



# **Time Machine**

Experiments by research group "KOSMOPOISK" Summer, 2001



## Device designed by Faraday Lab Ltd, 2002



# Experiment on the generation of gravitational field

# by Dmitry Yu. Tsipenuk

# Sergey S. Abramov

# Model of Adams Motor-Generator

Electrolytic photoaccumulator for the XXI century energy systems

Read the new article by Anton I. Egorov

# Flynn Generator

Original version of photomaterials is presented at http://www.flynnresearch.net

# Joe Flynn Laboratory, USA



Electric generator by Joe Flynn More than 350% efficiency generator operating on permanent magnets



Read the article by Tim Harwood in this issue

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# **CONFERENCE "THE TIME MACHINE"**

Editorial: On April 12 of 2003 a scientific conference "The Time Machine" was organized by Faraday Laboratories Ltd in Moscow, Russia. It was devoted to the experiments on control of space-time physical properties. At the conference there were discussed problems of time and gravitation in the context of etherodynamics, experiments and applied aspects of these technologies. Below we publish a review of the main reports presented at the conference.

## The First Results of the Works on the Designing of Devices to Control Parameters of Physical Processes (of Time)

#### Further Plans on Designing of the Time Machine

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To conduct the experiments on the influence upon physical Time (density of space energy) some special devices were used as a general method of such influence. These devices can create converging waves which can cause the appearance of quasi-monopole in the confined space. *Quasi-monopole* is a part of space which has some parameters of hypothetical unitary monopole or bunch of such particles (in particular, it allows registering one magnetic pole by means of measuring equipment from the outside at some distance from this pole).

The pilot experiments have shown that it is very difficult (if not impossible) to create long-living quasi-monopole by means of permanent magnets or electromagnets operating on direct currents (in this case quasi-monopole represents a space with one outer and one inner magnetic pole). It can be explained by the fact that lines of force of the "inner pole" invariably find a weak spot in the heterogeneous surface of magnets and break out. As a result, at the device along with one "outer" magnetic pole there is a local output of magnetic lines of the "inner" pole.

During the designing of new devices there was a task to create a quasi-monopole situation in the confined space. This situation should be created not uniformly but transiently by pulsation method. Frequency of work of electromagnetic oscillators first of all was selected depending on linear dimensions of the devices. Selection of the frequency was made in such a way that one period of pulsation does not exceed the period of time which is necessary for electromagnetic waves to reach the center and opposite waves of the device.

At the designing of laboratory devices, which generate converging longitudinal waves, several different principles to obtain required parameters were considered in the multi-layer quasi-monopole, which works in highfrequency mode. Several types of the devices were realized at different degrees of development and with different success. It was shown that the simplest devices were that ones which used electromagnetic (solenoid) oscillators connected in series and in parallel. In different experiments between 3 and 5 such surfaces were used. These surfaces were called electromagnetic work surfaces (EWS). All layers of EWS of different diameters were mounted in series in each other (like matreshka). The outer layer was either mounted at force shell or simultaneously represented such a shell by itself. The size of the maximal EWS was about 0.9 m, the diameter of the minimal (inner) EWS was equal to 115 mm that was enough to place laboratory animals inside the control detection devices. Laboratory animals were used to determine the consequences of the influence of converging spherical electromagnetic waves. Payload, (i.e. that which was directly used for transfer in Time-Space), included the afore-mentioned detection devices and (occasionaly) laboratory animals. The term "payload" was coined by analogy with the term which is used in cosmonautics. Volume of payload section was placed in the center of symmetry of the Time Machine (TM). In all the earliest Machines (except the 7<sup>th</sup> model) this volume still has not exceeded the volume of a football. The device with an outer diameter of 2.1 m and inner payload section of 1 m has the maximum size. It allows making human-aided experiments.

At different stages of the experiments the calculations were made by all available known modern methods to fix time. All types of electronic, quartz, mechanical and several specially made doubled quartz generators were used (there were compared frequency readings of measuring and etalon heat-insulated generators which were placed at a distance). Certain experiments used lightguiding diodes and some other methods. Before and after the experiment (more rarely during the experiment) readings of measurement clocks were periodically compared with those of an etalon clock and with signals of exact time which were transmitting by radio. Other physical factors causes side effects upon some types of measuring devices, for example, upon quartz-crystal clocks. However, doubling of measurement methods allowed essentially decreasing inaccuracy of measurements.

