for this work, since electromagnetic and gravimagnetic oscillations are the different branches of the same genealogical tree. This is evident from the fact that all basic equations of electromagnetic and gravimagnetic theories are symmetrical. This quantitative symmetry means a lot. It shows that if we prolong electromagnetic spectrum to the direction of oscillation frequency increase then we can find out that in some interval electromagnetic waves change into gravimagnetic or torsion waves.

This conclusion is based on the similar nature of these oscillations. Both types of the oscillations are generated by the same multitude, i.e. by energy flow, which, according to an ancient sage's words, is "impulse essence". There is the question what the cause of the impulse is. Nowadays we just can consider it to be the result of some unknown processes, which proceed in

the heart of matter. These processes will come to light when we are able to understand the essence of aether. Therefore electromagnetic spectrum is worth to be named vacuum or aether oscillation spectrum. The type of the spectrum will not be just linear. Two different branches can be superposed only by equal bottom-up spiral where one turn is electromagnetic oscillations; the other one is gravidynamic oscillations. It is the question for future science to answer of how many turns the whole spectrum has. It is clear that the spectrum can be built either upward or downward.

Let us analyze the obtained tree of aether oscillations then we can come to interesting conclusions. This point of view shows that the spiral frequency scale must have three gangings. One of them is a frequency value. And what do the other two mean?

Our objective world is material. Even a child knows this basic truth. We are surrounded with different forms of matter. Ancient sages named matter "waters" because they associated space with the notion of 'ocean'. Space is filled with matter. Matter represents the notion of Space like waters represent the notion of 'ocean'.

Thus the other ganging will be materiality. This term means the refinement of matter from its coarse forms, such as solid bodies, to liquid and gaseous state, and moreover, to the fine state of plasma, and unknown refined vacuum-aether. Each of these mediums or levels of materiality corresponds to some branch of aether oscillation spectrum.

The last ganging will be the speed of propagation of aether oscillation. It is logically based on the statement that the speed value of the longitudinal oscillations of medium depends on the fineness value of this medium. The finer the medium is the higher the speed. The last fact allows build the tree of the spiral using the standard physical equation. In this equation wavelength value is equal to the quotient of frequency value by the value of speed of oscillation propagation in the medium. Since the higher speed on the new level of materiality every time gives us back to the beginning of the spectrum. At the beginning of the spectrum all the qualities of these oscillations are approximately the same, i.e. all of them are just oscillation essence. At the other end of the branch all the oscillations obtain ability to generate particles. Probably, it occurs as the result of the process during which in medium harsh high-frequency oscillations produce vortices. These vortices can be observed as independent objects or particles. The spontaneous generation of the pair of electron and positron can be mentioned. Since, according to the law of cyclicity, gravidynamic oscillations have the same interval. What matter will be generated by these oscillations?

It can be used the principle of analogies to answer this question. If harsh electromagnetic oscillations generate matter, which particles are, connected with each other by electromagnetic fields, then harsh gravidynamic

oscillations must generate matter which particles are connected with each other by gravimagnetic fields. In short, in nature both the atoms of electromagnetic origin and the atoms of gravimagnetic origin must exist. Taking into account the stable principle of nature that every subject can interact only with similar one, the conclusion can be made that either atoms or molecules will gather to matter forms according to their nature. Thus, at least two types of matter will exist in the world. Paying attention to the size of molecules, atoms, and their particles, and correlating them with interatomic distance and weak interaction of electromagnetic and gravimagnetic fields, it can be affirmed that the existence of two types of matter in the same value of space is possible.

Moreover, nothing prohibits us to affirm the existence of the whole world in our value of space.

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## Russia Instituted Annual Competition in Power Engineering Sciences The award is financial equivalent of the Nobel Prize

In Russia an international prize of "Global Energy" has been instituted. This is the first prize of the world fundamental and applied science, which will be awarded for proposals of outstanding projects in the field of energy and power engineering. Group of well-known Russian scientists headed by Zhores Alferov, the Nobel Prize laureate, proposed the idea of new international prize in the area of alternative energy technologies. The prize should provide more development of theoretical and mainly the practical applied scientific projects in the area of power engineering. It is considered to raise interest of the leading experts from different countries and international scientific societies in solving of the most important problems of power engineering.

The prize is instituted this year and will be awarded annually since 2003. It is interesting that the prize fund is formed at the expense of sponsor contributions of the greatest Russian companies, which are involved in power engineering and oil business: "Gasprom" and "United Energy Systems of Russia" Corporations and "YUKOS" Oil Company.

Some time ago all new energy topics in Russia were in secret, i.e. they were hidden from open scientific society and there were no any serious publications. But history of Russian science has many bright examples of experimental success in this area. In 1888 Prof. Latchinov, who had patented first hydrogen electrolysis system, also claimed possibility to get high efficient hydrogen production and he explained that extra-energy is result of the environmental heat conversion. Also Prof. Yablotchkov, who is Russian inventor of electric lamp, claimed 200% efficiency and described his method of "amplification of electricity" by means of open surface capacitors, French patent #115793 of November 30, 1876. In 1948-1950 N.D. Papaleksi developed topic of parametrical generation of electroenergy and in the case of capacitance parametrical resonance it was claimed that it is possible to create "a very high efficiency".

Modern political and economical situation in Russia is not so good to believe in quick development of the new energy technologies market. Russia is exporter of oil and official plans are to increase the export (also in USA) to get more profit for Russian budget. It is clear that simple and profitable business topic always is more important than risk scientific projects. So, I can assume that innovations in Russian new energy systems market cannot be global in 2003-2005. But today in this scientific area Russia is ready to become one of the most advanced countries of the World. Sure, at the first stage a notion of alternative energy is something related with hydrogen, wind power, solar panels and other classical approaches but I hope that in future any invention of fuel-less energy system can be nominated to this prize. Perhaps in nearest future we'll get possibility to put in the market some real "perpetual mobile"!

Alexander V. Frolov

# Matter, Space and Time in Conception of Aether Field

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**The aether concept of matter, space and time and the problem of parallel worlds are viewed basing on original empirical material. Many-year-long observations and experiments made on nontraditional methodology [1-5] show that every existence of our world represents some form of motion of some universal primary matter. Dekart's assertion that there is nothing in the Universe except aether and its vortices, was right. The properties of this mysterious many-sided aether must be greatly unusual for its dynamic three-dimensional structures to create all the physical objects and natural phenomena including different kinds of living matter. The physical aspects of natural science fundamental categories and the problem of parallel worlds are viewed in the framework of the concept of aether.**

All the kinds of World aether demonstrate special quantum superfluid properties. Therefore, it is logically to consider that matter generation is connected with the whole Universe rotation that is an established scientific fact. Since the matter world should be supposed to be a stable forceful corpuscular vortex-wave structure of a certain space spectrum, which has a single-valued momentum of aether "spiral" motion. Naturally, the parameters of an apparent matter depend on the properties of primary aether and characteristics of the rotational translational motion of the Universe. At the same time, as the newest experiments confirm, corpuscular-wave or vortex-wave dualism appears as an absolute principle of the Universe. In the Universe there is no object, which does not have wave properties.

By the space it should be named conditionally "solid" crystalline liquid vortex-wave structures of three-dimensional superfluid aether. Such structures have zero net angular momentum. From the point of view of stereodynamics and topology, real space is many-dimensional, i.e. it is represented by great number of different vortex lattices, i.e. subspaces. Fine-structure Newton's space or energy "bottom" of the Universe is more primary. The other subspaces are created by matter (mass) and represent certain material objects, which the modern physics names as gravitation fields. Gravitation is merely an aether phenomenon. It realizes the principle of the slightest disturbance of inhomogeneous subspaces during their interaction. The energy of these subspaces is proportional to the mass of physical bodies. In general case, the finer the structure of a subspace is, the more its energy.

This is to say that the Universe is a rotating liquid crystal, which interacts with a more fine-structure and, therefore, more power-consuming interuniversal space. Hence, the interuniversal energy "bottom" is deeper than the energy "bottom" of our Universe and exists in the condition of plasma ("fire"). Nowadays the number of apparent matter worlds is unknown. Once appeared matter creates secondary vortex-wave structures, which, according to the number of right-handed and left-handed vortices, are symmetrical as analogues of particles and antiparticles. The statistical variant of such structures corresponds to the subspaces, i.e. gravitation fields; and the dynamic variant agrees with a particular vortex-wave emanation or parallel worlds as a **quasimatter**. These parallel worlds can be named as topological harmonics (subharmonics) of matter. They appear as a result of the interaction of bodies with the other subspaces. Quasimatter objects are observed in our world as flicker-effects.

Electromagnetism also has the vortex-wave nature and occupies a strictly appointed place in the space-time spectrum of the aether motion. There is no non-rotational motion in the aether. Electromagnetic phenomena, just as mechanical and other ones, have their topological harmonics, i.e., from the point of view of aetherdynamics, all the natural phenomena and processes are many-dimensional. This causes the vitality of esoteric and occult ideas which are valid in the framework of the post-modern physics.

The notion of time, which is now accepted in the science, is a very relative category, which is subjectively subconsciously connected with the course of human life. From the point of view of physics, time should correspond to the speed of transmission of vortex interaction and to the angular velocity of rotation of aether vortices, which are located in the viewed structure of space or matter (quasimatter). Since every subspace has the particular course of time then there is many-dimensional time in a stereodynamically and topologically many-dimensional space. Physical time demonstrates its material properties in the process of vast space transformation of aether vortex-wave structures. In his theory Professor N.A. Kozyrev meant very physical time, which controls cosmic energy processes.

The category of time is closely connected with the problem of interaction of physical worlds. By these worlds different vortex-wave structures of the aether are meant. The structures create matter and quasimatter. An energy informational barrier hinders in this interaction. The barrier is caused, on one hand, by superfluid properties of the aether, and, on the other hand, by the peculiarities of the transmission of space and physical time into the other scale. The material (energy) transmission from one subspace into the other one is possible due to "bifurcation", i.e. the fragmentation or enlargement of elementary vortices as an approximate analogue of the classical reactions of nuclear disintegration and nuclear fusion. At the same

time the process of fragmentation is accompanied by the acceleration of physical time, mass increase and additional energy consumptions. The enlargement of the aether vortex is characterized by the inverse process. These very natural phenomena, which were reproduced in the laboratory conditions [6], clarify and validate N.A. Kozyrev's interpretation of time.

There is an all-important scientific notion, viz the aether vortices of spiral structure have matter properties independently of their size. Nevertheless, the majority of the aether structures, which accompany dense physical bodies, are virtual, i.e. it includes the equal number of matter and non-matter formations. These formations correspond to the existences "yin" and "yang" of the ancient Chinese philosophy. Even if the aether body of the "yin" or "yang" type is managed to create then the value of the interaction of such structures with common bodies decrease in time by the "exponential curve". This also has been proved by experiments.

This fact explains why the little-known world of "flickering" physics, i.e. metaphysics, exists side by side with us. It is astonishing that all the living systems are able to control the energy informational barrier.

All the potential worlds of the Universe along with their subspaces and time property can be placed on an axis due to the size of their elementary vortices. Observing their placement on the axis it is possible to estimate the change of their main physical characteristics. New experimental data allow affirm the fact that the speed of transmission of interaction and the speed of rotation of such vortices as the course of time, density and energy (temperature) of the aether have inverse relationship with the size of the vortices. For example, the speed of spreading of many-dimensional electromagnetic disturbance tends to infinity at the beginning of the axis, is equal to the light speed in the microscale, and comes to zero in the megaworlds.

It is necessary to take into account that the aether vortices fill up the space capacity of real physical systems from the zero point to the size of the very system. Moreover, the active spectrum of the system spreads towards the less scale as the size of the system increases, i.e. the energy "bottom" of the system becomes deeper. Thus, a galactic vortex contains a fine-structure subspace which is responsible for the inertia phenomenon. This provides the system with a new property. In particular, it is known the fact that Newton's laws are broken in the mechanics of galaxies. Vortex spectrum energy cascades, i.e. the "red" and "violet" cascades, are most important in space power engineering.

Up to this point, the matter and quasimatter worlds have been considered. They have significant energy of the vortex motion of the aether. If the other civilizations existed in the parallel subspaces as vortex-wave forms then it would have been possible for us to communicate

with them in spite of the difference of values of the fundamental physical constants. Since such a communication is not observed then it is logically to consider that there are principally different forms of life in those worlds.

Nowadays it has been proved the fact that solid subspaces have little-studied holographic and properties, i.e. the ability to collect and store the great amount of information. Though the physical mechanism of this storage is not clear yet, however, it may be supposed that the new abilities of stable vortex-wave structures or the matrices of the aether as gravitation fields explain the existence way of the worlds which are, in the common sense, immaterial but animate. At the same time it is revealed the hierarchy of the other worlds, which is known from esoteric sources, i.e. terrestrial hierarchy, solar hierarchy. It is too difficult for such a civilization to communicate with our dense world since they have less energy than computer viruses have.

The last comparison is quite important and shows a primitive analogue of specific sense, i.e. the apparatus of "phase" informatics, which is an immaterial structure. Moreover, the virus form of homeopathic and computer nature shows the search direction of the way of communication with the immaterial existences, which live side by side with us. In addition it is necessary to point out the possibility of informational control of the energy and matter processes, which occur in our world. The real prototype of such control is the known reliable facts of mind action upon the matter.

In conclusion let us notice that the primary fine structure of the aether is an undisclosed mystery. The introduction to the theory of hypothetic particles such as Atsyukovsky's amers, Baurov's buons, Akimov's fitons and tens of others, does not allow us approach the truth. Newton and Lomonosov objected to the appearance of the huge amount of hypotheses because the huge amount of semi-reliable mathematical models is harmful for physics. It is early to frame hypotheses since the macroscopic visible properties of the aether have not been studied yet. Forming the theory of a universal field it is necessary to return to the historically confirmed concept of the aether and the topologically many-dimensional space-time.

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# Patent Experts Now are Between a Rock and a Hard Place

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*"If a wire is being moved in scalar magnetic field  $S$  then current, which is induced inside it, will not decelerate the conductor movement but help its movement. Therefore, having "Siberian Kolya" magnet, by means of scalar magnetic field it is possible to design perpetual motion machines".*

*From the preface by Stefan Marinov to the book by G. Nikolaev [1].*

There can appear a question: who Stefan Marinov and Kolya are? How is it possible to design a perpetual motion machine, if, as we know from school, it is principally impossible?

One and a half of ten years ago Paul Bauman, an unassuming Swiss physicist, invented a strange engine. The engine reminds of an electrostatic machine with Leyden jars. Two acrylic discs with 36 narrow sectors of thin aluminum, which are stuck on the discs, rotate in different directions. Common gramophone records were used as the discs in the first pre-production models. The engine was started up with pushing the discs into different directions. Speed of the discs rotation lied in the interval from 50 to 70 rpm. After starting, the discs were able to rotate without any assistance or time limitation. At the same time direct voltage value in electric circuit is approximately 300-350 V at current strength value of up to 30 Amperes. The examination and practical application of the new engine were realized in the town of Linden nearby Bern, where about 250 people live. The town meets its power demand by means of Bauman's engines. It is not connected up to any external power supply system.

Stefan Marinov, a famous physicist, the head of Institute of Fundamental Physics of Graz city (Austria), was interested in this unusual engine. The scientist visited Linden several times, where he made his investigations. In Graz he worked with Bauman's engine, which had been presented him by the author of the device. The rotation energy value of the engine discs was approximately equal to 100 milliwatt. This value was many thousands times less than the output of the engine. Therefore, the engine should be called "generator". The system of 10 kWt output had plastic discs of about two-meter diameter.

Marinov represented the results of his observations in the series of publications. However, the scientist had no time to finish his fundamental work. On 15 of July of 1997 an unknown murderer threw the professor Stefan Marinov out of a window of a university library, which is located in the centre of Graz. The criminal was not found, and the case was closed. Such a situation had happened more than once before, when there were attempts upon lives of those inventors who dealt with nonorthodox scientific ideas. We can mention, for example, Rudolf Diesel, the creator of Diesel internal-combustion engine, who disappeared without a trace, when he shipped to the USA. J. Marsol, who in 50s of the XX century patented a molecular internal-combustion engine working on water, zinc, and antimony, shared his fate. After the publication of the patent application Marsol perished along with his family and collaborators of his laboratory. In the last case it has been ascertained that the work on the inventor's engine was stopped under the pressure of transnational oil monopolies. They would have lost prosperous business and huge benefits if car engines could run on water instead of oil.

The case with Bauman's engine has appeared to be more successful. Different releases about it have been published in the scientific and technical magazines in different countries. However, nobody can explain the physical principle of engine operation.

Marinov mentioned a certain Kolya in the preface to the book named in the epigraph to this article. There is the question of who is Kolya. Kolya is G.V. Nikolaev, a physicist from Tomsk, Doctor of Physico-Mathematical Science. He is the head of Scientific and Technical Centre of Non-traditional Electrodynamics. Nikolaev is very famous abroad for his works not only among physicists. His foreign colleagues name him Siberian Kolya. In Russia he is little known. On the 3d of April of 2002 at the conference of Commission of Power-Accumulating Systems of Russian Academy of Science Nikolaev gave a very interesting scientific report on Scalar Magnetic Field. In this report the possibility of the existence of perpetual motion machine was theoretically proved.

Let us mention the attitude of some representatives of traditional science to the works by Marinov, Nikolaev, and many other researchers, whose research results are contrary to the traditional knowledge.

In an article which has been recently published in "IS. Industrial Property" [2], its authors T. Lakomkina and R. Polischuk write: "new fallacious works have been recently appearing. They deal with "miraculous" methods of energy generation and other sensations of this kind." Moreover, the huge amount of new proposals in the area of non-traditional power-accumulating systems has been lately making.

It should however be noticed that, at least according to the theory of probability, all these works cannot be

fallacious. Probably, this amount of the proposals and works are caused by the fact that the time of corresponding technical determinations has come. There is nothing casual in life.

It is reasonable that numerous works on designing of non-traditional energy sources has been appearing for the last years. Since natural energy resources soon will be depleted, and the environment is greatly polluted, humanity is anxious for the possibility to obtain energy directly from matter. Matter gives the energy by two ways, i.e. there are two ways of change of some particles into another that is accompanied with energy generation.

*The first way* is the making of extreme conditions (i.e. highest temperature and pressure, in the presence of which nuclear fusion occurs, and the great amount of energy is generated). However, this way may cause the total environment pollution and even the absolute destruction of the environment.

*The second way*, which has been already chosen by many inventors, is the making of such conditions at that nature gives its energy without experience of any violence. For example, the sensational experiments in the area of nuclear fusion made by Fleishman - Pons (the USA, 1989) are known. According to these experiments there was observed nuclear fusion at the electrolytic deuteration of the crystal lattice of titanium and palladium. To tell the truth, E.P. Kruglyakov notices [3] that many laboratories all over the world have made attempts to confirm the results of Fleishman - Pons's experiments, but all the attempts were unsuccessful. Nevertheless, it should be noticed that an inventor might obtain such results, which cannot be obtained by examiners.

It is interesting to notice that sometimes authoritative scientific magazines use to publish releases about the methods of "cold nuclear fusion". (One of the latest releases is devoted to Paterson's method of water hydrolysis by fusion with lithium electrolyte and nickel-palladium catalyst. This method was patented in the USA). Nevertheless, none of the works was realized in practice. Obviously, some powerful forces, which can lose their profit, influence and do not allow the works to be realized even at the stage of experimental models.

There is another cause, why the new methods of energy generation are omitted. For a scientist, who has learned since his school days that such technologies are very difficult and expensive, and sometimes need huge temperature and pressure action it is difficult to believe that such a process can proceed in common cooking battery at room temperature and atmosphere pressure. It is known that the cost for a thermonuclear reactor designing has already come to \$100 billion. However, scientists from different countries still have to work at the reactors. As it is forecasted, first industrial thermonuclear reactors can appear only in 2030. It is incomprehensible, why it is impossible to follow parallel paths to reach the aim of huge energy resources acquirement.

Respectable American scientific magazine of "Science" describes a model, which is tested now in the national laboratory of the USA in Ockridge. A glass of deuterated acetone is placed nearby an ultrasound source, neutron generator and neutron counter. Blebs appear in the acetone under the action of ultrasound. Appeared blebs burst at once, and their covers begin to move very quickly to the center of the glass. In other words, a shock wave comes off the wall of the glass and then moves to the centre where it focuses. As measuring has shown, temperature value in the focus reaches 50 million Kelvin. In these conditions the fusion of tritium and helium occurs. However, the reaction proceeds too slowly. Now one of the leading experts of this scientific branch, Academician of Russian Academy of Science R.I. Nigmatulin and other scientists are working at the acceleration of the reaction [4].

There is a declaration in the article [2]: "it is possible to choose principally unscientific branches, in which science has already proved the impossibility of the aim realization. The all types of perpetual motion machines belong to such unscientific branches." The declaration seems to be too categorical. Declaring such things these authors work for those forces (which have been already mentioned), which are not interested in the practical realization of the greatest projects.