At some operating modes (which were not always predicted) the change of Time speed was attained (Prof. Nikolay A. Kozyrev called it density of Time  $t/t_0$ ). This change came to about a fraction of a second per an etalon hour. Let us take usual "etalon" earth time as  $t_0^{=+1}$  then it becomes clear that it is speed range of  $+0.99 < t/t_0 < +1.01$  which is researched in the experiments. Thus being placed inside the device, the inanimate objects and animals were transferred in the Future (with "above-zero" speed) more slowly or faster than those around them. It occurred at all operational modes of the device (deceleration or acceleration).

Difference of Time (gradient of Time speed or curvature of Space-Time field) was observed not only inside the TM, though there is no doubt that a maximal value of changed Time was registered inside the smallest "matreshka". As was expected, during the experiments Time change was also registered outside the device. However such change which had an opposite sign was smaller than the change inside the device approximately by an order of magnitude. It entirely corresponds to geometric laws, i.e. in proportion to the cube of the distance).

In other words, TM influences not only its inner part and pay load but also the environment. It bears a strong resemblance to jet propulsion but in Time and not in Space. It is a flight which is realized by rejection of Time instead of mass.

Thus it was determined that the processes of deceleration and acceleration of Time distinctly differ in their nature and consequences. In such a way the deceleration was considerably smoother and more stable. During acceleration there were observed sudden changes in readings and this operational mode was characterized by general instability and dependence on any (or many) external factors. Particularly, acceleration instability also consisted in the following: at fixed power the value speed of Time depended on the time of day and situation of the Moon. Possibly it also depended on some other factors including the presence of an operator or other people near the device. Even insignificant external influence, for example, mechanical shaking, caused the change of speed value which sometimes was rather significant.

Inside the laboratory devices there was also registered that **Time can change with some sluggishness**. After the changed Time speed influenced some physical object (for example, soil) then residual effects were observed at it for some period of time. These effects can be eliminated only by the influence of another speed of Time.

#### Preliminary general conclusions

The Present is the transfer or transformation of the polyvariant easily changeable Future into the univariant unchangeable Past. Thus flights in the Past (at "negative" density-speed  $t/t_0$ ) and in the Future will happen in different ways. They can be compared with the motion of an ant along the tree: from any point of the tree (i.e. from the Present) there is only one way downwards open to the ant (i.e. in the Past) and many different ways upwards (i.e. in the Future). However among all the ways to the Future undoubtedly there are most probable, low-probable and almost improbable variants for development of the Future. The less probable this variant of the Future the more unstable and energy-intensive the motion to the Future will be. According to

the "law of the crown of tree", return to the Present is possible only if when being in the Past the traveler does not interfere in the course of events and does not change the course of the past History. Otherwise the chronotraveler will return to the parallel Present from the Past by another branch of History. Penetration to the Future from the Present is hampered by the choice of the branch for transference. However return from any variant of the Future into the Present is possible at any scenario if there are no fusions of different variants of History...

In other words, we have a circumstantial evidence of the assumption that Time has more than one dimension. Thus there is an affirmation of the theoretical inferences of R. Bartini who believed that Time has 3 dimensions. Hence we can consider our terrestrial globe as 6dimensional where the dimensions are: length; width; height; age or date of Time; variant of History or blur of Time; density or speed of Time. Thus the notion of "Arrows of Time" is completely absent in the fourth dimension (date of Time) but it is a special case of the notion of the sixth dimension i.e. speed of Time. At the same time the notion of speed of Time also relates to the physical notions of gravitation and energy. Thus the notion of "Einstein-Rosen bridge", which was introduced in 1916, or notion of "worm course", which was introduced by John Willer in the end of the fifties, are connected with transference in the 5<sup>th</sup> and 6<sup>th</sup> dimensions.