The following example shows that it is erroneous to consider these problems as unscientific.

Sometimes ago, according to some well-known Academicians' declarations, there was an opinion that being a diamagnetic, water is indifferent to magnetic field action. The president of Academy of Science of USSR A.P. Alexandrov jestingly said that water magnetization is as impossible as the Immaculate Conception. The experts of Russian Patent Office could not but know about it. Since that they declined the applications for water activation by means of magnetic field. The experts of Inspectional Council urged the declarants to refuse of their "pseudo-scientific" proposals.

Having no doubts in the possibility of water magnetization, I proposed the principally new method of its magnetic processing. It was approved by famous Soviet physicist I.L. Gerlovinov (by the way, Academician L. Landau considered him to be his teacher). My proposal was as following. The known conditions of the magnetic processing of water make the water to be deuterated by electrons, which come from ambient space [5] (as it turns out now, from physical vacuum). This was evident from Landau's diamagnetism of free electrons. This method of the magnetic processing of water systems was not contrary to the existent physical ideas and allowed to interpret the numerous anomalies of magnetized water.

However, such an alternative scientific branch as the electrochemical electrolysis processing of water had being already developed. The main advantage of this method was the stable repetition of results whereas

the effect of magnetic processing depended on the electric charge of atmosphere and other factors. This way water magnetization sank into oblivion, while there has been given lots of patents for electrolyzers. Obviously, life puts everything to its own place, and there is no need to compose the list of anti-scientific themes.

After the publication in "Inventor and Rationalizer" ("Изобретатель и Рационализатор") magazine of "Output > 1?" article written by me and S. Sinelnikov I received a lot of benevolent responses from readers. They sent many confirmations of the existence of devices, which used uncontrollable environmental energy. This ensured output to be more than input. However, there were unkind letters, which say that if output is more than 1 then we deal with a perpetual motion machine, which existence is principally impossible. In my opinion, this is not a forcible argument.

For example, a perpetual motion machine, which was designed in Russia in the XVIII century, should be mentioned. This is a fountain built into Kulibin's clock [7], which he presented to the empress Catherine II. I repeatedly observed the clock operation in National Museum (Havana), when I was working in Cuba. (I was not able to learn how the museum had got the clock). The principle of the fountain operation is following. There are two chambers where partial pressure is generated in such a way that the partial pressure in the lower chamber is greater than the pressure of the upper one. The partial pressure generated in the lower chamber makes water run from the lower chamber to the upper chamber. This pressure is generated because of the action of ambient space energy emanation and different evaporating areas in the lower and upper chambers. No special energy is applied here. Nevertheless, the fountain in this clock has been continuously flowing without any repair or maintenance for 300 years. This is eternity, isn't it?

The commission of experts of Russian Patent Office acted wittily and, on my mind, absolutely right, when V.I. Likhachev, one of the authors of the working model of the fountain, submitted an application for the invention. They opposed to him a reference to a device [8], which had a built-in heat source. Since the declared proposal differed from that device only by the absence of this source, the commission refused to grant the patent to Likhachev because of so-called negative novelty, i.e. the removal of any element from already known device couldn't be an invention. Novelty lies only in adding of new elements.

An expert cannot know all the peculiarities of capillary partition, which is a "hydraulic lock", and thus he can have doubts of the workability of the declared proposal. If those experts had not found that reference they could just find the confirmation of the declared effect in technical literature. By the way, there are the working models of such devices in institutions, which work at

porous ceramics. These devices are discussed at scientific and technical conferences; the reports of such conferences are published. Thus, it can be seen that the difficulties of the experts, which were mentioned in the article [2], are exaggerated.

Mostly, the expert doesn't face the problem of practical usage, because an application always has a prototype which reliability is doubtless for the expert. For example, a magnetic engine [9] has a prototype [10] on the application submitted 30 years before.

In the article [2] there is the example of impossibility to obtain energy gain by such a way as the hit of a metal construction against a solid surface. I propose to simplify the problem and instead of the metal construction examine an electron, which is used for bombarding of a mark. As it is known, one interesting fact is revealed at the procedure. When an electron hits the mark it generates energy photon; at the same time it does not disappear but stays at the mark saving as much energy as it had before the hit.

In such a situation experts cannot "base their decisions only on official fundamental science". Fundamental science principally is behind of practice because it can draw generalizations only after the thorough research and analysis of facts. However, when an inventor obtains a new technical result he grants in an application for an invent, even if science does not know the principle of its operation. In such a situation an expert has to make a decision independently. As it is seen, the statement that science must give the list of "pseudo-scientific" themes and works is objectless.

In this connection let me draw the reader's attention to the title of the article [2], viz "Patent Examination of Applications that are not Based on Scientific Knowledge". According to the cause mentioned above, this title does not contain logic. Experts have got used to the notion that a reference is the source of scientific and technical information. There is the problem of reference reliability. It is not by chance that E.P. Kruglyakov [3] operates with the notion of "information, which is represented in a reviewed magazine". However, it is incomprehensible how it is possible to guarantee the high competence, broad outlook and impartiality of reviewers.

Is the information about Bauman's engine based on scientific knowledge? Of course, many reviewed scientific and technical magazines in all over the world could not but write about it. However, these publications are contrary to scientific knowledge expressed in common laws and postulates.

Before passing on to technical determinations, it is useful to touch on the problem of **torsion fields**. The authors of the article [2] write: "these fields are principally impossible as perpetual motion machine is". Nevertheless, there are lots of announcements about torsion field generators (for example, Shpilman's

generator) and other devices which input is very little. Even if 1% of these announcements represent the facts then it can be said that the humanity is on the threshold of a break to real perpetual motion machine. We can consider G.I. Shilov and A.E. Akimov's works [13] of torsion fields to be fallacious. However, it is very difficult to conceal or distort something in our time of information technologies because everything can be controlled, so the results of such works as Shpilman's one can be easily verified.

Having read in the magazine that there are no torsion fields, I came to Shpilman's Internet site,

[http://www.pmicro.kz/MISK/UFL/Almanach/N5\\_95/N\\_1.htm](http://www.pmicro.kz/MISK/UFL/Almanach/N5_95/N_1.htm),

and obtained the information about torsion fields and a proposal to buy a generator, which work is based on torsion field effect. It costs \$330. Russian scientists designed such simple torsion field generators 10 years ago. In this situation the known aphorism may sound like this: "Those people, who do not recognize the own inventors, will have to feed strangers".

From another point of view, we could agree with the authors of the article [2] that perpetual motion machines and torsion field generators were not based on scientific knowledge if they had said that such devices were not based on orthodox or traditional scientific knowledge. It is incorrectly to affirm that there is no science here because according to [3] our country has expended about \$ 0.5 billion on the investigations of torsion fields.

I should say that I was not successful in understanding of 46 mathematic equations, which were cited by R. Polischuk as an example in [2]. I was not able to understand which of them disprove torsion field existence.

My assurance in torsion field existence is based on the following statements:

1. It is a well-known fact that everything that moves can generate fields (acoustic, electromagnetic and other fields like these). Electrons and other elementary particles, and even such complicated bodies as the Earth or the Sun rotate with giant speeds. Every cause has its consequence, so it may be supposed that torsion fields must accompany their rotation. Even if we know nothing about these fields then it does not mean that they do not exist.
2. Recently there was the exhibition of inventions "Archimed-2002" in Sokolniki (Moscow), where the working pre-production model of V.P. Kotelnikov's heat-generator was demonstrated [11]. A pump tangentially delivers water through a one-meter jet close to its choked butt. An adapter connects the tube of the other butt with radiators. Delivered water is of room temperature value. Rotating in the jet the water heats up to 50-55°C. Rotating in two-meter tube the water continues

to heat approximately up to 65°C. The device does not have other elements, such as bypasses and braking devices, like in famous Potapov's heat-generator (by the way, it is still insoluble puzzle of the XX century). Hence, the probability of heating water by cavitation or tribo- or some other effects is insignificant. Moreover, if water is delivered to the jet by usual longitudinal way, even if the speed of delivery is very high, the effect is not obtained in any ways of outflow. In Kotelnikov's plant, which was demonstrated on the exhibition, the water temperature value was measured before processing in the heat-generator, and then after processing in the jet and in the tube, whereupon energy balance was calculated. Relating the obtained energy value to the engine power value, it was revealed that the output of the device was 1.5. Official science cannot explain where the extra energy is generated. Sometimes as a possible cause it is named a cavitation effect, which can be observed only in liquid mediums. However, it seems to be false as it is evident from a following example. Candidate of Technical Science Yu.A. Tuyukin, who recently was the chief technologist of "Vetroen" factory, designed a fan, which warmed all the production area. The power value of the fan was 5kWt, and it was of 1.5-meter diameter and 0.6-meter width. In spite of its small size the fan warmed the 400-square-meter production area. Air was rotated by the fan, heated and came to tubes, which girdled the whole premise. In the fan air heated approximately up to 60-70° C. In other words, either liquids or gasses generate energy by rotating.

3. Since 1992, when Rospatent granted the first patent for torsion technologies, many successful experiments in this area have been made. Numerous experiments by A.E. Akimov, which have been made in Central Scientific Research Institution of Material Authority (St.-Petersburg) and Institution of Problems of Material Authority of Ukrainian Academy of Science (Kiev), demonstrated that when the metals were exposed by torsion field in the process of fusion their macro- and microstructure were changed. This led to the essential quality changes of the metals. Russian scientists demonstrated effective action of torsion field in the process of silumin fusion to a South-Korean company, which gave certificates for all kinds of new technologies according to very strict metrology.

It is useful to return to the article [2]. Its authors affirm that according to point 1 of the paragraph 4 of Patent Law of the Russian Federation, as perpetual motion machines principally cannot exist so they can not be used in industry, agriculture, health protection and other

areas. Hence, perpetual motion machine cannot correspond to the criterion of industrial usage. The authors has made the following conclusion: "experts must be informed about which areas, from the scientific point of view, are considered to be principally pseudo-scientific and which well-known hypotheses do not belong to the area of scientific knowledge as not confirmed by realistic physical facts". According to this statement an expert may turn down a proposal just having read the title and compared it with those, which are included in the list of pseudo-scientific themes and devices.

To tell the truth, the same situation has already happened. Some time ago such sciences as bioenergetics and cybernetics were faced with the same attitude, which was very harmful for these sciences. It seems to be strange that some experts want to follow authorities' opinion. By the way, in the article there are many references to Academician E.P. Kruglyakov [3] as an indisputable authority. It is interesting to notice that the Academician is the head of Commission of pseudo-science of Russian Academy of Science but his opinion cannot be considered to be the Academy of Science's opinion. When the president of the Academy of Science Yu.S. Osipov founded this commission he at the same time founded the Commission of alternative energy sources. I am a representative of this Commission.

The most interesting fact that, in spite of perpetual motion machines are considered to be impossible to design, in the interrelation patent classification these machines are represented by four types, i.e. the devices of F 03 G 7/00 type are mechanic, of B17/041 type are hydraulic, of H 02 K 53/00 type are electro hydraulic, and of H 02 N 11/00 are magnetic and electric. Since the Patent Law of the Russian Federation exists about 100 such inventions have been registered. It is clear, that all of them use some natural forces. Nevertheless, in such devices great driving force is not observed because of that the elements of thermodynamics and other laws objectively act. Since that I began this article from the reference to the principal necessity of developing the new methods of energy obtaining from the environment. This aim is impossible to achieve without serious scientific researches.

**The first perpetual motion machines have been hardly able to rotate themselves. They have just tried to outwit the acting laws of mechanics. However, now the scientific world experiences the transitional moment when "weak" perpetual motion machines give way to devices designed on the base of the newest scientific achievements. These new devices will connect the human with more and more cognizable outer world which has unlimited energy contents.**

At all times people want to make powerful natural forces work for them. Fairy tales about the magic carpet or seven-league boots originate from this desire. At all the exhibitions of inventions "Archimed", beginning from

the first one which took place in 2000 at All-Russian Exhibition Centre, many perpetual motion machines have been demonstrated. They were thundering, sparkling, rotating and jumping without visible external application of force. It should be said for revising, that in its essence perpetual motion machine is a device, which uses the energy of ambient space for its own work. It is worth to view the space attentively.

According to J. Willer Planck, density value of the energy of physical vacuum, where the human exists, is  $10^{95}$  g/cm<sup>3</sup>, whereas density value of nuclear matter is  $10^{14}$  g/cm<sup>3</sup>. The higher values of vacuum fluctuation energy are known. In other words, we live in the immense ocean of energy, which will be used with perpetual motion machines. Thus the devices are worthy of better attitude than it was shown in the article [2].

Nowadays the humanity is on the threshold of a new scientific and technical revolution. In this situation the examination of the inventions, which were discussed in this article, is threatened by two dangers, which are like a rock and a hard place. The first danger is to grant a patent for a device, which will not be demanded by industry. The second one is to throw away a technical proposal, which can give very useful effect, make the human's life better. In the first case nothing will be lost because a declarant pays all expenditures as a duty. In the second case everything will be lost.

I am sure that, contrary to the authors of [2]'s fear, the competent experts, who make the majority in RPTO, will always choose the first case.

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# Reidar Finsrud's Perpetual Mobile in Norway

*Original story and photos are submitted by John Pasley at*  
<http://www.theverylastpageoftheinternet.com/magneticDev/finsrud/finsrud1.htm>

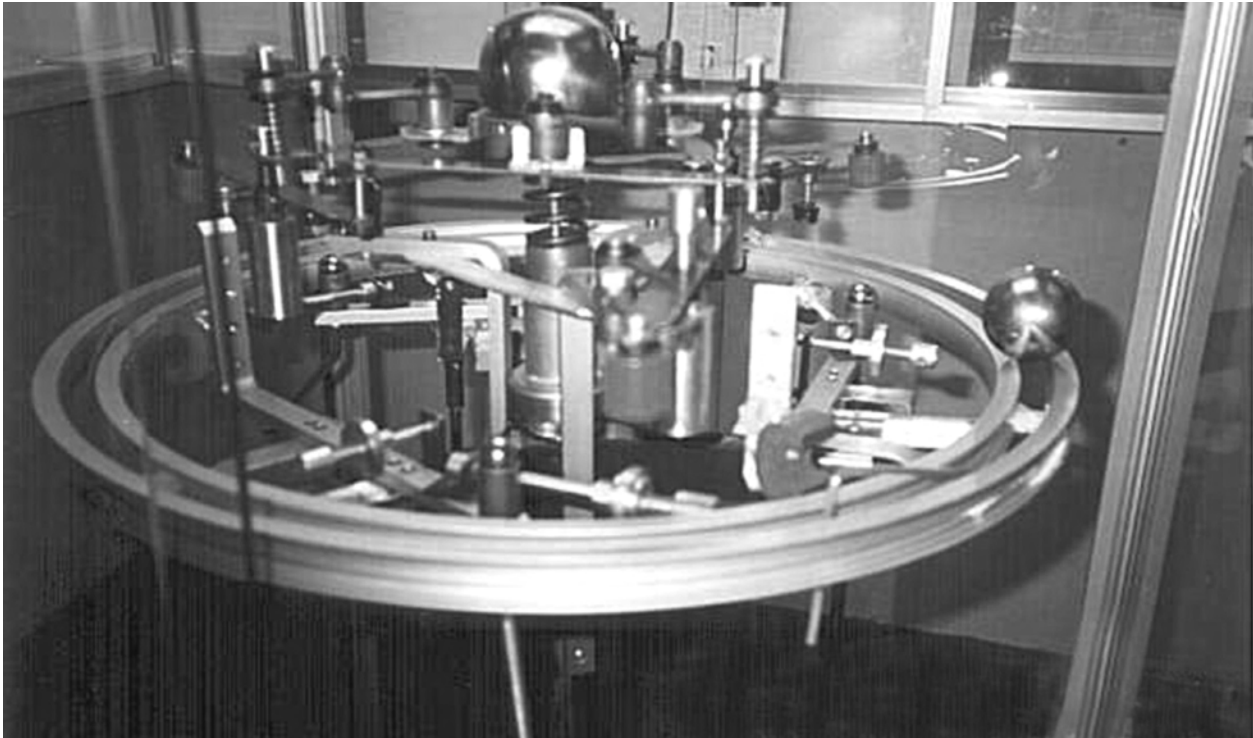


Fig.1  
Perpetual Mobile by Reidar Finsrud

Reidar keeps his 'Perpetuum mobile' in his strongroom in his basement with a couple of other pieces of his highly prized artworks. He happily showed us to this room while talking engagingly about the machine. On entering the strongroom the machine is directly in front enclosed in a glass cabinet, it stands about a meter and a half tall, the ball is on a gently moving track and it goes round and does not stop, there are no motors. A ball would normally only go around a few circuits but this does not, additional energy is coming from somewhere and the scientific understanding of physics falls flat on its face with each circuit of the ball. The machine is well built, there are no ends of bolts sticking out and Allen key style nuts are used in most places. There are no apparent rough edges or bits that are broken. It is not perfect however, as the ball rolls around there are two places roughly opposite where track noise can be heard and the ball audibly vibrates; that said, it is really quite smooth. The ball does make a noise as it goes around, this is just like a ball bearing on a track, like a roulette ball. I also noticed what appears to be a putty of some kind in just a couple of places, I think this has been used to balance the machine; finger prints clearly mark the putty.

## Moving Parts

Let me describe the movement in the machine, the most obvious yet least important movement of the machine is in the three regulatory pendulums, these are pivoted by a right angle of metal used as a hook to each of three arms coming from the main internal pendulum that goes down the central column of the machine. The swing of the regulatory pendulum is always at the same place with respect to the ball going around the track (two bicycle wheel rims).

The regulatory pendulum swings in the opposite direction to the ball as the ball approaches. On the top of the pendulum, above the pivot is a horseshoe magnet, this is attracted to the ball as it approaches. As the ball passes the horseshoe magnet the magnet is closest to the ball and at its lowest point, the pendulum below the pivot is therefore at the furthest point of its swing away from the ball. This is the position each time the ball passes. I should also point out that this is a normal not chaotic pendulum.

To ensure the pendulum continues to swing requires energy, this is given to it via a plastic encased wire

which is attached near the pivot of the pendulum, the other end is not attached to anything but comes up through the track. The ball goes over it pushing it down and imparting just enough energy to keep the pendulum swinging. The magnet is not there to take energy from the ball but to ensure the pendulum is always at its furthest swing when the ball is next to the magnet, the wire is used to get the energy. (The wire looks suspiciously like a wire coat hanger with a clear plastic tube over it!)

These pendulums are attached to the arms of the central internal pendulum. The track is fixed rigidly to the arms and the arms are fixed rigidly to the central pendulum. This central pendulum has a circular movement, which is therefore passed on to the track. It is the circular movement of the track, which moves the ball. (If you were to put a marble on a dinner plate and make a circular movement it also would go around. The track does not rotate, the high point on the track moves around in a wavelike fashion so the ball is always on a slope.) It is this part that gives the machine its movement but it is the top part, the 'vibratory assembly' which powers the central pendulum and therefore it is this part where the extra energy is coming from.

### **The Vibratory Assembly**

The machine is supported by a central column within which the central pendulum swings in its circular motion. The central column is secured at the bottom by a large copper flange to ensure the machine does not topple over. This central column rises to just before the arms to the track start. At this point, three aluminum bars are attached which pass through the track arms and support the machine by attaching to a triangular arrangement of metal lengths upon which the machine is eventually hung. Separating these metal lengths and the central pendulum is a whole system of vibrating springs and further metal lengths, power is generated here. This system is designed so it is always reverberating, as an input from one area dies down so another input starts, this part of the system is designed to never allow stability and so causes the perpetual motion.

The area where vibration is most clear is the input to the system from the ball itself. There are three round magnets on the end of metal lengths positioned in a triangle so that they are just over the ball as it passes them on its journey around the track. (There are small metal spikes below the metal lengths near to the magnet, these stop the magnet from getting too close to the ball and are probably only of use during the machine start up.) The lengths are like metal rulers, like the ruler a vibration can be set up in them. This happens when the ball comes around under the magnet,

pulling it towards the ball, once the ball passes it the attraction on the magnet is released and a vibration imparted on the metal length.

The lengths are balanced in the middle, supported from below also with a spring assembly above them, I believe this is to enable the strip to be supported but not to dampen the vibration.