#### Method and Device to Control Temporal Parameters of Physical Processes by Means of Changing of Energy Density of Space

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This invention belongs to the methods and devices to provide control on rate of physical processes (that includes the process of the existence of matter in space-time) by means of increasing or decreasing of energy density of space (i.e. energy density of physical vacuum or density of the aether).

# Let us consider the history of the invention:

Earlier there were proposed some methods and devices to influence the rate of physical and chemical reactions,

biological processes or period of oscillation of the system. In the works by N.A. Kozyrev [1] there is a description of the experiments on the influence of some process (for example, process of evaporation or crystallization of matter) upon the period of another process, which serves as a detector and can be compared with reference oscillation process. In one case, the rate of oscillations of the detector decreases in the surrounding area near the process of matter evaporation. In another case, the rate of detector oscillations increases in the surrounding area near the process of matter crystallization. If we use a term of "entropy" then it is possible to say that the processes which are accompanied with entropy increasing (for example, conversion of matter from solid state into liquid one) influence on the matter (surrounding processes) in such a way that entropy of systems decreases. In another case, for example, near the process of crystallization, entropy of systems increases in the surrounding area near this process. Kozyrev used the term "wave of density of time" and he made a conclusion that in addition to "directivity" of time (time course) there are active properties of time, for example, "density of time".

To develop this approach for applied purposes it is necessary to use in-depth analysis of the physical sense of the "time density" notion. Connection of notions about "time directivity" and "entropy of the system" was demonstrated in the work "Introduction into thermodynamic of irreversible processes", 1964 by Ilya Prigozhin [2]. In the work "Quantum fluctuations of vacuum in curved space and theory of gravitation" by A.D. Sakharov [3] the conception of vacuum structure was suggested. In the USA the work "Can the vacuum be engineered for space flight applications?" by H.E. Puthoff [4] is well-known. The author considered the applied aspects for study of vacuum structure and described the method and device to obtain propulsive force by means of changes in vacuum properties.

A substantive conception of time and methods for creation of waves of energy density were also considered by Prof. K.P. Butusov in the work "Time is a physical substance", 1991 [5]. In the book "What is The Time?" by Yu. G. Belostotsky [6] the connection between the notions of time and aether was demonstrated. This connection was considered from the point of view of astrophysics there.

We can also say that the modern conception of aether is successfully developed by V.A. Atsukovsky in his works [7].

In my articles, for example, "Physical principles of the Time Machine" [8], it was demonstrated that to develop experimental works on the topic it is useful to clarify the terminology and to consider **"waves of time density" as longitudinal waves of energy density in space.** In this case the notion of "time density" has a physical sense of energy density (aether density).

This approach can be realized practically by means of classical electro-technical and radio engineering methods and it is a development of aether-dynamical conception on the nature of electricity and magnetism by M. Faraday, "Experimental researches on electricity", volume 3, [9].

Let us consider a usual bipolar magnet from the point of view of aether-dynamics. Then it is possible to say that it is inflow and outflow of aether, i.e. it is a balanced energy system which does not change energy density in space. In this case it is evident that creation of magnetic monopole or modeling of quazi-monopole by means of electro-dynamical methods is a technical basis to create some local change of energy density in space.

Electric processes could also be used alongside with the magnetic phenomena. For example, in another book "Symmetrization of Maxwell-Lorenz equation" by Prof. Butusov [10] the creation of longitudinal wave was also considered. It was demonstrated that an electrically charged sphere can radiate longitudinal wave when the sphere radius is changing, i.e. when its surface is changing while the value of electric charge is constant.

One more well-known method is described in the book "Experimental gravitonics" by Polyakov [11]. There is a consideration of the generation of gravitational waves at the high-frequency magnetization and demagnetization of ferromagnetic material, i.e. at the powerful volume magnetostriction. Since at this phenomenon there are changes of matter density (i.e. changes of energy density in space, which is occupied by matter), then volume magnetostriction is a special case of changes of energy density.