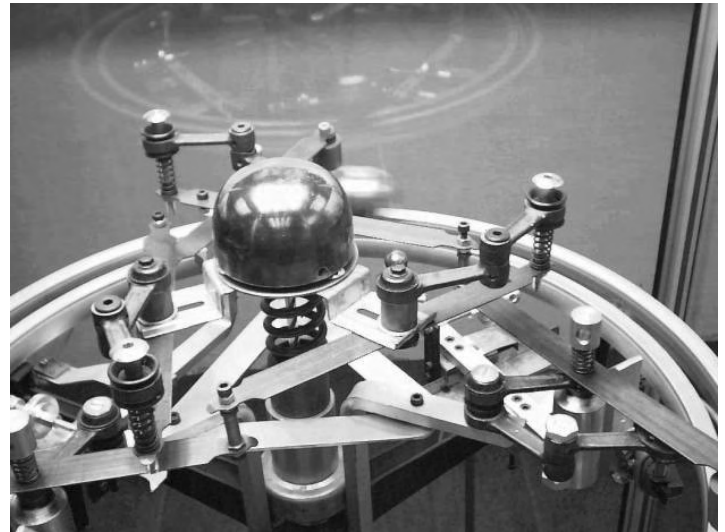


Fig.2

### ***Close up to the business end of things***

At the opposite end to the magnet the metal length feeds the vibration up to a smaller triangular array of metal lengths. The attachment is by a medium weighted bolt, I believe the weight helps conserve vibration. This further triangle of lengths is about five centimeters above the middle triangle; they are attached at their center points to the suspension point of the central pendulum. The other end of the lengths on the higher triangle is balanced with a knuckle shaped sprung bracket assembly. I don't know if the function is just a balance to the weight on the other end but it appears to also help with the vibration.

At the center of the metal lengths of the higher triangle is the attachment to the pendulum. The central pendulum is hung off a copper bowl, this only contains the attachment. The heavy 40kg pendulum swings in a circular motion in the central column. Further support for the weight is via a spring which is supported by the central column.

The design of the vibrating assembly is interesting when viewed from above, the lower triangle supporting the assembly is the smallest, its points would touch the mid points of the highest triangle, the higher triangle's points would touch the mid points of the middle triangle formed between the three magnets overhanging the track.

So what makes this machine run. I don't think I am able to answer this, the vibration assembly certainly keeps movement going longer than otherwise but I keep coming back to the movement of the central pendulum. There is a

subtlety and pureness to the movement that has a logic to it, I can only describe this as being like Pythagoras theory, when the solution is presented there is a naturalness which does not require a proof, it simply 'feels right'.

### **Efficiency**

Reidar says the machine does stop on occasions but that this is not on a daily basis. To start the machine the pendulums are swung by hand, this puts an external input energy into the system, given that the machine does stop this means it is not over 100% efficient.

Without any motion in the pendulums the ball would travel only twice around the circuit, with only the regulatory pendulums it would go around about fifteen times (due to the external energy created by swinging the pendulums by hand) but the ball soon stops as pendulums themselves do not continue for long. Unlike a clock there is no spring mechanism to increase the time they swing. With the central pendulum moving and the triangular arrangement working together it goes on for days at least. Clearly the forces of friction, air resistance and gravity, which should stop the machine, are to an extent being overcome by the introduction of additional energy into the system.

In trying to arrive at ball park figures I will assume it is unlikely for any mechanical device to be more than 90% efficient, the 'Perpetuum mobile' at 99.999% (estimate) efficiency is therefore receiving about 10% of its energy from unknown sources. My personal view is that the machine remains 90% efficient, but has an additional energy input, the total of which is zero but is in fact an extra 10% positive energy and a 10% negative energy. The 10% negative energy should show up as a reduction in air temperature around the machine of a reduction in the machine weight. I did not measure the temperature of the air near the machine or weight stopped and then moving (the later being somewhat impractical).

As an aside Reidar was amused that a visiting scientist claimed the noise of the ball around the track represented 10 Watts of energy. The noise is similar but less than a mosquito, Reidar wondered how these little flies went around with 10 Watts of energy without exploding. (But don't you wish they would sometimes!)

I asked about the rough areas of the track where the ball can be heard to 'rattle', apparently oil has been tried and it stops the machine like treacle because it increases the touching surfaces between ball and track. When parts other than the track are oiled a very thin oil like clock oil is used.

### **Start Up**

When a start up is required this takes about 15 minutes, this is due to the difficulty involved in getting all the parts moving in harmony.

## **The Central Vibratory Unit**

The unit is based on the chaos pendulum though the machine does not actually use these at any point. Reidar first became interested in the chaos pendulum. This is simply a metal or magnetic pendulum, typically on a long piece of string (at least a meter), a little distance below the pendulum is a random array of magnets (if using a magnetic pendulum it is probably best to make the magnets in opposition). What happens when the pendulum is swung over the magnets is that it will first become attracted/repelled to one then another magnet. The movement is not entirely random but the pendulum takes an erratic path eventually becoming static in a position that is not vertical. This represents a potential energy in the pendulum.

Reidar timed the length of swing of a normal pendulum, then a chaos pendulum, the times were similar but Reidar noted that the chaos pendulum still kept some potential energy. In order to release this energy he hung further chaos pendulums near the first, he attached the pendulums together using a length of line. Now, when the pendulums came near rest it would occasionally be pulled by another pendulum and release that potential and start to move again. When timed this system of chaos pendulums was found to take longer than just one chaos pendulum before it came to rest.

Many different combinations of pendulum numbers and types were tried, eventually the idea of continuing vibration being used to keep the system in motion became the vibratory unit at the top of the machine. The triangular array was finally achieved after many tried and failed attempts to get this part to continue indefinitely. This unit is the powerhouse for the machine, without which it does not work.

### **Reidar Finsrud**

Reidar has many things to occupy his time, his gallery is on three floors and he is setting up another larger gallery in another location. He teaches and has 120 students, his subjects are the human body as a science as well as art. Additionally he has commitments to lecture on other subjects (usually the machine), this work allows him freedom to pursue his other interests. His gallery is full of his own work, observations of subtleties of human nature and form as well as woodland scenes. Animals are entirely missing from his art and this surprised me.

Reidar has deeply held convictions on greed. He feels the economic system that we have fuels greed to encourage people to get things others don't have. We tend to go along with this and by doing so simply line the pockets of the heads of corporations. The paradox is that if they lived their lives in balance they wouldn't need the money and wouldn't encourage people to buy so many material goods, which they don't need either. We don't need wardrobes full of clothes nor more than one car. We don't need to keep changing the goods in

our houses or our car, what people should realize is that if it works it doesn't need changing.

Unfortunately while the economic system fuels itself in one way it does not in others, it needs to take from the environment all the time, however the environment only has so much that can be taken.

Reidar questions why a fast motorbike doesn't come with a health warning while cigarettes do. It comes down to profits again, because manufacturers are not forced to put on health warnings they don't, yes people know these things are dangerous but manufacturers would rather not encourage us to think about these dangers, they really want us to buy, it helps their bottom line.

Things such as branding and other methods of product differentiation just cause duplication of very similar products. This is inefficient but helps the bottom line in more companies so it is done.

To save energy, houses in cold areas could be built underground. Reidar does not need to heat his basement although there was snow outside, perhaps more people could do this (he didn't talk too much about his top two floors though!).

Reidar does not believe an over unity machine is required to solve our energy crisis just a change of attitude among people. He has a vision of people becoming less materialistic, the greed based competitive economic system sinking and people working together 'like ants'.

### Present Projects

Reidar is collaborating with an industrial company to try and produce a machine based on his perpetual mobile but which produces an excess of energy, this is ongoing. He is also making other energy producing devices using solar power and wave power. To demonstrate solar power he has made a six foot diameter solar windmill (like the ones that come in a slight vacuum in glass shaped like a light bulb). This works by having black and reflective silver areas, the black areas are heated by the sun warming and so expanding the air behind it held in a chamber, the expanding air is forced out through a hole causing the windmill to turn.

### Where Now?

I hope I have done justice to Reidar Finsruds ideas and his machine, I would encourage people to visit his gallery if not too far away, you may well enjoy visiting Norway into the bargain. I shall not be attempting to replicate this machine. It is clear to me that the central pendulum could be supported by an oscillator at the bottom, that the track could be kept in place by magnets in opposition to magnets on an external ring and that units like this could be stacked three high and that the

vibratory unit could be replaced by destabilization magnets. Additionally an energy collector in the form of aluminum cones and a steel shell should be used. I guess you see what that leaves me with!



The sign reads 'Perpetuum mobile - Reidar Finsrud 1994'. This is seven years ago and it has not been successfully replicated, this is appalling, everyone should have one of these in their house, their schools and museums. If our time is running out on Earth I can imagine a fitting epitaph for humanity - 'Could have done better'. This mustn't happen, keep up the good work.

John Pasley

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# Physical Quantum Vacuum is a Source of Electromagnetic Energy



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One of the most important achievements of quantum electrodynamics is the discovery of electromagnetic field, which exists in vacuum. It was experimentally proved in 40s of the XX century. Quantum electrodynamics maintains the fact that the electromagnetic field is not equal to zero even if there are no photons (i.e. in vacuum). In spite of the average density values  $\mathbf{E}$  and  $\mathbf{B}$  are equal to zero, however, there are so-called "zero-point oscillations" (fluctuations) of the electromagnetic field. This material-field-structured field fills up the infinite cosmic space capacity of the physical quantum vacuum and forms its Medium.

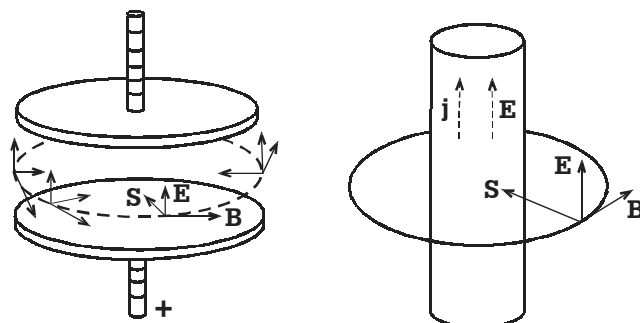
Energy character of this field shows that it is not only the source of energy, which serves for appearance, and existence of the objects of the real physical mass of the microworld of elementary particles and for the objects of the macroworld of the whole Universe. If there is organized the process of the local disturbance of the structure of this field by a matter, which executes the work at the field, then this electromagnetic field can be used as a source of the electromagnetic energy.

More precisely, the Medium of the physical quantum vacuum has been used by the mankind (and not only by it) as a source of energy. Umov-Pointing's theory proves this statement. The idea of the theory lies in the fact that for the electromagnetic field there should be the density of energy  $\mathbf{u}$  and a flow  $\mathbf{S}$ , which depend on the field of electric intensity  $\mathbf{E}$  and the field of magnetic intensity  $\mathbf{B}$ .

For the conductor, in which current runs (Fig. 1), the vector of electric density  $\mathbf{E}$  is directed along this conductor in the direction of current flow. The vector of magnetic density  $\mathbf{B}$  is directed perpendicularly to the

vector  $\mathbf{E}$  at a tangent to the conductor. Therefore, Umov-Pointing vector, which belongs to the energy flow  $\mathbf{S}$ , is perpendicular to the vectors  $\mathbf{E}$  and  $\mathbf{B}$  and directed radially inside the conductor.

According to this theory, electrons **obtain energy from the flow of the energy of the outside field which is directed inside a wire. This energy is consumed by electrons to generate heat, execute work, and overcome resistance.** It seems that the electron replenishes the energy due to "pressure", which propels the electron along the conductor; therefore, the energy should flow down or up at the wire. Nevertheless, the theory confirms that in fact the electron replenishes its energy consumed to generate heat, from outside electromagnetic field. This field fills up the infinite capacity of the space round the conductor. This is the energy of Medium of the space of the physical quantum vacuum. We have not realized yet the fact that **the rotor of any generator executes the work at the energy field of Medium of the space of the physical quantum vacuum (POV).**



Pointing's vector  $\mathbf{S}$  is directed inside a charged capacitor, which locates close to it.

Pointing's vector  $\mathbf{S}$  is close to a conductor in which current runs.

Fig.1

Producing resistance to this work, the energy field of the PQV increases the magnetic intensity of the rotor, and produces the effect of deceleration. The amount of energy, which is involved in this process, can be expressed by the increase of the mass of the rotor at  $\Delta m$  or of the kinetic energy of the rotor at  $\Delta T$ . It occurs corresponding to the relativistic formulas:

$$m_v = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}, \quad \text{whence it follows}$$

$$\text{that } \Delta m = m_v - m_0 = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}} - m_0,$$

$$\text{and } \Delta T = \Delta mc^2.$$

The magnitude of  $\Delta m$  should be observed as the relativistic rest mass, which energy equivalent is calculated by the formula of  $E = \Delta mc^2$ .



Therefore, the increase of the mass (i.e. energy) of the rotor is considered to be the appearance and increase of the potential of electric intensity at its output contacts. The circuit of a switched load unit determines the energy flow of Medium of the electromagnetic field of the PQV, which tends to neutralize an appeared local defect of the field structure of the PQV. As a result electric current appears. Overcoming the resistance of the circuit the current provides us with heat, mechanical and the other kinds of energy, which are necessary for our everyday life. The replenishment and maintaining of the intensity potential occur due to the accession of the energy of the electromagnetic field of the PQV Medium.

The simplest evaluation of  $\Delta m$  magnitude (for example for the hydrotreater of Bratskaya hydroelectric power station, which power is equal to  $N = \frac{\Delta T}{t} = 225$  thousands of kilowatts) demonstrates that the value of the appearing relativistic mass comes to  $\Delta m = \frac{\Delta T}{c^2} \approx 2 \cdot 10^{-6}$  gram/sec. Since the total weight of the turbine is equal to 800 tons then this value cannot be measured by nowadays-existent instruments. However, these micrograms determine our total existence in the medium of the infinite space of the PQV.

Umov-Pointing's theory claims to be accepted as a theory, which explains the nature of the PQV. According to the theory, **the physical quantum vacuum is a time-and-space infinite universal all-penetrating fundamental energy field which has the lowest level of state**. Actually, the infinite capacity of the cosmic space of the PQV represents a structure, which consists of electric charges  $q$  and magnetic fields, which tend to their lowest ("zero") level of state. A cell of this structure is represented in Fig. 2. The electric fields  $\mathbf{E}$  and the magnetic fields  $\mathbf{B}$  of this structure act as an impulse and coordinates. According to the principle of uncertainty, they cannot simultaneously turn into zero. Certainly, the average values of  $\mathbf{E}$  and  $\mathbf{B}$  are equal to zero; however, the density of energy is expressed by

the squares of  $\frac{E^2 + B^2}{8\pi}$ .

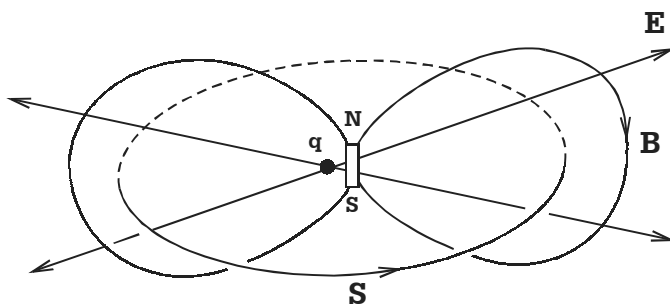


Fig. 2

The charge and the magnet produce Umov-Pointing vector of the energy flow  $\mathbf{S}$ , which circulates in a closed loop.

The theory asserts that the fields can be separated into particular electromagnetic waves. According to the linear theory, these waves are independent of each other, and every wave behaves as an oscillator, i.e. as a particle which is held in balance state by a square potential. The motion of such a particle is oscillation at certain frequency, i.e. "zero" oscillations at the minimal density of the energy. According to the classical theory, the minimum of the energy corresponds to a particle, which is rests on the lowest point. This minimum is equal to zero.

However, according to the quantum theory, the spectrum of possible states of a particle is expressed

by the formula of  $E_n = h \nu_{(n+\frac{1}{2})}$ . The lowest "zero" state

of the energy corresponds to  $n = 0$ ,  $E_0 = h \nu_{\frac{1}{2}}$ . Only this lowest state is compatible with the quantum theory and the principle of indetermining. Proceeding from the revealed fact that the basic energy level of the atom of hydrogen is displaced, i.e.  $\Delta \nu = 1062$  MHz, it is possible to calculate this lowest state of the energy. It

is equal to  $E_0 = h \nu_{\frac{1}{2}} \approx 0.55 \cdot 10^{-18} \text{ erg} \approx 0.35 \cdot 10^{-6} \text{ eV}$ .

Let us return to Fig. 2, which represents the cell of the structure of the physical quantum vacuum as a point discharge, which is located close to the centre of a magnetic bar. Since everything is at rest then the energy is not changed in time;  $\mathbf{E}$  and  $\mathbf{B}$  are constant. However, Umov-Pointing vector shows that there is the energy flow as the vector product of the cell  $\mathbf{E} \times \mathbf{B}$  is not equal to zero. The energy flow circulates round this system. Nevertheless, the energy is not changed, since every input is equal to the output. This phenomenon may be compared with the circular flow of incompressible water. Thus, in this case, which seems to be static, there is the energy flow, which has the lowest possible level of state  $E_0 \approx 0.35 \cdot 10^{-6} \text{ eV}$ . Certainly, these very elementary flows of the particular cells determine the state of the physical quantum vacuum, which is a time-and-space infinite universal all-penetrating fundamental energy field, which has the lowest level of state. This irremovable field is the primary inexhaustible source of the energy, which is used by the microworld of elementary particles and the macroworld of all the physical objects of the whole Universe. The primary task of the mankind is to learn to use this unlimited and immeasurable ocean of energy.

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# On Instantaneous Electrical Communication

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Almost a half of a year has passed since the article of "Nicola Tesla and Instantaneous Electrical Communication" was published [1]. This publication aroused rather wild readers' reaction. There was everything: astonishment, distrust, and accusation of incompetence in the basic clauses of electrophysics. Thus, the most of readers' opinions on the problem came to the notion that it is impossible to transmit a signal (information) at super-light speed, i.e. it is "pseudoscientific". There is the question what was incomprehensible in that article for the readers who insist on the "right" scientific positions. Evidently, comprehension is a very difficult process. The "pseudoscientific" instantaneous radio communication is in opposition to the "right" common one. This caused the problems in the readers' acceptance of the idea of such instantaneous communication. Therefore, it is useful to give a popular excursion to the area of the instantaneous electrical communication. Those basic points, which were the most difficult for readers' comprehension, will be stressed in this article. Let us try to approach the comprehension of the "pseudoscientific" principle of the instantaneous electrical communication by another way.

Since their school days the readers have known M. Faraday's experiments which were made on electromagnetic inductance. Let us revise only one, which is useful in our case. There is a conductor (i.e. a coil) in the magnetic field of a permanent magnet. A galvanometer is connected to the ends of the conductor. If the conductor (i.e. the coil) or the magnet is moved then the galvanometer needle is deviated that shows the occurrence of induced current. It is a well-known and clear fact. Let us change the experiment. If the distance from the conductor (the coil) to the magnet is increased and the magnet is moved then the practically same result is obtained. There are some important distinctions, which appear when the distance is increased. Nevertheless, they will be observed below. Is it possible in principle to transmit a signal (information) by movement of the permanent magnet field? Certainly, it is necessary for such a magnet communication line to operate at some appointed resonance frequency to increase the efficiency of its operation. This is the very point where the opposition of the "right" approach and the "pseudoscientific" approach appears. The author will try to overcome this barrier in the readers' mind by the end of the observation of the issue.

Above all, let us revise what the very principle of the existent radio communication is based on. Data

(information) transmission is the **change** of something (in our case it is the electromagnetic field) that must cause the corresponding **change** at a receiver. It is the only way of transmission. The receiver, which gets electromagnetic signals, must receive the **change** of the electric or the magnetic field (or both these fields) to create the induced current (i.e. voltage) in the receiving circuit and to reproduce the information. Since the question has concerned the magnetic field then for information transmission the magnetic flow (field) must be changed in value on time, i.e.  $d\Phi/dt \neq 0$ . The practice proves that the speed of this process can not exceed the light speed. This is the essence of that "right", which does not allow accept the opposite idea that it is unnecessary to change the value of the magnetic flow (field) in relation to time for a signal transmission, i.e. at  $d\Phi/dt = 0$ . **This is the starting point of the instantaneous radio communication**, which underlies the "pseudoscience"; it is that very barrier in conscious which the author tries to break.

Let us modify M. Faraday's experiment made on the movement of the magnet. A round or ring magnet, which is usually applied in the loudspeakers of acoustic systems, is placed on the axis, which coincides with the axis of the poles. A common flywheel-rotor, which is possible to rotate on the axis in both directions, will be obtained. There is a magnetic field round this fly-wheel. A galvanometer is connected to the ends of a conducting frame. The frame is placed close to the fly-wheel (Fig. 1).

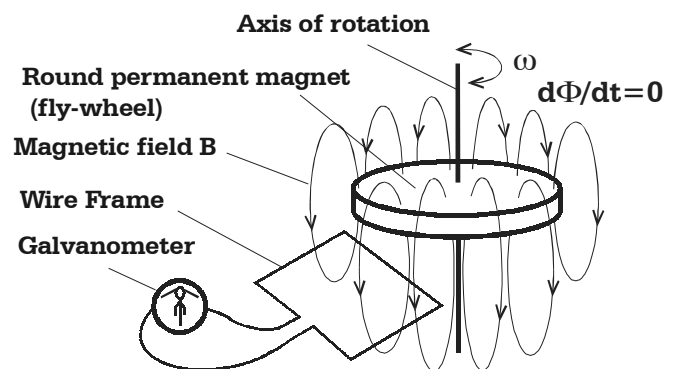


Fig.1

The wire frame, which is located in the magnetic field of the fly-wheel

The magnetic field of the fly-wheel varies depending on the state of the device, i.e. it is rotating or stopped. First the stopped fly-wheel is observed.

If the fly-wheel is stopped then the magnetic field, which runs through the frame, is static. The magnetic field of the frame is **homogeneous** since it has radial-beam symmetry. The field of every point of the frame, which is equidistant from the rotation axis of the fly-wheel, has the constant value of the magnetic inductance **B**. Since the field is static then it is stationary, and that means  $d\Phi/dt = 0$ . Nothing occurs, and data of the device is 0. What will occur if the fly-wheel is set in rotational motion?

The magnetic field of the rotating fly-wheel runs through the circuit. It rotates as well as the fly-wheel does. The data of the galvanometer, which is connected to the circuit, will again be equal to 0! Indeed, the **homogeneity** of the magnetic field, which has radial-beam symmetry, is not broken, and the value of the magnetic inductance **B** is not changed. It should be noted that the homogeneity of the magnetic field rises as the distance from the magnet to the conductor is increased. If the distance is great then the homogeneity of the field is independent of the magnet form (Fig.2).

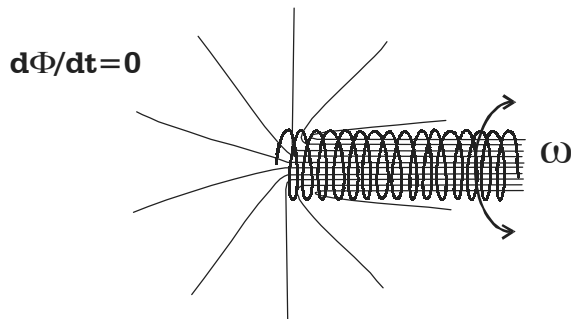


Fig. 2

The left end of the long thin coil with continuous current running inside and approximate radial-symmetrical lines of magnetic field which emanate from the current

This causes the intensification of the effect, viz the value of magnetic inductance **B** is not changed in any point of the circuit, which is equidistant from the rotation axis of the magnet. At the same time the value of the magnetic flow is not changed in time on the plane of the frame, i.e.  $d\Phi/dt = 0$  (**stationarity**). Thus, there is nothing but **information** (i.e. if the magnet rotates or not, what the direction of the rotation is, what the speed of the rotation is), whereas the galvanometer, which is connected to the frame, does not show anything since there is  $d\Phi/dt = 0$  in any case. Commonly the frame reacts to the dynamics, which is represented by the equation of  $d\Phi/dt \neq 0$ , and gives the signal to the galvanometer. This is the principle of operation of any input circuit (antenna) of a modern "right" receiver. This is the very cause why such receivers are not able to get the signal which is transmitted by a "pseudoscientific" instantaneous dynamic method, where  $d\Phi/dt = 0$ . Some clarity should be introduced into the issue.

Nevertheless, there something occurs in the frame, which is placed in the dynamic field of  $d\Phi/dt = 0$ . It is well-known fact that there division of electric charges occurs in the frame at the motion of the magnetic field

of  $d\Phi/dt = 0$ . In Fig.3 it is demonstrated by the example of a frame and a copper plate, which move in a homogeneous magnetic field. There is the division of charges, and there is no current (the data of galvanometer is 0). The readers should not mix up this case with the motion of a copper pendulum between the poles of a magnet or with magnetic decrement (i.e. oscillations damping). The pendulum is soon stopped since very great Fuco's whirling currents appear inside it. The readers have learnt these phenomena since the school days. It should be remembered that these currents appear only if  $d\Phi/dt \neq 0$ .

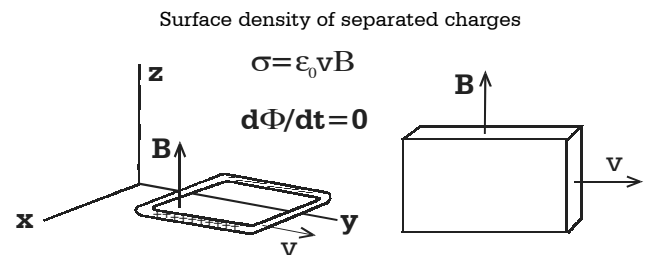


Fig. 3

Both the frame and the metal plate motion in a homogeneous magnetic field

In the Photo 1 there are two similar receivers and a transmitter, which is placed forward of the receivers. These are **operating** devices. The left receiver is a common "right" one. No detail has been recast in it. The right receiver is "pseudoscientific", i.e. its input circuit ("antenna") transmits a signal to the receiver when the dynamics of the field is  $d\Phi/dt = 0$ . Surely, the dynamics of  $d\Phi/dt \neq 0$  influences on this unusual "antenna" as well. Nevertheless, in this case the data of input of the receiver is 0. The "antenna" can be seen behind the "pseudoscientific" receiver. The readers themselves are able to invent the constructions of such antennas, which react upon the division of charges and in this case transmit a signal to the input of the receiver. Apparently, the receiver does not have a common antenna as there is no need in it. The static magnetic field, which is generated by the receiver, acts as the antenna. According to information, this field is set in motion by the energy of the transmitter. This working model is tuned to work in broadcasting range of VHF (FM). Power capability of the receiver corresponds to the capability of a common radio microphone, which is used by entertainers performing in a concert hall. At the first testing there was an interesting effect. All three devices were tuned in the same frequency. The transmitter was placed at about 10-meter distance from the receivers, which were placed side by side. The "right" receiver reproduced music. The "pseudoscientific" one sounded as a ringing buzzer of 1000 Hz, which was a signal relayed by the "pseudoscientific" transmitter. This is a very uncommon fact that two kinds of radio communication, which are different in principle, can not operate together in spite of they are tuned in the same frequency. There are many other unusual facts, i.e. huge antenna-tower systems are not necessary, static magnetic field has high penetration capability, and many other facts like these.

In Fig.4 magnetic field distribution is demonstrated in the case if the magnet is covered with a screen made of a magnetic (para-diamagnetic) material. The magnetic field  $\mathbf{B}$  is abruptly decreased. However, it cannot be totally compensated.

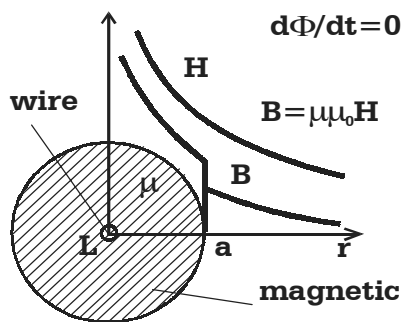


Fig.4

The magnetic field of forward current at the presence of a magnetic

Surely, this **working** model is not completed and, therefore, it operates rather badly. It is natural, therefore now the attitude to this working model should be the same as to Popov and Marconi's storm indicator (receiver). In spite of the fact that it operates according to the same principle of  $d\Phi/dt \neq 0$ , any modern simple receiver excels the storm indicator in all parameters.

A rather interesting situation concerned with the modern radio electronic companies has appeared. In spite of some obvious advantages of the "pseudoscientific" systems of radio communication in relation to the "right" ones, no company produces such systems. Such systems are required, and there is no competition in the market. The production of the systems can be very profitable. However, the barrier in mind must be broken before. In any case, if the market of the radio communication electrical equipment is developed then the work will be started from the development of the existent "pseudoscientific" working model of the new kind of radio communication.

In Fig. 1 the magnetic field of the fly-wheel tends to infinity. If the fly-wheel is set in rotational motion or stopped then the **whole** its magnetic field is set in the corresponding motion. If the receiver is situated within the magnetic field of the fly-wheel then a signal immediately appears in it independently of the distance from the fly-wheel to the receiver (from several meters to light years). At that the receiver reacts upon the motion of the homogeneous magnetic field by division of charges. This fact is very difficult to be realized. Once again it should be noted that the energy changing dynamics of  $d\Phi/dt \neq 0$  obeys the theory of relativity, and, hence, cannot occur at super-light speed. Meanwhile, the opposite energy unchanging dynamics of  $d\Phi/dt = 0$  can immediately change its state at the static energy. These two processes are opposite to each other. According to mathematics, this phenomenon can be explained. These two dynamics can be observed as the parts of the complex number of  $a + ib = z$ , where

$i = \sqrt{-1}$ . The theory of relativity, where processes cannot proceed at super-light speed, is the one part of this complex number, and the dynamic, which allows processes run at super-light speed, is the other part of the number. Everything sorts itself out. Since in the Nature everything is interrelated then the observed dynamics are interrelated by the absolute value and the argument just as parts of any complex number are. In this case we should appeal to **complex physics**. According to the complex approach, even immediate change of state of two very remote particles is placed in different light in quantum physics. The most obvious way to represent a complex number is graphic one, i.e. it is shown by two points, which are situated on mutually perpendicular lines. Scientists look for the possibility of existence of parallel worlds. It is expedient to find them in the perpendicular direction; however, the barrier in mind does not allow follow this path.

In the first publication there was mentioned Hz vector, which mathematical designation does not contain the light speed. Moreover, the vector of magnetic inductance is dual (complex). Its one part obeys the light speed, and the other part does not do it, in spite of the common point of attack of the both parts. This is derived from the structure of the electromagnetic field of the dynamic electron wave (mass-charge).

The common radio communication within the Solar System has time delay which is evaluated in minutes. This fact is proved by the communication with the remote space apparatus. These minutes give trouble but are quite acceptable. At transmission of information through the distance, which many times exceeds the value of the Solar system, the time delay comes to light years. It is unacceptable; therefore it is necessary to turn to the instantaneous radio communication. For achieving this aim it is possible to use the Earth magnetic field. It has very high homogeneity at a great distance. Then the field should be set in motion by an electric signal, which runs by a very long capacitor placed on the Earth surface. That is to say we cannot change the electric charge of the Earth, which is about 600000 coulombs; hence, we cannot change the value of its magnetic field. Thus, only one variant of dynamics is acceptable, viz  $d\Phi/dt = 0$ . It is interesting what frequencies can be used for the communication in this case. Since the charge and the capacity of the Earth taken as a capacitor, are less than 1Farad then the frequency is nearly impossible to be more than tens of hertz. Thus, only low frequencies could be used. It is required a 6000-kilometer capacitor to set in motion the Earth magnetic field at the frequency of 50 hertz. This is the exact thing to have been done. (The 6000-kilometer distance is the length of the Chinese Wall we can assume that it was a part of some global telecom system). Egyptian pyramids were the receiving part of the instantaneous space communication. Many scientists have realized this fact. The numerous investigations of the pyramids were unsuccessful. Therefore, the investigations were made in the view of  $d\Phi/dt \neq 0$ .

However, it is mistaken because they operate on the principle of  $d\Phi/dt = 0$ . There is great charge division inside them at the motion of the homogeneous magnetic field of the Space.

The researchers of the pyramids detected powerful electric processes, which occur inside the pyramids. However, the essence of the processes was unknown. The subsequent investigations should be made based on other positions. In this case it will be clear that the pyramids cannot be placed at any part of the Earth. The pyramids interact with the charge of the Earth. The orientation on the homogeneous magnetic field of the Space due to the Earth magnetic field is important. It will appear that the moving homogeneous magnetic field of the Space has value of  $2.086 \cdot 10^{12}$  tesla. This huge value can be easily calculated by any physicist. Nowadays the scientists are satisfied by the notion of cosmic "vacuum". However, it is the known fact that the energetic capability of the "vacuum" is huge. That is proved by the reduced value of the magnetic inductance of the so-called vacuum. The dynamics of celestial bodies will be observed in a different way, i.e. as interaction of moving electrically charged masses (mass-charge-electromagnetic field), which are divided just as the charges in the moving homogeneous magnetic field of the Space are done. This will cause

the removing of gravitation as one of the basic concepts of physics. Therefore, this notion will be useless in complex physics. However, nowadays the **complex physics** itself is just the "greatest pseudoscience". Let us conclude the article looking at the Photo 1, which represents my **working** model of the instantaneous electric communication.

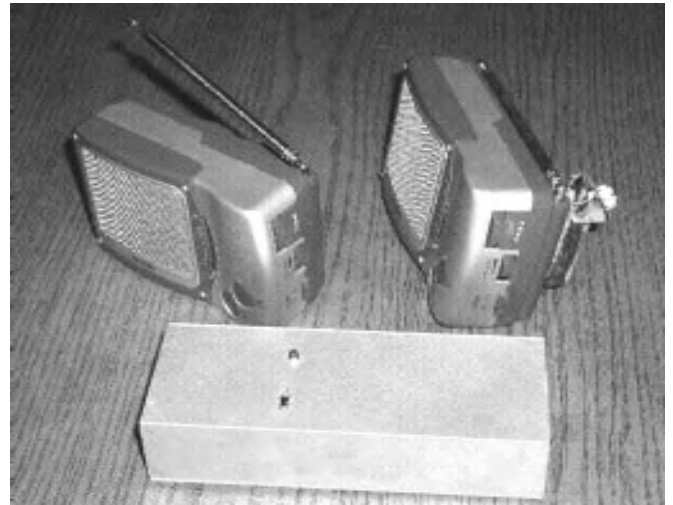


Photo 1

## Update News from LUTEC, AUSTRALIA

*1st November 2002*

The switch is still causing us problems. We are able to run the generator up to a certain speed, any faster and the transistors fail. Even at this relatively slow speed the generator is able to supply electricity, not enough to support all the electric requirements of a home, but it would probably supply sufficient for the lighting. We could say "that's close enough" and go ahead and produce what we have, but we are determined and strongly committed to not go to market until we have a machine that works efficiently and is therefore as close to breakdown-proof as possible. We also believe we are close to finding the solution to our challenge. The work therefore continues - we have intensified our efforts significantly in order to bring the solid-state switch to a standard acceptable to our purposes. We have now approached five separate individuals from different universities in Australia and the United States, and have asked them to take a look at the problem on a consultancy basis and see if they can rectify it. At the same time we have asked three separate electrical engineers to design and build or suggest various circuits that we could introduce to fix the problem. Meantime we are continuing our own efforts to solve this vexing issue. In all we have eleven separate groups working on this problem, it is only a matter of time before we find the answer.

### PATENT NEWS

Patent has now been granted in all the OAPI nations of Africa. These are the French speaking nations of Africa. The deed of patent will arrive in due course but protection is now available. Processing is continuing elsewhere.

### GOVERNMENT REBATES (AUSTRALIA)

Please note there are NO rebates available for the LUTEC 1000 in Australia ...yet. That is because there is no Lutec 1000 available for public purchase...yet. The EPA (Queensland) has contacted us pointing out some discrepancies on our website in this regard. We will correct any mistakes in the text and apologise for any inconvenience this may have caused. Following a visit to us over a year ago by two senior Qld EPA officers, we received correspondence wherein they stated that IF we are able to satisfy certain requirements, (we have no doubt we can comply) it would follow that rebates of fifty percent of the purchase price of a LUTEC 1000 unit would be made available. We will see if they are as good as their word when the time comes. John and Lou.

**(LOOK MORE INFO AT LUTEC WEB SITE <http://www.lutec.com.au/updates.htm>)**



# Investigation of 20 kW, 6,8 kV, 80 mkm Single-Wire Electric Power System

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## Abstract

20 kW, 6.8 kV, diameter 80 mkm, 6 m long electric power transmission line was tested. There was demonstrated appearance of specific current density 600 A/mm<sup>2</sup> and specific electric power density 4 MW/mm<sup>2</sup> without overheating of copper single-wire line of 80 mkm diameter.

The electric technique of 20 kW single-wire electric power system (SWEPS) with two Tesla transformers [1] is developed (see Fig. 1). Results of 10 kW SWEPS testing are given in [2]. For increase of transmitted capacity more powerful condensers in resonant circuits were installed and parameters of a low-voltage winding of the step – down transformer (Table 1) are changed. On Fig. 2 and on the cover page there are shown photos of SWEPS and the high-frequency transformers made in VIESH.

On Fig. 3 results of measurements of volt-current characteristics of step-down transformer are submitted. The measurement has been made in the period from October 27 till November 1, 2002. Measurements were made at wire with diameter of 1 mm, 100 microns (the area of section,  $S=7.85 \cdot 10^{-3}$  mm<sup>2</sup>) and at wire with diameter of 80 microns,  $S=5.024 \cdot 10^{-3}$  mm<sup>2</sup>. It has been shown, that parameters did not depend on diameter of a wire. Voltage internal resistance of a low-voltage winding of the step-down transformer was equal to 1.34 Ohm at  $U = 6$  kV. At measuring the inclination volt-current characteristics was applied to an axis.

For wires with diameter of 80 - 100 microns intensive mechanical movement of wires was observed in a cross direction ("dancing" of wires). In some cases this resulted in a mechanical separation of an 80 microns wire. It was also a result of the presence of repeated bend in a place of fastening of a wire at isolator.

The frequency converter operates on the second harmonic and conditions of a resonance correspond to a line voltage of 6 – 7 kV. Experimental values of voltage 360 V and 406 V were measured at 8 Ohm load. Line voltage was equal to 6 kV and 6.8 kV. Using these experimental values, there were determined factors **A** and **n** in the equation  $P = A \cdot V^n$ , which describes

dependence of transmitted capacity **P** (kW) on a line voltage **V** (kV):

$$A = 0.54113, n = 1,896 \quad P = 0.54113 V^{1.896} \quad (1)$$

On Fig. 4 dependence  $P=f(U)$  according to (1) in a graphic kind is submitted. Experimental data practically coincide with results of calculation for voltage 5– 6.8 kV (Table 2). Small difference of calculation and experiment for  $V=3.2 - 4$  kV is connected with deviations of frequency from resonant value. Results of SWEPS tests are submitted in tables 3 and 4. It follows from the equation (1) and Fig 4, that electric capacity of 50 kW may be transmitted at a voltage 11 kV using existing Tesla transformers and the frequency converter of the increased capacity. As a result of tests it is shown, that the copper wire with a diameter of 80 microns and cross section of  $5.024 \cdot 10^{-3}$  mm<sup>2</sup> at a voltage of 6.8 kV is not overheated up to 20.52 kW of transmitted electric power density. At room temperature effective specific transmitted electric power is 4 MW/mm<sup>2</sup> and specific current density is 600 A/mm<sup>2</sup>. SWEPS electric parameters in two hundred times exceed parameters of a usual two-phase or three- phase ac line or dc line and may be achieved for existing methods of electric energy transmission only at use of special materials in a mode of low temperature superconductivity.

Thus, property of a single-wire line to transfer active power without essential losses on line resistance is experimentally confirmed. High-frequency transformer Tesla at the beginning of a line is operating as the effective powerful electrostatic charges generator. These charges are flown down under action of a gradient of concentration along a line to a resonant circuit of step-down Tesla transformer and through the rectifier they are removed to loading. The resonant mode and high good quality of the system ( $Q = 105$ ) determines low losses in circuits. The electrostatic nature of charges transfer with a displacement current in the space, which surrounds a line, is not effected by Joule Law for the description of losses in a line. Irradiation losses at low frequency 3.4 kHz are small. In single-wire power system the 80 microns wire plays a role of directing system for an electromagnetic energy flow, which runs from the generator to the load.