Earlier Vadim A. Chernobrov had described a method and device to control temporal characteristics of physical and chemical processes by means of creation of the magnetic monopole (quasi-monopole). In this magnetic mono-pole there is a convergent wave, which is created by several sources situated in the spherical frame. According to this method in the multilayer spherical structure where every layer (the so called "electromagnetic work surface") is an assembly of electromagnets, by means of series connection of the layers the wave is created, which converges to the center of the device. The device has the same outside magnetic poles of the electromagnets (and the same inner poles) and thus a model of macroscopic magnetic monopole is created.

We assume that at in-phase operation of all sources of waves, interference of longitudinal waves provides some change of value of energy density of space in the focus of the system.

Experimental facts prove that detectors installed in the center of the device (for example, mechanical or electromagnetic oscillators) show change of period in their own oscillations. We have protected them by shielding them from heat radiation as well as from other kinds of electromagnetic influence. Thus it is possible to assert that the detectors decelerate or accelerate their oscillation period depending on the energy density, which is generated in the center of the device.

However for the experiments made by means of such a device, accurate adjustments of all wave sources are required to provide their in-phase operation. At the same time, operational stability of the system depends on the operational stability of each of the wave sources. Increase of the impulse frequency causes increase of the effect; however, it is limited by the parameters of electromagnets and generator of impulses. Besides, to increase the effect it is necessary to use more powerful energy sources since the current in the windings of electromagnets determines the value of the magnetic field of the created quasi-monopole.

Since the efficiency of such systems directly depends on the frequency and the value of changes of energy density in space, then in the next version of realization of this technology we suggest using of plasma shells instead of electromagnetic working surfaces. This will allow significant improvment in the specific parameters of the device.

Thus let us consider general engineering principles of operation and outline the ways to develop this method. Fig 1 represents a three-layered electromagnetic emitter. This electromagnetic emitter is designed according to the invention in which the directed radiation of wave of energy density is created along the axis of the device.



Fig. 1 Three-layered electromagnet



Three-layered electromagnet with ferrite core

The device is designed according to the idea by Vadim A. Chernobrov for creation of the directed wave of energy density by means of phase shift in propagation of impulse front in three current branches, namely  $i_1$ ,  $i_2$ ,  $i_3$ . These branches are displaced along the electromagnet axis at some distance d.

The device works in the following way. When the pulsed generator is activated, front of current pulse  $i_0$  appears at the output 4. Impulse front at branch 1 advances impulse front at branch 2 that is caused by spatial shift of current branches 1, 2, 3 relatively to each other along the electromagnet axis at the distance d. Impulse front at branch 3 for a certain time T. The second output of the electromagnet 5 is placed in such a way that impulse front at branch 1 will phase lag behind the impulse front at branch 2 (which in its turn will phase lag behind the impulse front at branch 3) for the same period of time T. Therefore at branch 5 the united impulse front is generated again.

Time T can be calculated in the following way:

$$T=d/c$$
 (seconds) (1)

where c is a constant of propagation of impulse front. This constant is known as velocity of light.

At each impulse the T (i.e. the value of relative lag of impulse front) is a constant value. Thus high-frequency consequent excitation of layers of the electromagnet appears at each impulse. The frequency of the excitation is calculated in the following way:

$$f=1/T$$
 (2)

where T is relative lag of impulse front in seconds.

There is an example of frequency calculation: for the shift distance d=7 mm we can calculate a lag T =  $(7/2.997924) \times 10^{-11} = 2.335 \times 10^{-11}$  (seconds) and frequency f=1/T approximately comes to  $4.28 \times 10^{10}$  (Hertz).

Thus this design of three-layered electromagnetic emitter allows creating the waves of super-high-frequency band (for example of millimeter range) without the use of a semiconductor or other radio components.

It is very expedient to use the electromagnets designed with magnetostrictive material cores, that will significantly increase energy density of the longitudinal wave, which is generated by the multilayer electromagnet. In Fig. 2 there is an emitter with the core. In the case of high-frequency ferromagnetic magnetostrictive materials 6 the efficiency of emitter operation significantly increases.





Fig 3 represents the spherical distribution of emitters 7 at the upper 8 and lower 9 hemisphere of the frame which could be opened in order to place detectors and different objects inside. It can also allow to establish in what way the changes of density of space energy influence the properties of different materials, velocity of physical and biological processes as well as chemical reactions. The installation of detectors 10 inside the device is shown on Fig 4.