**Table 1**  
**Parameters of windings of the transformer and resonant circuit of 20 kW SWEPS**

Parameters	Step-up transformer	Step-down transformer
Internal diameter, mm	590	590
Length of a winding, mm	400	400
Number of turns of a high-voltage winding	952	952
Number of turns of a low-voltage winding	19	27
Capacity, $\mu\text{F}$	14	12
Resonant frequency, kHz	1.852	1.852

**Table 2**  
**Dependence of SWEPS electric capacity on a line voltage,  $R=8\text{ Ohm}$**

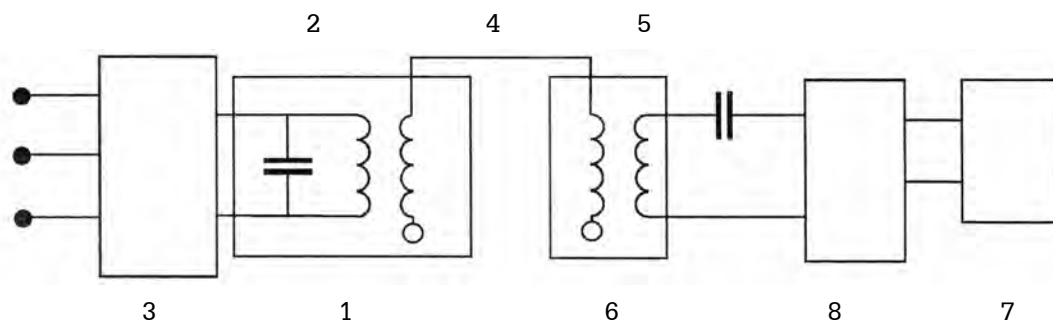
$U_l$ , kV	3.2	4	5	6	6.8	8	10	11
P, kW, calculation	4.91	7.49	11.45	16.17	20.506	27.9	42.6	51
P, kW, experiment	5.565	8.8	11.25	16.2	20.503	-	-	-

**Table 3**  
**Results of tests of an electric equipment of 20 kW SWEPS**

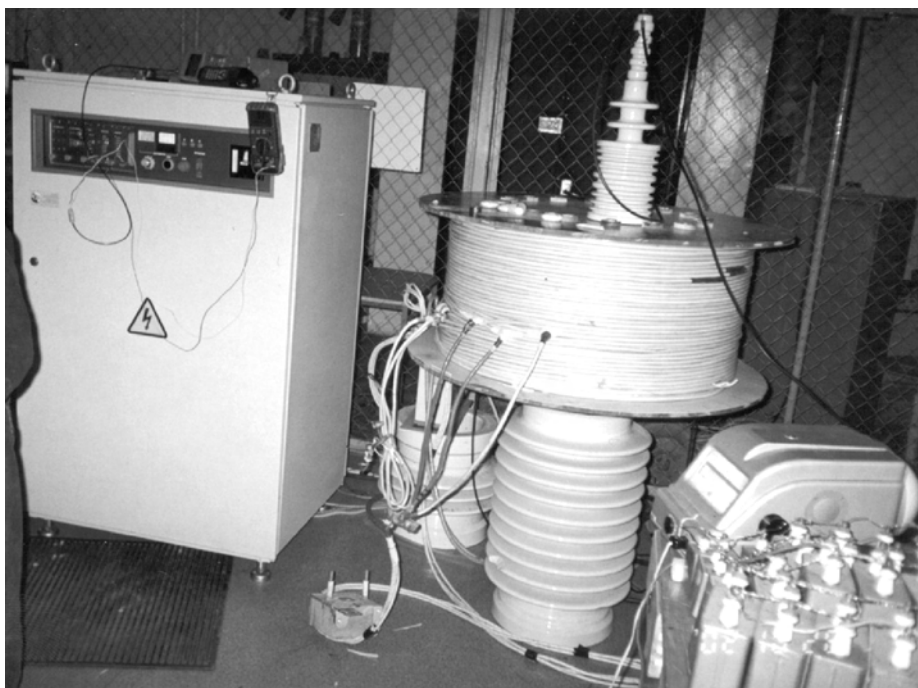
Parameters of a network on an input of the frequency converter	Parameters of the rectifier of the frequency converter	Parameters of a single-wire line	Parameters of loading on an output of the bridge rectifier
$I_f = 52.6\text{ A}$	$I = 62\text{ A}$	$L = 6\text{md} = 0.08\text{ mm}$	$I_H = 54\text{ A}$
$V_f = 214\text{ In}$	$V = 490\text{ V}$	$V = 6.8\text{ kV}$	$V_H = 380\text{ V}$
$P_a = 32.83\text{ kW}$		$L_{1\text{kHz}} = 8.1\text{ }\mu\text{H}$	$P_H = 20.52\text{ kW}$
		$R_{1\text{kHz}} = 14.29\text{ Ohm}$	
$Q = 2.137\text{ kVAp}$		$f_l = 3.4\text{ kHz}$	
$f = 49.9\text{ Hz}$			
$\varphi = 3.60$			

**Table 4**  
**Results of tests of 20 kW single-wire power system**

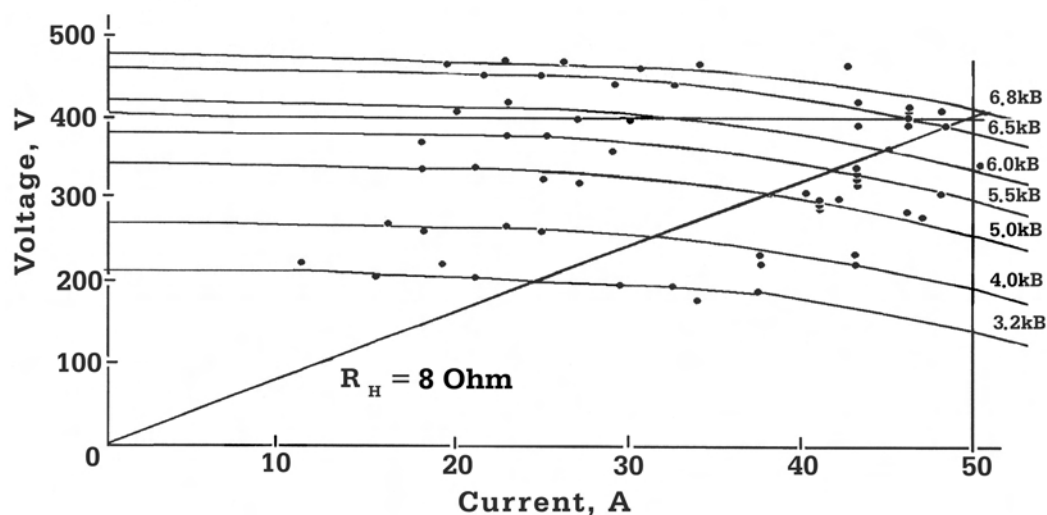
1. Electric capacity on loading	20.52 kW
Current	54 A
Voltage	380 V
2. Voltage of a line	6.8 kV
3. Frequency of a line	3.4 kHz
4. Diameter of a wire of a line	80 microns
5. Effective current density on unit of the area of cross section of a conductor	600 A/mm <sup>2</sup>
6. Specific electric capacity	4 MW/mm <sup>2</sup>



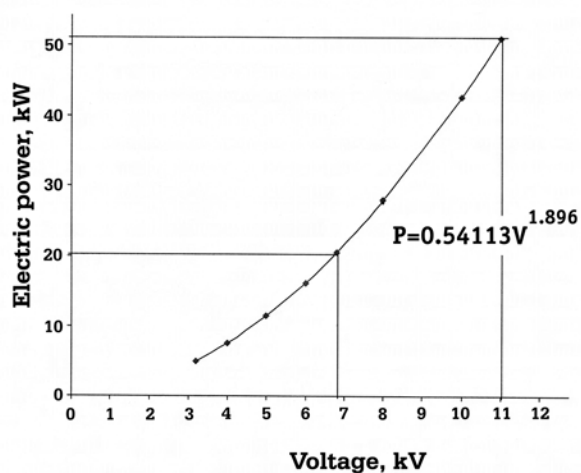
**Fig. 1** Electric circuit of SWEPS (explanations in the text)



**Fig. 2** Frequency converter and a resonant circuit of step-up high-frequency transformer



**Fig. 3** Experimental volt-current characteristics of the step-down transformer and load



**Fig. 4** Dependence of SWEPS electric power on a voltage of a line

## References

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2. D.S. Strebkov, S.V. Avramenko, A.I. Nekrasov, O. A. Roshchin. New Results of Development and Testing of Single-Wire Electric Power System. New Energy Technologies, 2002, N 5 p. 17-19

# Electric Energy Generated from Heat Dispersed in Atmosphere FUELLESS MONOTHERMIC ENGINE

Invention by Yuriy Volodko

Submitted at <http://archive.expert.ru/oborud/01/08-01/data/e15.htm>

## NET Review

Yuriy Volodko made experiments on laminar flow of pressure air to the atmosphere, at that the propulsion force and power consumption in different nozzles were measured. The experiments were made with the nozzle, which had about 50-100mm gap, and at relatively low speed, which did not exceed 130 m/sec. The author succeeded in finding out the fact that the available mechanical energy of the elapsing current stream appears at little compressing indexes (up to 1.5-1.6). This energy is twice or more times more than the mechanical energy, which is necessary to press air. Later on this result was repeated many times. The experimental data were received at 45 flat-slotted nozzles of different size, which include more than 2000 experimental points, and at the nozzles of other forms.

In these experiments the mechanical energy excess can be obtained only from the ambient space, i.e. from the atmosphere air. However, in the air there is no energy in the form of the mechanical one. It is represented as dispersed heat energy. A so-called "grab" of the heat energy, which is dispersed in the atmosphere, occurs. Thus, the laminar current stream of pressure air is a direct transformer of internal heat energy of the atmosphere air into the mechanical energy. The only one level of air temperature, which is independent of operation of the transformer, is necessary for such conversion.

Basing on the mentioned data the calculation of a **fuelless monothermic engine** has been made. This fuelless monothermic engine is a hypothetic energetic device, which has been designed to obtain mechanical (and electric) energy without any fuel consumption. The process occurs due to 50°C cooling of the atmosphere air. This air has come through the device. It is a known fact that such cooling occurs at outflow of the pressure air to the atmosphere (at moderate compressing indexes). The only way for this hypothetic energetic device to influence upon the environment is the output of the cooled air. A minute thermodynamic analysis of the fuelless monothermic engine was made. The engine should be a device, which contains an axial (or centrifugal) turbo-supercharger and a slotted turbo-expander (i.e. a pneumomotor), which have a common axis. Moreover, an electric engine-generator with a mechanical reducer should be placed on the same axis. These devices can set in initial motion the rotors of the supercharger and the expander. They also generate electric power after ending of the spinup. The calculations demonstrate that such a device of overall size of 1300x757x750mm (by the supercharger and the expander) allows obtain 800 kWt output at an axle

(except for the power consumed to move the rotor of the turbo-supercharger).

If the power consumption of one standard nine-storey eight-entranced house is approximately calculated (i.e. power consumption for heating, providing with hot water, lightening, elevators, household appliance etc.) then one might come to the conclusion that two or three these devices located side by side would be enough not to install electricity, gas and hot water from the outside. However, it would have to build up sewerage system to discharge the cooled air. Though, a part of this air may be used for a built-in system of household refrigerators and for air conditioning of apartments. Probably, it would be necessary to discharge the cooled air to wide, open for sun parts of land or water surface, where the cooled air would be heated due to the solar radiation. At the same time since every consumer is able to have their own source of energy then it would be almost unnecessary to build power lines.



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# ON VIKTOR S. GREBENNIKOV DISCOVERIES

## Cavity Structures Effect and The Natural Antigravitation

### NET Review

NET has already acquainted the readers with a remarkable discovery made by V.S. Grebennikov and V.F. Zolotarev "Phenomenon of the interaction of many cavity structures with the living systems" (Russian priority reference on the discovery is #32-OT-11170 from 03.09.1985) [1]. Viktor S. Grebennikov, Russian naturalist and a professional entomologist is known to many as the discoverer of the **Cavity Structures Effect** (CSE), but very few people are familiar with his other discovery, the one that also borrows from Nature and its innermost secrets. He has discovered antigravitational effects of the chitin shell of certain insects back in 1988, but the most impressive concomitant phenomenon he has discovered at the same time was that of complete or partial invisibility and/or distorted perception of material objects entering the zone of compensated gravity. Based on this discovery, Victor Grebennikov used bionic principles to design and build an antigravitational platform for controlled flights at the speeds of up to 25 km/min. Since 1991-92 he has used this device for his own fast transportation.

**The interest to Grebennikov works even after his death in 2001 is still rather high and in spite of the skeptical attitude of many scientists, some progress begins to be shown in the study and recognition of the discovery.**

Cavity Structures Effect was unexpectedly discovered by the scientist in the beginning of 80s while his studying of wild bees. The clay cellular habitations of these insects are strictly ordered. Therefore it appeared that such a structure of the nest generates a force field of unknown nature, which was registered by neither electrometers, nor thermometers, nor magnetometers, nor radiometers. Human hands feel this unknown field. Human palms placed above bee's nest felt heat, or cool wind. Some people felt their hand to become heavier; others felt that something pushed their hands up. Some have cramp in their forearm muscle, fingers grew numb and giddy was felt.

The entomologist decided to subject some living organisms (i.e. soil saprophytic bacteria, yeast fungi, wheat sprouts, bee larvae, white mice) to the influence of CSE. The results were interesting, viz in the zone of the mysterious field influence the reproduction of microorganisms decreased, the grains grew worse, bee larvae began to glow, grown-up bees finished fertilization season two weeks earlier than unirradiated individuals did.

There was a more astonishing fact that even a thick layer of metal could not screen this field. If the source

of the field was removed then its phantom scent as well as the influence on the ambient space was kept for about a month. In the zone of this field influence mechanical and electronic watches were wrong, and a microcalculator malfunctioned.

Grebennikov published an article about his astonishing observations [2]. Unfortunately, this work passed unnoticed, in spite of the fact that it was the right time to start studying of CSE. Therefore the entomologist had to continue his work by himself. Soon the scientist found out an uncommon rhythmic CSE-structure of chitinous shells of many insects. The ordered cellular composition was unnecessary for aerodynamics, or for solidity of butterfly and beetle wings, or for decoration.

The nature of the phenomenon was found out unexpectedly. Grebennikov put a chitinous shell of a beetle under 800-power microscope, and then he wanted to put another shell over that one. However, he did not succeed in it. The second shell broke out from tweezers, hovered above the shell that laid on the microscopic stage, turned anticlockwise, swung and abruptly fell down. Then Grebennikov bound several chitinous shells with a wire. He succeeded in it only placed them vertically. Some kind of a multiply block of chitinous shells was produced. He put it on a table. A very interesting effect was obtained. Nothing, even such a relatively heavy one as a big thumbtack, could fall on this block. Something pushed it up and away. Making next experiments the entomologist forced to attach the thumbtack over the block and it became invisible, i.e. disappeared for a moment.

Having been investigating cavity structures for many years Grebennikov knew about their different properties of different insects. Nevertheless, he did not expect that cavity structures of some species could generate antigravitation fields and make subjects invisible. The scientist decided to try designing of fly apparatus of **gravitoplan** basing on bioantigravitation effect.

In his book [3] the entomologist tells about flights, which he realized in practice aboard a noiseless flying device. Flying aboard the apparatus Grebennikov found out new properties of CSE and the designed device. It appeared that it was almost invisible from the Earth surface, i.e. it did not cast a shadow even at a hedge-hopping flight. People, who observed the motion of the gravitoplan, saw a light sphere, or a disc, or an oblique cloud with keen edges.

Soon the inventor made an attempt to take photo camera aboard the flying apparatus. However, since the gap of the camera could not be closed and the films appeared

to be spoiled then he did not succeed in taking pictures. Except the camera the entomologist's watch was wrong, viz sometimes it was fast, sometimes it was slow. In spite of this fact it had become right by the end of the flight. Grebennikov worried that if in this **phenomenon time is involved as well as gravitation force**, then the flight could be dangerous for a pilot and for people around him. This conclusion was proved by the incidents concerned insects placed into test-tubes which were taken with him during the flights. They disappeared without a trace! Once a test-tube was broken into small pieces in his pocket, at that there was no part of the insects left. Another time an oval hole with brown chitinous edges was produced in the glass of the tube.

After this case the entomologist realized that the "real" science should investigate CSE, and filled patent claim for the invention. His application was declined since it was recognized as pointless. Nobody tried to penetrate to the essence of the invention. The entomologist was not surprised by such attitude of patent commission. He was sure that even if he had demonstrated his device and flown up to a ceiling in their presence then he would have been chuckled out as a juggler. The scientist proposed different scientific research institutions to investigate CSE. However, the result was the same.

*Editorial: Faraday Lab is working on the topic.*

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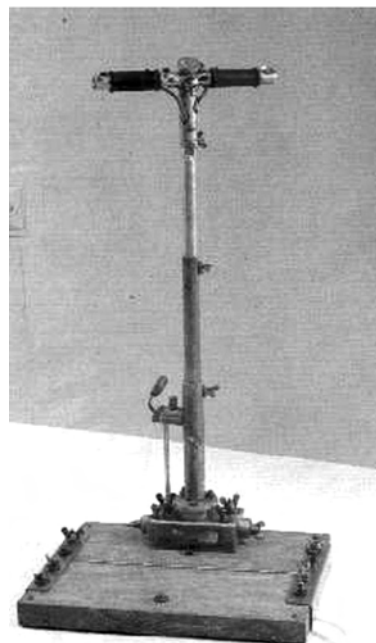


Fig. 1

Grebennikov's flying system (photo from his book "My World")

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# Experimental Study of Properties of Time

Review of Nikolay A. Kozyrev's articles  
by Alexander V. Frolov

*Editorial: Since Time is the most important and mysterious property of Nature, it is always a very important research topic. Below there is a review of Kozyrev's articles, which are devoted to this problem.*

**Time** brings us to the most profound and completely unknown properties of the World that hardly ever can foresee a bravest flight of human idea. Kozyrev asserts that the causality is the most important property of the real World. The **concept of causality** is the basis of natural science, while the exact sciences deny existence of any other properties of time besides of "duration" or time intervals, which can be measured by clock [1].

There is an idea to introduce the principles of natural sciences into the exact sciences. In other words, the tendency is to attempt introducing the principle of causality into the theoretical mechanics and determine the direction of time. Kozyrev named such sort of mechanics as "**causal**" or "**asymmetrical**" mechanics. It is quite natural that in statistical mechanics, based on the conventional mechanics of the point, the direction of time does not appear as a property of time itself but it is just a property of the state of the system. In the case of objective direction of time and other objective possible properties of time, they should be included in the system of elementary mechanics of unity processes. The statistical generalization of such mechanics can lead to a conclusion on the impossibility of the equilibrium conditions. Really, the direction of time means a continuous existent course of time, which is acting on the material system and **prevents its transition in the equilibrium state**. By this consideration, the events should occur not only in time but by means of time as well. Time becomes an active participant of the Universe that eliminates the possibility of its "thermal death". Then, we can understand harmony of life and death that we perceive as the essence of our World. Basing on these possibilities only, one should carefully examine the question on introduction of the time direction concept or time course concept into mechanics of elementary processes.

Kozyrev represents the mechanics in the simplest form of the classical mechanics of point or the mechanics of a material points system. In tireless quests for causes, the naturalist is guided rather by his own intuition than by certain procedures. It was stated by Kozyrev that the causality is related with the properties of time by the closest way, in particular with the difference in principles between the future and the past. Therefore, Kozyrev formulated the following postulates:

I) Time has special property, which create a difference between causes and effects that can be named as the

direction of the time course. This property determines the difference between the past and the future.

Kozyrev asserts that the necessity in this postulate is indicated by the difficulties associated with the development of the Leibnitz's idea on definition of the direction of time by means of the causal relationships. The studies by H Reichenbach [2] and G. Whitrow [3] indicated that one could never develop this idea strictly, i.e. without tautology. Just causality provides us with a concept of the existence of direction of time and it concerns the certain properties of this direction, but at the same time, it is not the essence of this phenomenon, but it is its result only.

Utilizing the simplest properties of causality the scientist provides a quantitative expression of the Postulate 1. Basing on the following states, i.e. 1) cause is always outside of the body where is the realization of the effect and 2) the effect is coming after the cause, we can formulate the next two axioms:

II) Causes and effects are always separated by space. So, there is an arbitrarily small, but non-zero spatial difference  $\delta x$  between them.

III) Causes and effects are different in time. Therefore, between their appearances there exists an arbitrarily small, but non-zero time difference  $\delta t$  of some certain sign.

Axiom II is the basis of classical Newtonian mechanics. It is contained in the third law, according to which a change in a momentum cannot occur under any action of inner forces. In other words, an external force cannot appear in the body without the participation of another body. Hence, based on the impenetrability of matter,  $\delta x \neq 0$ . Due to the complete reversibility of time, the axiom III is absent in the Newtonian mechanics:  $\delta t = 0$ .

In atomic mechanics, just the opposite one takes place. The principle of impenetrability of matter loses its value in atomic mechanics, and due to the possibility of the superposition of fields, it is assumed obviously that  $\delta x = 0$ . However, in atomic mechanics there is the irreversibility of time that does not exist in the Newtonian mechanics. The influence upon the system of a macroscopic body (the equipment) introduces a difference between the future and the past, because the future is proved to be predictable, while the past is considered not to be predictable. So, there is  $\delta t \neq 0$  in the temporal environs of the experiment, although it can be an arbitrarily small. By this way, the classical mechanics and the atomic mechanics are included into our axiomatics as two marginal systems. This fact becomes especially clear if the ratio is introduced by Kozyrev:

$$\frac{\delta x}{\delta t} = c_2 \quad (1)$$

In the real World is most likely a finite value. However, in classical mechanics  $\delta x \neq 0$  and  $\delta t = 0$  and hence

$c_2 = \infty$ . In atomic mechanics,  $\delta x = 0$  and  $\delta t \neq 0$  and so  $c_2 = 0$ .

In the case of the critical approach the condition of non-superimposition is determined as the symbols  $\delta x$  and  $\delta t$ . So, these symbols mean the limit of the infinitesimals under the condition if they never equal to zero. These symbols determine the point distances or dimensions of an "empty" point, situated between the material points of the causes and effects. In the calculation of entire cause-effect chain intervals, they should be considered to be equal to zero with any degree of accuracy. If they are infinitesimal of one order, their ratio  $c_2$  can be a finite value and it can qualitatively express a physical property of the cause-effect connection. This physical property is the course of time, formulated qualitatively by the postulate I.

Really, the **value  $c_2$  has the dimensionality of velocity and means a value of speed of the transition from the cause to the effect.** This transition is accomplished through the "empty" point, where there are no material bodies but space and time only. **Hence, the value  $c_2$  can be associated only with the properties of time and space, not with the properties of bodies.** Therefore,  $c_2$  should be a universal constant, which describes the course of time in our World. The transformation of the cause into the effect requires the overcoming of the "empty" point in space. This point is the abyss and the transition through it can be realized by means of the course of time only. It results from this that it follows directly the active participation of time in material systems process by Kozyrev.

The basic theorem of causal mechanics follows from the pseudo-scalar property of the time course, i.e. a World of an opposite time course is equivalent to our World, which is reflected in a mirror.

Let us clarify this Kozyrev's idea. In a reflected, mirror World the causality is completely remains as the same. Therefore, in a World of opposite time course the events should be developing just as regularly as in our World. This is not to say that if we run a movie film of our World in a reverse direction, we would obtain a pattern of the World of an opposite time direction. It is impossible to change the sign of the time intervals formally. This leads to violation of causality, i.e. to an absurdity, to a World, which cannot exist. If the direction of time is changed, there should also be changed the influences, which the time course produce in the material systems.

We can say that changes of time course velocity physically is the change of the matter existence conditions, i.e. its physical properties. The mirror World also should be different from our World in its physical properties. However, classical mechanics state the identity of these Worlds. Up until recent times this identity has also been assumed in atomic mechanics. It was named as **the law of the parity conservation**. However, Kozyrev wrote that the studies by Lie and Young on nuclear processes for the weak interactions led to the experiments, which demonstrated the

erroneous of the law. This result is quite natural for actual existence of the time direction that is confirmed by the direct experiments described below. At the same time, it is impossible to make an opposite conclusion. Numerous researches on the observed phenomena of nonconservation of the parity have demonstrated the possibility of other interpretations. Moreover, we can remember the experiments of Professor Hayasaka's, Japan.

The difference between the World and mirror reflection World is graphically demonstrated by a certain way in the biology. Kozyrev noted the morphology of animals and plants provides many examples of asymmetry, distinguishing right from left, independently of what hemisphere of the Earth the organism is living in. Asymmetry of organisms is demonstrated not only in their morphology. The chemical asymmetry of protoplasm discovered by Louis Pasteur demonstrates that the asymmetry is the basic property of life. The tenacious heritable asymmetry of organisms cannot be an occasional fact. This asymmetry can not be only a passive result of the laws of nature, which reflect the time direction. Most likely, certain inner structural asymmetry, which is corresponding to the given time course in our Universe, provides the biological organism with additional viability, i.e. the organism can use the real phenomenon of time course for the reinforcement of the vital processes. In addition to this Kozyrev's idea it can be said that any element of matter, for example an elementary particle, exists in space time as some process, i.e. it is senseless to consider that any element of matter can exist without its oscillation parameters. Moreover we can add that in biology the most remarkable example is DNA molecule structure, which is double helical spiral. The matter element as a resonance process was described in details [4].

Then Kozyrev derives from the fundamental theorem that in a World of the opposite time course, the heart of the vertebrates would be located on the right side, the shells of mollusks would be mainly turned leftward, and in protoplasm there would be observed an opposite qualitative inequality between the right and left molecules. Perhaps, if the life really use the time course as an additional source of energy then it can be directly proved by specially organized biological experiments.

According to the researcher, for causal connection of the spinning top (gyroscope) it can be expected the appearance of additional forces, which will act along axis of rotation of the top. It was experimentally proved by Kozyrev that the forces are really generated by axial action and depend on a direction of the rotation. It was found out that the course of time in our World is positive in a levorotary coordinate system, so by this way it is possible to determinate left and right by the objective method, i.e. the left-hand system of coordinates is system of positive time course, while the right-hand system is system of negative time course. By this way, the course of time in our Universe is the material connection between all bodies in the Universe, even during their isolation. Physically this means that one

four-dimensional state of the Universe includes all existent three-dimensional objects. It allows develop instantaneous telecommunication technologies, teleportation, antigravitation and other technologies.

Kozyrev explains the appearance of the additional forces by the following way. The time inflows into the system through the cause to the effect. The rotation changes the possibility of this inflow, and, as a result, the time course can produce additional mechanical stresses in the system. The additional stresses change potential and full energy of the system. These changes are produced by the time course. So, it follows from this that the time has energy. Since the additional forces are equal and oppositely directed then the momentum of the system is unchanged. So, the time has no momentum, although it has the energy.

According to Kozyrev's calculations the additional forces are disappearing, as it should be occurring in this mechanics. Naturally, the infinite course of time cannot be violated by any way. Therefore, time seems to be a fate of unconquerable power. The real time has a finite value of the course and, in principle it can be reversed. It should be demonstrated sometime by experiments studying the properties of time how it is possible to realize these phenomena in reality.

The properties of time must be discovered gradually by the physical experiments, and Kozyrev proves that it is possible to experimentally study the properties.

The experiments were made in the laboratory of Pulkovo Observatory, St.-Petersburg, Russia. During the time of these researches, it was accumulated numerous and manifold information, which allow make a number of conclusions concerning the properties of time.

The theoretical considerations indicate that the experiments on causal connections and the course of time may be organized with the rotating bodies, i.e. the gyroscopes. The first experiments were made in order to verify that the law of the momentum conservation is always true, and it is independent of conditions of rotation of the bodies. These experiments were made on the beam balance. At a deceleration of the gyroscope, which is rotating by inertia, its moment of rotation should be transferred to the balance, causing an inevitable torsion of the suspensions. In order to exclude the difficulties, the rotation of the gyroscope should be held with constant velocity. So, Kozyrev used aviation automation gyroscopes with rotation velocity, which was controlled by a variable 3-phase current of frequency about 500 Hz. The gyroscope's rotor had the same frequency. It appeared possible to supply current to the suspended gyroscope by means of three very thin naked wires without significant decrease of the suspension precision. During the suspension of the gyroscope was placed in a hermetically sealed box that completely excluded the air flows effect. The accuracy of this suspension was of the order of 0.1 - 0.2 mg. The readings of the balance with a vertical arrangement of the axis and various rotation velocities remained

unchanged. For example, proceeding from the data of one of the gyroscopes (average diameter  $D$  of rotor is equal to 4.2 cm, rotor weight  $Q$  is equal to 250 g), Kozyrev concluded that with a linear rotational velocity  $u = 70$  m/sec, the force, which is acting upon the balance will remain unchanged with a precision higher than sixth accuracy character. In these experiments, it was introduced the following interesting theoretical complication. The box with the gyroscope was suspended from an iron plate, which attracted the electromagnets connected together with a great mass body. This entire system was suspended on the balance by means of an elastic rubber. The electric current was supplied to the electromagnets by two very thin wires. The system of the current breaking was established separately from the balance. When the electric circuit was disconnected, the box with the gyroscope fell down up to a limit stop connected with the electromagnets. The amplitude of these subsequent motion of drops and risings could reach 2 mm. The experiments on weighting was organized for various directions of suspension and rotation velocities of the gyroscope, at different amplitudes, and at an oscillation frequency ranging from units to hundreds Hz. According to Kozyrev's publications, for the rotating gyroscope the readings of the balance remained unchanged as well as for an immovable one.

**In the process of the experimenting it was noted that transmission of the vibrations from the gyroscope to the support of the balance there are variations in the readings of the balance, and it depends on the velocity and direction of the gyroscopes rotation.** Strictly to say, when there are the vibrations of the balance, the box with the gyroscope is not a closed system. However, the balance can break the equilibrium state if the additional effect of the gyroscope (resulting from the rotation) is transferred from the frame of the gyroscope to the balance support. From these observations, a series of experiments with these gyroscopes was developed by Kozyrev.

In the first variant, the vibrations were produced due to the energy of the rotor and its vibrations in the bearings, depending on its clearance. Surely, the vibrations prevent the accurate weighing process. Therefore, it was necessary to decline the precision analytical type balance and to work with engineering balance, which has ribs of the prisms in contact with platforms having the shape of wings. Nevertheless, in this version the accuracy of the order of 1 mg in the differential measurements was obtained. A gyroscope suspended on a rigid support can transmit its vibrations to the balance support through the beam. **Some vibration type produces a considerable decrease in action of the gyroscope to the balance, when it was rotating in a counter-clockwise direction (looking from above).** For clock-wise rotation under the same conditions the readings of the balance remained practically unchanged. Kozyrev's measurements with gyroscopes of different weight and rotor radius, at different angular velocities, demonstrated that a reduction in the weight really is proportional to the

weight and to the linear velocity of rotation. For example, at a rotation of the gyroscope ( $D = 4.6$  cm,  $Q = 90$  g,  $u = 25$  m/sec), it was obtained the weight decrease  $\Delta Q = -8$  mg. With rotation in a clockwise direction, it always turned out that  $\Delta Q = 0$ . However, with a horizontal arrangement of the axis, in any azimuth, it was found the average value  $\Delta Q = -4$  mg. Kozyrev concluded from this that any rotating and vibrating body under the conditions of these experiments should demonstrate a reduction in weight.

The experiments with vibrations of a gyroscope on the balance also yield a new basic result. It appeared that the additional force of action and reaction are situated in different points of the system, i.e. on the support of the balance and on the gyroscope. So, there is the pair of forces rotating the balance arm. Hence, after these experimental results Kozyrev came to the following conclusion: time has not only the energy but also it has a rotation momentum, which it can transfer to the system. The development of modern antigravitation technologies is related with the conclusion. For example, Faraday Lab Ltd has filled the Russian Federation Patent Claim # 2002128658 of October 25, 2002, which describes method and device for generation of propulsion force by means of transformation of rotational motion into translational motion. It declared that it is possible to generate thrust without any reactive mass flow. Experiments demonstrated that it is impossible to obtain unidirectional linear motion only. However, both translational motion and rotational motion appear in the system that is related with Kozyrev's notion of possibility to use rotational momentum of time course. Technically it is not a problem to compensate the rotation by application of two systems which counter-directly rotate and generate co-directed linear thrust.

Basing on the analysis of known astrophysical information Kozyrev demonstrated that the energy expense decreases as well as the density increases, and formation of energy increases as well as the density of stars does. He concluded that the assumption about the existence of energy sources inside of stars does not correspond to the reality. So there are no special sources inside the stars and the stars emit energy according to Helmgoltz – Kelvin mechanism, i.e. they are gradually cooling and compressing. Nevertheless, if the age of the stars is significantly more than the duration of the cooling, we should admit that there is a process, which compensates this waste of energy. **There is Kosyrev's conclusion that the star is the machine, which produces energy by means of transformation of some type of energy into heat.**

From the point of view of the theory of star structure the received conclusions are very strange and unexpected. However, they prove **our main thesis that in the World there are constantly acting causes, which prevent the transfer to the equilibrium state.**

Kozyrev demonstrated that the stars energy is produced in result of some electrodynamic processes. However the principle that the closed system can produce energy

should be so deep to contain simple laws of mechanics. That is why Kozyrev formulated the following issues: **how the closed mechanical system can produce energy and what is the source of this excess energy, i.e. at the first time it was made an attempt to ground an energy source of mechanical and other perpetuum mobiles.**

The asymmetry of the mechanic laws introduced by Kozyrev means the only thing that the time has some asymmetric feature, which is connected with the inequality of real World and its mirror image. This property of time was called as the direction or time course. **Since this direction the time can make the work and produce the energy.** Thus, the star is only apparent **perpetuum mobile, it is an energy transformer**: the star derives its energy from the time course. According to analogous physical phenomena, for example plasma oscillations, we know about the transformation of longitudinal waves into transverse waves, i.e. into heat electromagnetic radiation [5], [6]. Thus, according to Alexander V. Frolov, the consideration of physical properties of time becomes investigation of longitudinal wave processes in aether.

Possibility to use the course of time, i.e. the unequally of the past and the future to produce the work is an interesting, but it is not the most principal effect of the causal mechanics by Kozyrev. As we could see it from the experiments on vibrations of gyros, very small vibrational actions in the system of rotating bodies can establish the additional cause-effect connection, which can produce the noticeable mechanical effects. This possibility to interfere into existing cause-effect connections means that it is possible **to control the course of time to amplify the processes, which act against the entropy increase, i.e. to amplify the vital processes in biosystems or to increase entropy in any material system.** The phenomena described by Kozyrev [7], when he studied the wave of time density, which is generated by any irreversible process, for example, melting of crystallization, fading or growing of plants, dissociation etc. If we consider this wave as oscillations of energy density in space then the longitudinal-wave nature of time phenomenon is obvious, and we can start making experiments on the real control of time.

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# BEDINI GENERATOR

Information and Photos are submitted by David Mason

at <http://www.theverylastpageoftheinternet.com>



Fig. 1  
Bedini Generator MK1

John's original idea is quite a simple idea. Normally a motor cannot turn a generator, which runs its own motor. But if you cheat by using a flywheel and switch the motor off every second or so, then the weight of the flywheel continues to spin the generator when the motors giving it off little bit extra and charges the battery, which powers its own motor.

I tried a simple design. I used a simple 555 timer to switch a relay, which turns the motor on and off, but in my design the generator is always connected.

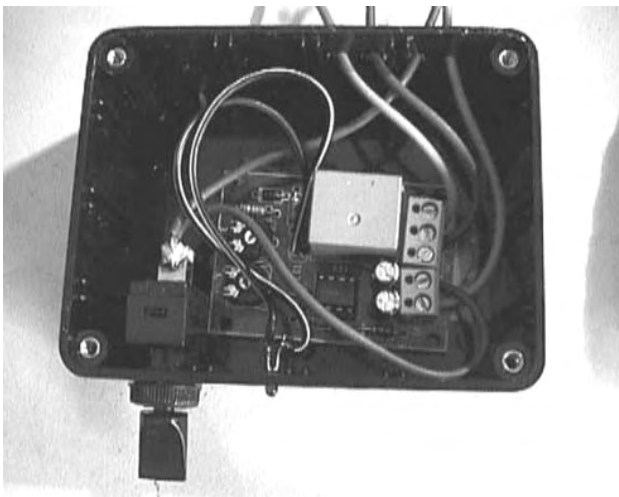


Fig.2

For my first try I used a wooden flywheel and small DC motor. Please ignore the timing switch that was an earlier idea.

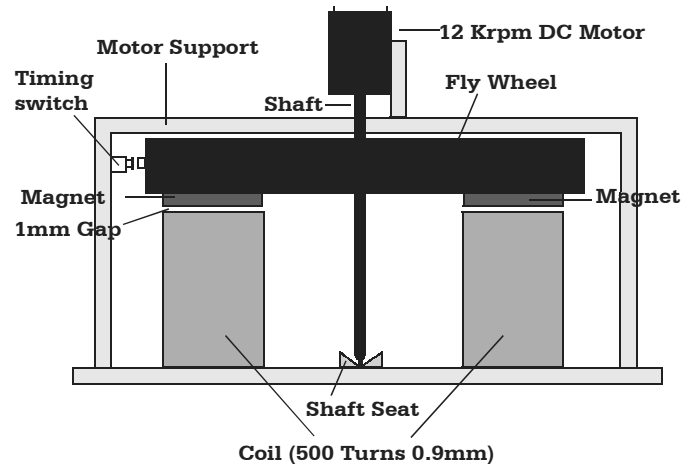


Fig.3

After some testing I decided that it would work better with a heavier flywheel, so I stopped this one and went on to the MKII.

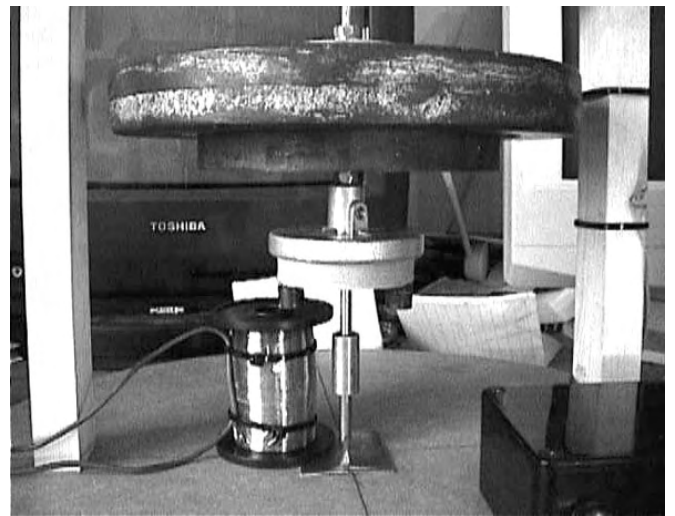


Fig.4  
Bedini Generator MKII

In this version I have used a 10 lb weight from a barbell set. The rest uses the same principles as the MK1 (see Fig.2).

Obviously the small motor is nowhere near power enough to turn the heavy weight at any reasonable speed, and soon over heats. I have had to put this project on hold until I can obtain a powerful DC motor.



Fig.5

The Mark 3 Generator works on the same principle as the previous model. It is a cylinder, which contains a motor and shaft. Attached to the shaft is a disc with 4 magnets attached to the lower side. There are four coils under the disc, so as the disc spins the magnets pass over the coils with around a 1-2mm air gap.

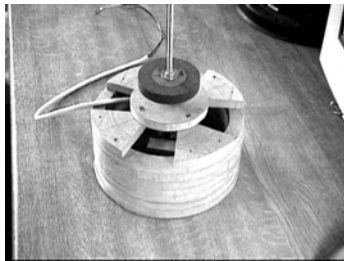


Fig.6  
The Mark 3 Generator

This is a very high-speed motor. The flywheel at the top weights 145 grams/5oz. This serves two purposes. The first is to smooth out the vibrations, which occur at high-speed rotation. Its second function is to keep the generator spinning when the motor is shut off. A 555 timer and transistor are used to switch the motor on and off every 1 second. So the motor kicks in again before the flywheels inertia starts to slow down.

I used several coil designs in the generator and several types of magnets, including NIB magnets. These however were so strong that they kept the disc still over the coils to the point that the DC motor, which spins the disc, would burn out.

After several attempts I could not get 12V out of with the required current. 12V was easily achievable, but the current was so weak that the free-running period, *i.e. when the flywheel was spinning the generator without the assistance of the motor*, I would have to spin much longer than it could on its own. So a heavier flywheel could be used to increase the self-run period, but then more current is taken by the DC motor to spin the unit. So as you increase one thing everything else increases to cancel out your efforts. My research in this type of design has come to a close since I no longer believe it can work.

*Editorial: Perhaps, the problem is a wrong idea about the real design? Any extra power in magnetization-demagnetization is a function of mass and physical properties of the core.*

## ARTICLE UPDATE

### An Introduction to Gravity



**Lew Paxton Price**

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*(Editorial: in NET #2(5), 2002 photo of Mart Gibson, was published instead of Lew P. Price photo).*

In New Energy Technologies, Issue #2 (5) 2002, there was an article called "An Introduction to Gravity". In that article, I stated that the neutrinos are "bits of

rotating aether". I no longer believe this to be true and an explanation follows which must include something regarding the nature of light if it is to be understood.

As was mentioned in the article, the electron is not a particle, but a vortex with aether (ether) moving into it just as air moves into a tornado or water moves into a whirlpool. A vortex of ether within a universe of ether extends as far as the universe exists. When such a vortex moves, it creates a disturbance within the ether surrounding it (the whole universe). This disturbance is a wave of ether acceleration, which moves outward from the vortex center in a plane, which is perpendicular to the direction of vortex motion. If the vortex reverses its direction another wave is produced but with opposite ether acceleration. Together, these two waves form what we call a wave of light, so that each actual wave of accelerating ether is what we call a half-wave of electromagnetic energy.

If the production of a single half-wave could be likened to a stone being dropped into a pond of water, the dimension of polarization of the ensuing wave would be the vertical dimension of the falling stone, an electromagnetic half-wave moving outward at the speed of light would be similar to the circular ripple of



water moving outward in the plane of the pond surface, and the acceleration produced in the electromagnetic half-wave would be acting parallel to and along the circumference of the expanding circle.

When an electron moves in any particular direction, a half-wave of light is produced, but this half-wave alone is only a small fraction of a photon and we cannot detect it as light. When this same vortex reverses direction, the half-wave produced is the second half of a full wave of light. But this is still a very small fraction of a photon and we cannot detect it as light. For light to be detected, the electron must vibrate consistently numerous times along the same path. The half-waves produced must find an electron which is located in a position where its rate of vibration when disturbed will match the frequency of the incoming series of half-waves (the photon). The first half-wave will begin to move the receiving electron, the next will move it back, the third will move a bit farther in the same direction as did the first, and so on until enough half-waves have arrived to cause the receiver to vibrate to its fullest. This is possible because the receiver is "resonant" to the incoming photon.

So light as we perceive it, is caused by a "package" of half-waves which we call a photon. These we can detect. But there are many half-waves which are too few to qualify as a photon. Most of these are single half-waves, each caused by a "charged particle" (vortex) moving in a particular direction and then failing to go backward along the same path. These ubiquitous half-waves move at the speed of light. They have no "mass" because "mass" is equal to ether "Mass" taken into a vortex within a certain period of time. They are simply expanding rings of transverse ether acceleration without charge, micro-gravity (or any other form of gravity), and without sufficient electromagnetic energy to make themselves known except by direct collision. Each is composed of the rotational energy of a vortex as this energy moves outward from the source.

Neutrinos have been theorized as bits of rotational energy that are necessary to balance certain equations. These travel at the speed of light, are very numerous (ubiquitous), without mass, without charge, and are virtually undetectable except by direct collision. My conclusion is that electron neutrinos are merely half-waves of light, and other neutrinos are half-waves caused by reactions of vortices ("charged particles") other than electrons.

For those of you who are well versed in the concepts of contemporary physics, this all may seem to be preposterous. However, there are several concepts in contemporary physics, which are either confusing or completely erroneous. Once they are clarified, this will seem more reasonable. The first, of course, is the concept that ether cannot exist. There are too many arguments to the contrary to place them all here.

The second is the concept of kinetic energy being equal to the product of mass and velocity squared divided by two ( $E_k = mv^2/2$ ). Although this equation is a

convenient mathematical shortcut, it is misleading. Actually,  $E_k = Fd$  where "F" is "force" and "d" is "distance through which the force acts".  $F = ma$  where "m" is "mass" and "a" is its "acceleration". So:  $E_k = Fd = mad$  (*Editorial (the joke): Really mad?*). This can be expressed in terms of velocity, but velocity is a constant state and acceleration is the cause of change. An object in motion has a velocity, but to convert this velocity to energy, acceleration (deceleration in non-scientific terms) for a particular distance must be exerted. In the case of rocket launch, the final energy of the rocket can be expressed in terms of velocity, but this velocity is achieved by acceleration over a distance. This information will be understood as pertinent after we look at Compton's work.

The third is caused by the experiments performed by Arthur Holly Compton which led to two equations:  $e = hf$  where "e" is the "energy" of a photon, "h" is Planck's constant, and "f" is the "frequency" of the photon; and  $w = hf/c$  where "w" is the "momentum" of a photon, and "c" is the speed of light. These equations are correct in magnitude, but incorrect in their dimensions. Compton and those who may have helped him to arrive at the equations logically decided that "c" in these equations is the velocity of light (dimensionally d/t where "t" is one second). However, c/t has the same magnitude and is an acceleration. When c/t is substituted for c, the equations make perfect sense. Planck's constant becomes the energy in one light wave, so  $h = M(c/t)d$  where "M" is the Mass of ether moving through the expanding ring of acceleration, "c/t" is the acceleration along the ring, and "d" is the distance along which this acceleration occurs.

The fourth is the idea of the photon as a natural package of light. The energy of a photon is based upon the number of waves produced in one second. This is a manmade definition. Nature's photons do not produce waves for precisely one second. So the actual energy in natural photon is the energy produced by the number of waves passing during the time period that the source electron chooses to vibrate. Therefore, the photon energy of one second is a relative measure based upon an arbitrary time and is not the true energy of the natural photon. This has often led to confusion in thinking on the part of contemporary physicists.

The circular nature of the outward-moving ring, which constitutes a half-wave, is the key to the validity of the EPR experiments. The removal at one point of the half-waves in a photon from a distant star will prevent that photon from reaching a point more distant from the star. This principle in concert with those of polarization and pulse code modulation should lead to nearly instantaneous communication between inhabitants of different solar systems.

For more details, the reader may wish to view my website which is currently found as [www.softcom.net/users/greebo/price.htm](http://www.softcom.net/users/greebo/price.htm) or use search on the Internet with Lew Paxton Price as the subject in case the website has been moved.

# The CIP Engine Principle

Robert L. Cook

Information and figures are submitted at  
[http://www.forceborne.com/cip\\_principle.htm](http://www.forceborne.com/cip_principle.htm)

**Cook Inertial Propulsion (CIP)** - engine converts centrifugal force (angular momentum) into a linear or translational force. Perfecting prototype. (US Patent #4238968).

The CIP engine converts centrifugal force (angular momentum) into a linear or translational force. In other words it converts  $\mathbf{J} = \mathbf{I}\omega$  to  $\mathbf{P} = \mathbf{MV}$ .

When John Wallis wrote the laws of the conservation of angular momentum (which Sir Isaac Newton plagiarized) he plainly stated that angular momentum could not be converted to a translational force because it had none to give!

The way he reasoned was: because the constants  $\mathbf{I}$  and  $\omega$  had to remain constant (or the same) for  $360^\circ$  of spin, the net result had to be forces in equilibrium, which could only create bounded motion. This would tie into Newton's 3rd law of action and reaction. Keep in mind that:

$$I = mr^2 \quad \text{and} \quad m = \frac{W}{g}$$

$r^2$  is equal to the radius squared.  $\omega$  = angular velocity in radians per second.

## How the CIP Circumvents Wallis' Law

1. The CIP engine mechanically splits the mass (represented by  $\mathbf{I}$  in the equation) after  $180^\circ$  of spin. One half of the equally split mass reverses direction and therefore the  $\omega$  part of the equation

must now show a positive  $\omega$  (counter clockwise direction) and a negative  $\omega$  (clockwise direction).

2. Because the evenly divided masses move at the same angular velocity, they create forces in equilibrium for only  $180^\circ$  of the complete cycle. The split mass is then made complete and becomes one mass which creates an unbalanced centrifugal force for  $180^\circ$  which can be used to propel. The splitting and recombining of the mass causes no negative impulses at all!

This fact was demonstrated at Boeing Field, Seattle, Washington on November 29th and 30th 1999. At the speed the mass was rotating, engineers at Boeing calculated that a 90 pound negative impulse should have registered each time the mass split or was recombined. But there was absolutely **NO reaction force** detected by the instruments recording impulses in the x, y and z axes.

On the other hand a 5 pound second impulse (which could be viewed as a unidirectional force) was recorded by the load cell/computer.

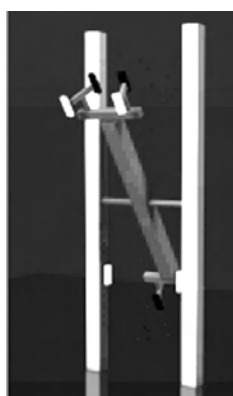
## Where Newton and Wallis Erred

They never considered that the mass ( $\mathbf{I}$ ) in the equation could ever be split mechanically. When this possibility is considered, most scientists assume that the splitting and recombining of the mass will result in two negative impulses being created that will cancel the one positive unbalanced centrifugal force created by the fully recombined or whole mass.

It's as simple as that as far as the principle goes but the mechanics and the other things involved are a nightmare to fully explain and no attempt to explain the mechanics of the system will be made here.



A) The upper rotors (designated from now on as the A rotors) are at the mass pickup point while lower rotors (B rotors) are at the mass drop off point. There is no shock during the weight transfer.



B) Masses on the A rotors are beginning their centrifugal force imbalance phase while the free masses are being recycled via a conveyor powered by the same electric motor that rotates the arms and rotors.



C) The A rotors have now reached their point of maximum centrifugal imbalance. The force at this point would be pulling the device to the left.



D) As the A rotors near the completion of this cycle, the B rotors are soon to begin it.

# The Energy Machine of Joseph Newman

Michael Williamson

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<http://www.josephnewman.com>

## Background Information (Introductory)

As background regarding the technology for those with whom you may communicate, Joseph Newman has described it as "producing greater external energy output than external energy input." [EEO>EEI]

That occurs in accordance with the concept that "energy cannot be created or destroyed only converted from one form to another." It is precisely for that reason that he originally began his pioneering research in the mid-1960's. And, since his technology does indeed produce greater external energy output than external energy input, it represents a fundamental corroboration of the First Law of Thermodynamics and extends the concept into the **electromagnetic** "conversion" of mass to energy.

Actually, in a very fundamental sense, it is incorrect to claim that mass is "converted" into energy. Operationally speaking, the fundamental units are transferred from one domain in the universe to another. Such fundamental units are simultaneously "mass" and "energy".

Joseph Newman has never called his pioneering technology either "free-energy" or "zero-point-energy". The term "free-energy" is actually scientifically inappropriate: the technology is neither "free" in an economic sense nor in a scientific sense. Why? Because 1) it does cost **some** amount of resources/money to build a unit and 2) the energy output **does** have to come from somewhere in this case from the atomic domains of the copper conductor.

In a very fundamental sense, the correct way to view the technology is that Joseph Newman is transferring gyroscopic massergies (originally termed gyroscopic particles by Joseph Newman) from one location in the universe to another.

I will make the following statement and then I will "correct it":

The Newman Motor/Generator "converts mass to energy **electromagnetically** rather than through nuclear fission or fusion."

The above statement will enable someone not familiar with the technology to better understand what is happening.

Now I will "correct" or "refine" the above statement:

Actually, mass is never "converted" to energy. Why? Because "mass" and "energy" are not only equivalent but such terminology represents two macroscopic manifestations of the **same** phenomena thus the term "mass-energy" or, simplified, "massergy". But the important operational aspect of these «massergies» is their universal **gyroscopic** natures.

The fundamental unit of the universe is the gyroscopic massergy. All atoms and all subatomic particles are composed of combinations of gyroscopic massergies. The gyroscopic massergy "perpetually" spins at "c" (the speed of light) and moves in some direction at "c". Thus, the gyroscopic massergy is the mechanical equivalent of Einstein's equation of  $e = mc^2$ . However, the gyroscopic massergy is not "mass" one instant and then "energy" the next instant. The gyroscopic massergy is simply what it is: it is something that is simultaneously **both** mass **and** energy! It is how **we** perceive it at different times that **we** choose to describe it as either "energy" or "mass". But, from the gyroscopic massergy's perspective it is what it is and **never** changes its mechanical behavior.

It is therefore correct to say that gyroscopic massergies are physically **transferred** (not "converted") from one domain or location in the universe to another. When they are operating in one location (as within the atomic domains of the copper conductor), we choose to call them "mass". When they are physically transferred to another location (as moving down the length of the copper conductor), we choose to call them "energy". But they, themselves, are unchanging in their fundamental mechanical behavior (gyroscopic) and can be neither created nor destroyed.

Thus, Joseph Newman does not subscribe to the "ZPE" concept that the "energy" produced by his Motor/Generator comes from the "aether". The source of the gyroscopic masserges is the atomic domains of the copper conductor Joseph Newman has discovered a method of extracting those gyroscopic massergies through a pulsing of the conductor coil in a particular mechanical fashion. It is for the very reason that some people blindly presume that the "energy can somehow be fed back into the machine" that others have been incapable of innovating this revolutionary technology. As Joseph Newman describes in his fundamental book, if one attempts to "feed the output back as input" then a braking effect will occur that will negate the results. That is because the **timing** of the release of energy from the system is critical to its proper functioning.

Joseph Newman seeks to commercialize the technology, but it takes capital to produce commercial versions of the technology that are constructed within close-tolerances and can operate at very high rpms. Joseph Newman is one human being he is not a well-funded multi-national corporation or a large university and he has never applied for nor sought a "federal grant" at

the expense of the taxpayer. All he has sought is the equal opportunity to protect his invention in the American marketplace via the patent system created by our Founding Fathers. Ironically, it would not cost the American a **single penny** to issue Joseph Newman a patent for his invention, yet the federal bureaucrats have spent **millions** of dollars of taxpayer monies fighting **against** the technology.

As you might imagine, the uses/applications of the technology are virtually unlimited and would enable all of us to become energy independent.

And here's the latest news:

A German electrical engineer (who purchased Newman Energy Machine collectible unit #4) has conducted extensive testing of the unit in Germany. His conclusion: the unit is 200% efficient. An Associate Professor with a research laboratory associated with a major university reviewed the results of the German EE and concluded that the unit's mechanical efficiency alone (not including the electrical output) was 129% efficient. Additionally, a distinguished Professor of Mathematics at Arizona State University has recently endorsed Joseph Newman's work. Joseph Newman is now engaged in the testing of his most advanced unit to date. (See the website <http://www.josephnewman.com> for additional information recently posted).

#### **General Information about the Energy Machine of Joseph Newman**

Joseph Newman's technology does not "create" energy. What his technology accomplishes (as verified by more than 30 scientists and engineers) is the transformation of energy from one state into another, totally in accordance with the First Law of Thermodynamics. That is also accomplished in accordance with Einstein's equation of  $E = mc^2$  [which was originally stated by Einstein as  $EL$  (Electricity) =  $mc^2$ .]

Ironically, when Joseph Newman originally began his research over 35 years ago, it was precisely because he DOES so strongly believe in the First Law of Thermodynamics that he believed that it was possible to innovate his technology. As a result, his successfully operational technology fully works in accordance with the First Law of Thermodynamics and represents a verification of same.

In keeping with the 1st Law of Thermodynamics, one cannot simply create "energy" from nothing. All generation of energy consists of energy transfers/transformations that operate in strict accordance with the 1st Law.

That is precisely what occurs with respect to Joseph Newman's technology.

With respect to the technology itself, there are no real size constraints. There are two methods of increasing

the power input: increase the amount of copper and/or increase the rpms of the commutator. The latter can be done by increasing the applied voltage (not the **current** which is what costs money) up to the maximum atomic alignment of the domains in the copper conductor. And, if you want to align **more** atomic domains, use **more** copper. Once the atomic domains of the copper conductor are aligned, the copper becomes magnetic and thereby releases energy (electro) magnetically in accordance with  $e = mc^2$ .

Joseph Newman's technology operates on **high** voltage and **low** current directly opposite to **all** conventional motors. Consequently, it runs **cool**. All conventional motors have been constructed over the past 160+ years with a built-in inefficiency, based upon a 180-year-old misconception.

If you visit the website of [www.josephnewman.com](http://www.josephnewman.com) you will note that a distinguished professor of mathematics for over 30 years at Arizona State University has seen the proof for himself and has recently publicly endorsed Joseph Newman's life work.

The following is from a Letter to the Editor of the Mobile Press Register:

"Never having met, talked with, nor had financial dealings with Joseph Newman, I read his book, The Energy Machine of Joseph Newman. After 30 years in the electrical profession I felt eminently qualified to debunk his claim to a device that generated more energy than it consumes. In the second chapter, I sat up in bed and shouted, 'He's got it!'" - Patrick McLain, EE, Mobile, Alabama

We don't wish to dampen Mr. McLain's enthusiasm for this technology and, although his comments are well-intentioned, Mr. McLain is laboring under the superficial conclusion that Joseph Newman's motor "generates more energy than it consumes." This is simply not the case. In fact, the motor does generate greater external energy output than external energy input [ $EEO > EEI$ ]. This technology does not violate the Law of Conservation of Mass and Energy. On the contrary this technology further corroborates the Laws of Thermodynamics, i.e., the only way one will achieve the internal production of energy within the system is by supplying the system with high voltage (and low current) to align the atomic domains of the copper atoms in the coil.

Joseph Newman supplies an external electrical stimulus to his coil (and special commutator system) that generates the magnetic field containing the gyroscopic particles (matter in motion). This external electrical stimulus takes the form of high voltage and the higher the better until maximum atom alignment of the coil is achieved. At the same time the current is kept as low as possible to minimize resistance; thereby the Newman motor always runs "cool." The externally

applied high voltage is not “consumed” by the system it operates in the same manner as the hydraulic system in an automobile. The reservoir of brake fluid is not “used up” but supplies a continual hydraulic pressure to the automobile’s brake system. In a similar fashion the high input voltage (and low current) acts as an electrical ‘hydraulic’ pressure to continually realign the atoms within the motor’s copper coil. The continual collapse and expansion of the copper coil’s magnetic field creates the mechanical torque of the motor. (The special commutator system achieves this continual collapse and expansion of the magnetic field.)

The net increase of external electrical energy from the system directly comes from the energy produced internally within the copper coil. This net output is greater than the small amount of current originally inputted into the system along with the high voltage. In the final analysis where is the excess energy coming from? Answer: from the atom domains of the copper coil within the motor/generator.

Dr. Roger Hastings, a physicist who has worked extensively with Joseph Newman over a number of years, has calculated that this system is so conversion efficient that it may take decades (or far longer) to be able to measure any appreciable mass loss in the coil.

This brings us to a discussion of efficiency. If Joseph Newman’s motor/generator system is viewed as a whole considering both external energy and internal energy then the total energy output for the system is **equal** to the total external and internal energy input combined.

Such a process is fully in accordance with the First Law of Thermodynamics! When the system is viewed as a whole, it is imprecise to say that the Newman motor/generator simply “produces more than it consumes.” However, it is correct to say that “the external energy output is greater than the external energy input” an external energy input considered independently of the large internal energy produced by the Newman motor/generator.

In other words, the revolutionary nature of this system is the fact that Joseph Newman has discovered a new electromagnetic principle of nature and has innovated a technology capable of converting mass (copper coil) into energy (in accordance with  $E=mc^2$ ) via a highly efficient electromagnetic reaction rather than an inefficient fission reaction.

Those who state that “one can never build a device which exceeds 100% efficiency” do not understand the nature of the phenomenal efficiencies (in excess of 800%) produced by the Newman motor/generator.

Such a statement demonstrates an inability to distinguish between **conversion** efficiency and **production** efficiency. To state that Joseph Newman’s motor/generator is 8.2 production efficient, i.e., that it

produces over eight times as much external energy output as external energy input, is different from stating that the invention approaches 100% conversion efficiency, i.e., that it converts the internal mass of the copper coil into energy in accordance with  $E=mc^2$ . The former process involves production efficiency and the latter process involves conversion efficiency. These two different types of efficiencies should not be confused.

In his motor/generator system, the electromagnetic conversion (of matter to energy) efficiency approaches 100% [rather than the less than 1% conversion (of matter to energy) efficiency of a typical nuclear fission reaction.] The production efficiency of the Newman energy machine has been found to be in excess of 800%, i.e., over eight times as much external energy output as external energy input.

Consider the following crude analogy of a nuclear fission reactor to Joseph Newman’s motor/generator: a typical nuclear reactor consists of a small amount of external electrical energy being inputted into the reactor station to turn on lights, activate control panels, start machinery, etc. The large external energy produced by the reactor, however, is the result of the nuclear fission process which internally occurs within the system.

As a result of such an internal fission process, external electrical energy is produced in the system. If, however, one ignores the internal energy and only considers the initial, small external energy input, then one could say that the net external electrical energy output produced by a nuclear reactor is greater than the external electrical energy input.

The important distinction, however, between a conventional nuclear reactor and Joseph Newman’s motor/generator is that the former is less than 1% conversion efficient and the latter approaches 100% conversion efficiency.

It was the phenomenon of Fleming’s Rule coupled with an understanding of Faraday’s generator that led Joseph Newman 35 years ago on the path to better understand (electro) magnetism. Once this understanding was achieved, it then became apparent to Joseph Newman that for nearly 150 years we have accepted a fallacy regarding (electro) magnetism: that fallacy being that the (copper) conductor “sits dormant like a water pipe carrying water” and does not participate in the resultant mechanical behavior of the system (motor/generator).

By analogy, Joseph Newman has discovered a means to harness a pre-existing “river of magnetic energy” that has been ignored as a result of a fundamental error made in the 19th century.

In essence, then, Joseph Newman is electromagnetically converting mass to energy in accordance with  $E = mc^2$ . Actually, this is a conventional, but crude way of stating what is

happening. More precisely, the system is 'transferring' that is the equivalent (in a macroscopic sense) of mass and energy from one locale in the universe to another locale.

The **gyroscopic spin** of these "massergies" (descriptive terminology for the spinning fundamentals which are the equivalent of both mass and energy) is the important aspect of their physical behavior.

Through a particular system of pulsing accommodated by the use of specially designed commutators, Joseph Newman has innovated a means of properly harnessing the back-emf of his system and thereby continually extracting energy from the system. Fully in accord with the First Law of Thermodynamics, the result is that the system produces greater external energy output than external energy input. The difference occurs as a result of the energy produced **internally**.

By analogy, this is no different in principle from a conventional nuclear fission reactor, except the 'conversion' of mass to energy occurs **electromagnetically** rather than via fission.

There, as a brief synopsis, is a description of the process involved with this technology. But it could not have occurred with a more fundamental understanding of (electro) magnetism.

It is such an understanding which many consider more revolutionary, in a scientific sense, than the resultant technology itself.

Essentially, Joseph Newman's Motor/Generators have generally been designed with the optimal purpose of "achieving the **least** amount of current inputted to have the **greatest** amount of atom alignment in the conductor material (which causes the **greatest** magnetic field)." It is Joseph Newman's position that because of a fundamental misunderstanding of the nature of electromagnetism, all conventional motors have been designed with built-in inefficiencies.

To restate:

The "official" description of Joseph Newman's electromagnetic aspect of his Theory of the Gyroscopic Massergy is: "the Newman Motor/Generator produces 'greater external energy output than external energy input.'" This is, in principle, no different from a conventional nuclear fission reactor. Joseph Newman's work represents a **total** confirmation and corroboration of the First Law of Thermodynamics. This technology has **profound** social/political implications with respect to our country's future since it would replace **all** conventional energy sources and enable Americans to become **truly** energy independent.

Joseph Newman's book, which represents his Theory of the Gyroscopic Massergy, also presents the first

explicit mechanical explanation for Fleming's Rule and Magnetic Attraction/Repulsion in scientific history, as well as a mechanical unification of the fields. Hopefully, someone such as Professor A. Swimmer, PhD, [Professor of Mathematics for over 30 years] who has endorsed Joseph Newman's fundamental work, will use Joseph Newman's mechanical unification to formulate a mathematical field unification.

In conclusion:

What the technical process involved does do is extend the Law of Conservation of Matter and Energy into a new domain, i.e., the equivalence of matter/energy via  $E=mc^2$  is extended to the electromagnetic domain. Such extensions of natural law into new domains have certainly been typical of the history of the progress of science.

Essentially, what Joseph Newman has innovated is the integration of the 19th Century work of Michael Faraday (upon which much of our conventional electromagnetic theory is based) with the 20th Century work of Albert Einstein to produce a revolutionary new electromagnetic technology for the 21st Century.

### An Interesting Demonstration

One of the more interesting demonstrations of Joseph Newman's energy machine technology was that conducted by engineers from WWL-TV (CBS-affiliate) in New Orleans. This test was broadcast (with appropriate graphs) on television and later featured on video.

The following is a paraphrase from the original broadcast:

"Eight, slightly-used penlight batteries were connected (in series) to a conventional electric motor. The conventional motor operated for 1 minute and 15 seconds before stopping.

"These same penlight batteries were then connected to a portable model of Joseph Newman's Motor/Generator. This Motor/Generator proceeded to run and a 90-pound magnet continuously rotated for **1 hour** and **15 minutes**, at which time the WWL-TV engineers disconnected the batteries because of a lack of time of the part of the film crew which had to return to the TV station to produce the evening broadcast.

"Then, the above-described penlight batteries were then **reconnected** to the **original** conventional electric motor and operated **this** motor for **two** minutes and 28 seconds before the conventional motor stopped. This is nearly **twice** as long as the first time (above) using batteries that are not supposed to be rechargeable!"



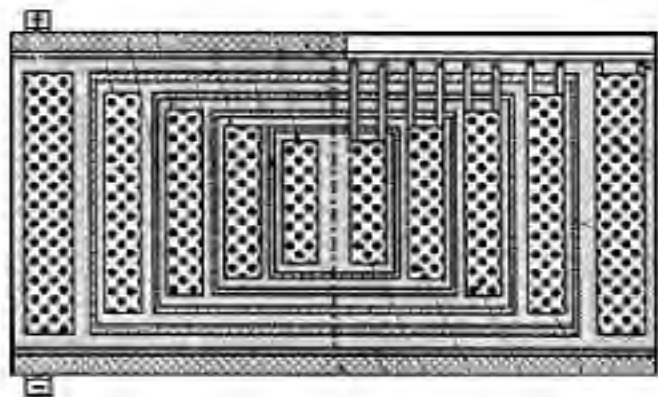
# What is RQM Technology?

## NET Review

Information and photos are submitted at  
<http://www.rqm.ch>

RQM technology uses a new electromagnetic process to convert energy present in nature (space quantum manipulation). This energy is very similar to the better known gravitational energy. The technology uses a process that converts this energy directly into electrical power.

The central component of the RQM technology is protected by a patent known as "A device and process for the generation of electromagnetic pulses" (Patent No. CH 687 428 A5) filed on November 29, 1996. Since then (and within the prescribed priority period) the patent has been submitted for registration in 94 countries. The process consists of the continuous conversion of natural energy into electrical power - as is the case for solar power - but is available 24 hours a day without significant fluctuations in availability.



**View of the interior of the patented RQM central component**

The RQM process produces a space quantum current which affects the free electrons in the patented RQM central component, thereby creating a potential difference (voltage drop), which in turn produces a non-polluting electrical current. RQM's goal is "research, development, production and marketing of energy-efficient, clean, renewable and cost-effective energy sources".

## Worldwide RQM Applications

On a worldwide basis, the consumption of electrical power increases every year. This should come as no surprise, as average size single-family homes - with a maximum peak time use of 15-20 kW - consume between 70% and 80% of this energy for heating/cooling and hot water. We obviously need alternatives to our traditional power sources. RQM offers energy-efficient solutions that are equally suitable for demand in highly developed industrial nations as in Third World developing countries.

RQM offers a clean, off-the-grid, cost-effective power source which comes in both stationary and mobile units. The application depends on whether you need, for example, an emergency power source on a ship or a central power unit for a single-family home. The modular construction of the RQM unit makes installation and maintenance simple and quick. There are no on-site repairs needed, as defective modules are simply replaced on the drawer-type assembly. This cuts down on repair and maintenance costs and significantly reduces down time.



**References: 1 Control unit / 2 Output electronics / 3 Inverter / 4 RQM unit / 5 Starter batteries**

**Energy-efficient RQM power units can be used anywhere: as a "power generating station" in a single-family home or as an emergency or secure additional power supply for individual applications. They provide clean, off-the-grid and cost-effective energy.**

An RQM electronic control unit monitors the energy requirements and regulates the power supply, which ranges from stand-by to a maximum of 25kW. The unit's ability to regulate the power supply significantly lengthens its life, which is at least 20 years. Replacement modules are guaranteed for the same period. All materials have a five-year warranty (subject to change without notice).

## RQM25 - Technical Specifications

A basic RQM unit consists of the following modules: a control unit, an output electronics unit, an RQM unit and starter batteries.

<b>Operating output power</b>	0 - 25kW net
<b>Output voltage</b>	24 - 400V DC 115/240/380V AC

3-phase AC	380V AC
AC frequency	50/60Hz

#### Input

Start-up (max.30 seconds)	24 - 48V DC / 10 - 20A
Operating input	0.1 - 2.5kW

#### External power source

Central oscillator	
Output produced by very high-frequency shockwaves present in space	0 - 38kW

#### Dimensions

with housing	56x60x130cm
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#### Volume

with housing	0.44m <sup>3</sup>
without housing	0.35m <sup>3</sup>

#### Total weight

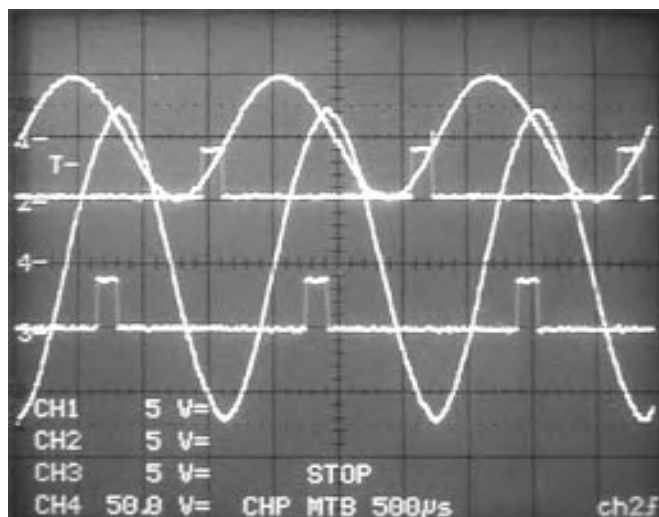
with housing	230kg
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Specifications may not be exact.They are subject to change without notice.

All RQM units (G, W and N) are set at the factory to generate the nominal output indicated for each type in kW.

### First By-Product of RQF/SQR-Research: Smart, adaptive converter (DC to AC) with patented RQM (SQM)-Impulse Technology

by Dr. sc. nat. Hans Weber and Hanspeter  
Kohlbrener  
Techn. Document 87-02-3, March 30, 2002



As already reported at the beginning of January 2002, our research work on the solution of the RQM-Energy suddenly and surprisingly led to a by-product which can be used for all types of energy generation and can be applied in a variety of output ranges.This is the smart, adaptive converter (DC to AC).

Electrical energy from renewable sources such as photovoltaics, wind energy or hydrogen energy from fuel cells is usually obtained as direct current (DC) energy, and as such is stored in batteries or hydrogen tanks. For domestic and industrial use it is then converted to alternating (AC) current. Two functions are required for this: optimal output in converting the electrical energy from the source (i.e. solar panels or fuel cells) and, if possible, low loss conversion of this energy into alternating current for the consumer. The difference between output and consumption is automatically regulated by a storage device.

In conventional equipment these two functions are carried out by separate devices. The first function is performed by the charge regulator and the second one by the DC-AC converter. The RQM-(SQM) Impulse - Technology uses the RQM-core piece to accomplish both functions.This is governed by a smart impulse generator through power electronics. The impulse generator is programmed at all times to find the optimum point of the power requirement for consumption independent of the state of charge of the storage device. This assures an optimal adapting to the source as well as the consumer. Only when all storage devices are either filled or empty, its task can not be carried out any longer and an alarm will report this. In a later model using standard AC supply lines this problem takes care of itself and the device will function as a power generator as well as an emergency stand-by, using no fuel and creating no noise or polluting smells.

The RQM-Solution is, from beginning to end, pure RQM-Impulse Technology , and is protected by patents. All functions are contained in an RQM-Core Piece, which is connected by the power electronics to a smart impulse generator. The RQM-Solar-Option presented today is using purely digital energy technology. Detail-**Information.**

The RQM-Impulse-Technology seems to have unexpected applications and is the counterpart in energy technology to the digital Communications Technology. Just as the digital communications technology has brought unexpected solutions in this computer age, thus also will the RQM-Impulse-Technology fruitfully influence the energy technology. We are happy to be able today to demonstrate for you a functional model of our first RQM-Product.

#### Advantages of a smart, adaptable Converter (DC to AC) using SQM- Impulse-Technology

The patented **RQM- (or SQR-) Impulse-Technology**, allows in a simple manner, using the smart control of a microprocessor, to generate one or more power sine curves. Thus it is possible to achieve an optimum adaptability to **changeable** voltage sources. In this case we are dealing with an entirely new converter technology (DC to AC) which will have a marked **usefulness for customers.**

<b>Technical Specifications:</b>	<b>RQM Converter:</b>	<b>Conventional Converter:</b>
Input voltage range (MPP V DC)	from 5 volt up, flexible 5 - 800 V DC	limited range with high response barrier
Technical design	few parts	many parts
Efficiency	> 92%	85 - 96%
Isolation transformer	not required	required
Impulse technology	yes	no
Life expectancy	very high	high
Production costs	lower (fewer parts)	high for large output
Applications	numerous, flexible	depends on technical data
Preferred Applications	all renewable energy technologies offering greatly variable power outputs (photovoltaic, etc.)	only specific, (custom designs )

## **EAVCF / Euro-American Venture Capital Federation, Inc.**

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**Preferred stocks of the Euro-American Venture Capital Federation, Inc.** This corporation is participating world-wide in the following future-oriented and above average, promising, high-tech fields, which allows controlled promotion: Renewable energy technologies for generating electricity for world-wide mobile and stationary application. Environmental technologies (for air, water and earth). Transmutation technologies for producing new materials (change of material characteristics, and for reduction of radioactive radiation of waste products from medicine and research). New drive technologies for aviation and space travel by using newly discovered energy sources for continuous energy conversion on site in the field. New communication technologies. New software programs.

**Share sales are first offered world-wide to private investors, institutional investors (banks, insurance companies, pension funds, investment funds etc.) The admission to the American high-tech and new concept stock market NASDAQ is planned and in**

**preparation. The application procedure usually takes about 9 - 12 months.**

### **Stock option for joint inventors and former RQM investors**

On November 15, 2001, voting shareholders in the company EAVCF Inc. unanimously resolved to in the event of success (technical success with the experimental plants or the successful stock market floatation of EAVCF Inc.) to distribute a total of 3.25 million preferred shares (10 % of the approved preferred stock) to the participating joint inventors (with 5 %) as a bonus, and to the former RQM investors (with 5 %) in the form of a pro rata settlement. Those companies and private individuals whose activities and behavior damaged and led to the bankruptcy of the former company RQM Raum-Quanten-Motoren AG in the year 1999, in accordance with legally valid court judgements, shall be excluded from the settlement.


**Preferred stock of the Euro-American Venture Capital Federation, Inc.** (Preferred stocks or shares have priority for dividend payments, but no voting rights) Nominal value US \$ 10 per share.

Approved capital US \$ 650 million, of which 32.5 million are preferred shares.


You can find more info about the company at  
<http://www.rqm.ch/engl/aktien/start.php>.

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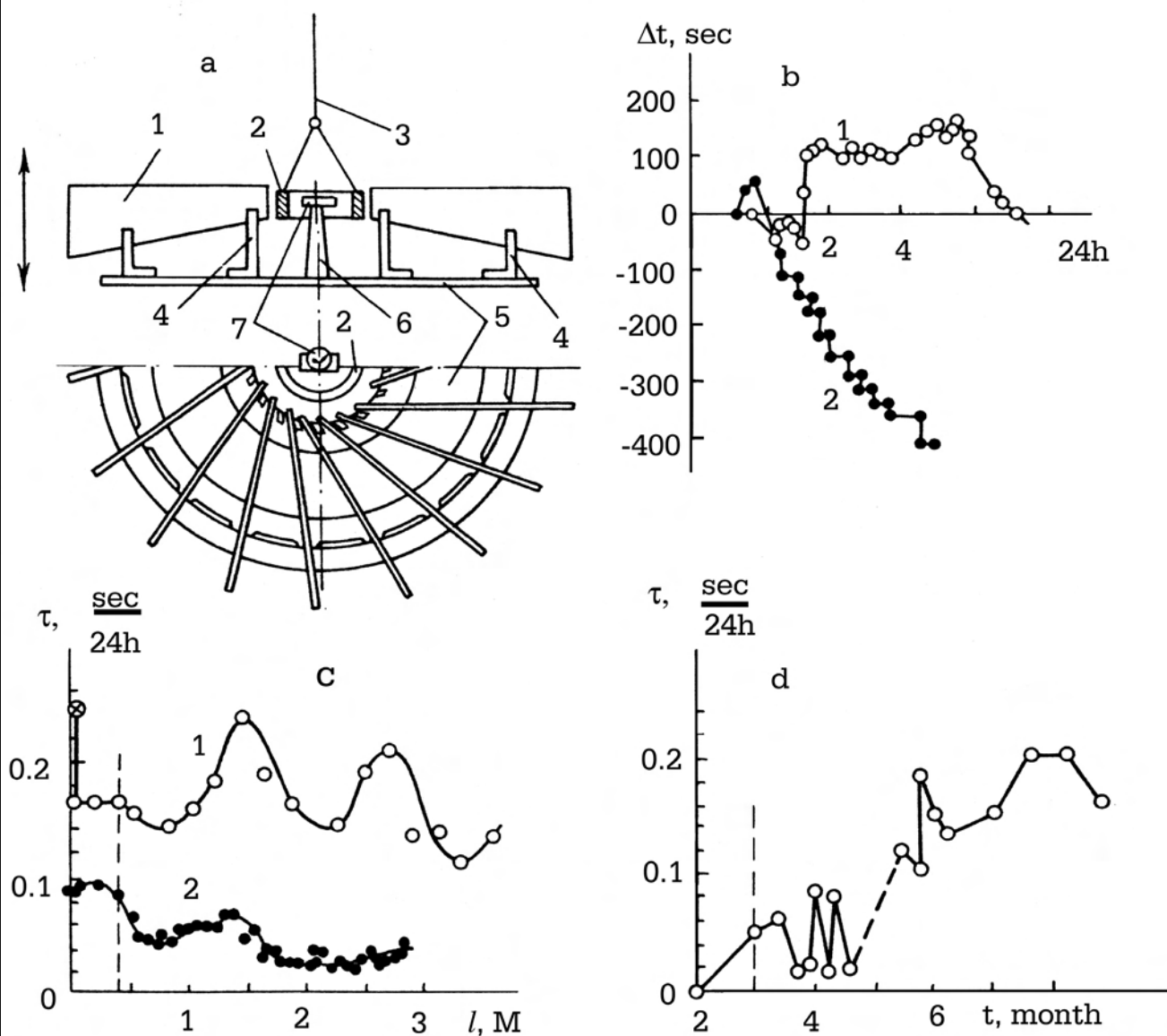
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# Experimental Data on Time Control by Acad. A. I. Veinik

*Editorial: It is our answer to readers' request about some simplest experiments on the Time Control.  
Do it now!*

The principle of work of the device is based on operations with chronal matter, which first is obtained from the ambient space, then accumulated (concentrated), and radiated. The plates (1) of  $350 \times 70 \times 21$  mm size are placed into grooves of pasteboard supports (4), which are installed on the textolite disc (5) of 735 mm diameter. The ring (2) of 70 mm exterior diameter, 7 mm thickness, and 14 mm height is fixed on the 2.66 meter suspension (3). There were used 70 plates, directed at a tangent to the middle of the ring (2) thickness.



## Reference:

1. A.I. Veinik. Thermodynamics of real processes. Minsk: "Science and Engineering" 1991, p.576., ISBN 5-343-00837

# Development of Faraday Unipolar Generator in India

## The Space Power Generator (SPG) by Paramahamsa Tewari

The Review is prepared according to web source

<http://www.tewari.org>



Fig.1

Paramahamsa Tewari observing SPG test and measurement verifications

Paramahamsa Tewari, an Indian scientist, has made a breakthrough in a method of electrical power generation. He has been granted an Indian Patent (Application number 397/Bom/94) for an increased efficiency homopolar generator.

Paramahamsa Tewari was born on January 6, 1937, and graduated in Electrical Engineering in 1958 from Banaras Engineering College, India, and held responsible positions in large engineering construction organizations, mostly in Nuclear Projects of the Department of Atomic Energy, India. He was also deputed abroad for a year at Douglas Point Nuclear Project, Canada. He retired in 1997 from his position as Executive Nuclear Director, Nuclear Power Corporation, Department of Atomic Energy, India, and is the former Project Director of the Kaiga Atomic Power Project.

For the practical demonstration of generation of electrical power from the medium of space, Tewari has built Space Power Generators that operate at over-unity efficiency, thereby showing that space medium indeed is the source of generation of basic forms of energy.

Experiments conducted during the last 10 years have indicated that his Space Power Generator (SPG) is operating at over-unity efficiency. Many researchers

have performed experiments with these devices, also called homopolar generators or unipolar dynamos. The devices usually consist of a rotating magnetic disk called a Faraday homopolar generator in which electrical current is passed from the center of the disk to its edge.

The Space Power Generator is able to produce low voltage ac or dc power at about 2.5 times the mechanical power applied at its shaft. Further improvement in the construction of the SPG producing dc power has raised its efficiency to about three times the mechanical power applied.

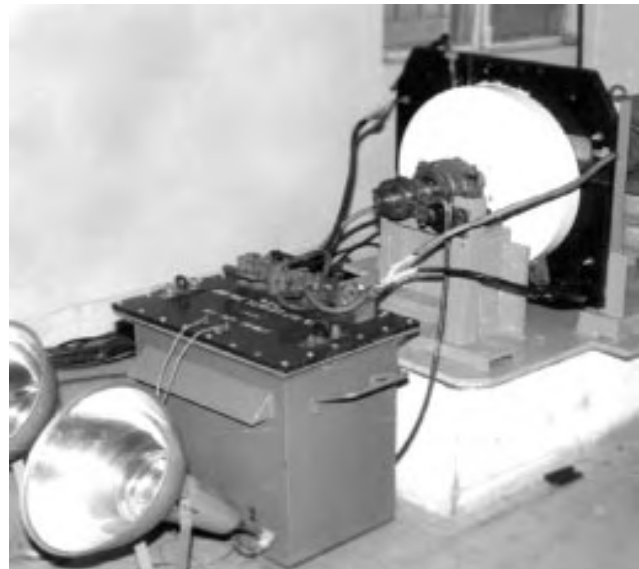


Fig. 2

Alternating current power SPG with step up transformer

The next generation SPG will use electrical output for feeding a Faraday motor mounted on the same shaft to achieve self-sustaining operation. Certain specific configurations of magnetic fields from rotating electromagnets and electrical conductors have made it possible to construct an SPG that produces ac power presently in the same range as the SPG producing dc power with an efficiency of about 250 percent.

**Tewari's machine is as usual measuring overunity. 9 KW electrical energy in and 9 KW electrical energy out plus 3 - 4 KW heat out.**

***The SPG is proven technology that produces 200-300 percent over-unity energy. The SPG theory has been tested and proven. It is time, now, to build a prototype system and to work on improving the concept to develop a product that can be used in every household.***