Fig. 4 Detectors inside the system

Another version of design is represented in Fig. 5, where the suggested method is realized by means of a spherical electric capacitor with three coats 11, 12, 13. Each capacitor coat is connected to the outlet of three-phase pulsed generator 14.



Fig. 5 Three-layered spherical capacitor

In this case the wave of energy density is created without electromagnetic emitters and this principle is not related to the modelling of magnetic quasi-monopole. The device operates due to the control unit, which provides the high-frequency changes of electric potential at each coat in such a way that the mode of high-frequency converging or diverging wave of energy density is created. In fact it is a standard three-phase generator but it produces not the rotation of the rotor of some electromotor but "compression" or "decompression" of aether. Aether is "pumped" in the center of the device or "pumped out" of the center.

In this case there is no need to tune separate sources of waves to make the device work in in-phased mode. It ensures reliability of the device operation if to be compared to the quasi-monopole. Besides, much less energy is necessary for the processes of charging and discharging of multi-layer spherical electric capacitor than for creation of magnetic field by means of conductivity currents.

Since the efficiency of such systems directly depends on the frequency and value of changes of energy density in space, we suggest the use of plasma shells instead of electromagnetic work surfaces for the next version of the device. It will allow significantly improvment in the specific parameters of the device. For that it is enough to place the electrodes of the multi-layers capacitor in a low-pressure gas area and these electrodes should be made as gauze electrodes. At that the wave is created in plasma, which is excited layerwise by several gauze electrodes placed in a spherical space between the inner and outer spherical bodies of the device. Therefore this version of design of the device can be considered as **the manipulation of the plasma method**. Fig 6 is a plan of one more design version. It is made as an inner frame 15 and outer frame 16, the space between them is filled with some gas 17. Three electrodes 18, 19 and 20 are connected to the three-phase pulsed generator 21. **Consequent excitation of plasma layers by electrodes 18, 19 and 20 creates the wave of energy density.** Propagation of this wave can be directed both to center of the device and from the center of the device.



**Fig. 6** Wave in plasma



Fig. 7 Schematic electric circuit

In Fig. 7 there is a schematic electric diagram of the design.

To conclude. The work on time control has just started. We have clearly determined the main physical principles of operation of such devices, which can change the aether density in some given volume of space and thus influence temporal parameters of any physical process. The small experimental results today allow us to make real positive conclusion on availability of this method and on the possibility of its practical application in applied aspects. The first aspect is antigravitation propulsion technology and we are developing the methods to detect mass (weight) changes in the time control experiments to prove this applied possibility. Another area is medical applications of the changes in the aether density

Russian Federation patent claim #2003110067 was filled April 9, 2003. At present time we are interested in marketing for this technology as well as in search of additional investment and partners.

#### References

1. N.A. Kozyrev, Selected works, Leningrad State University, 1991

2. I. Prigozhin, Introduction in thermodynamics of irreversible processes. M., 1964

3. A.D. Sakharov, Quantum fluctuations of vacuum in curved space and theory of gravitation, Reports of USSR Academy of Sciences, vol. 12, 1968, p. 1040 4. "Can the vacuum be engineered for space flight applications & Overview of theory and experiments", Dr. H.E. Puthoff, Infinity Energy, July-

November, 1997 5. K.P. Butusov, Time as physical substance. Collection of articles "Problems of space and time in modern natural science", Issue 14, L. 1990, pp. 301-311

6. Yu.G. Belostotsky "What is The Time?" Saint-Petersburg, 1991

7. V.A. Atsukovsky "General etherodynamics", M., 1990

8. A.V. Frolov, Physical Principles of The Time Machine, New Energy Technologies #3(6), pp. 8-10, Saint-Petersburg, 2002

9. M. Faraday, Experimental researches on electricity, vol. 3, M. 1959

10. K.P. Butusov, Symmetrization of Maxwell-Lorenz equation. Problems of Space and Time in modern natural sciences, vol. 15, L. 1991

11.S.M. Polyakov, O.M. Polyakov "Introduction in experimental gravitonics", pp. 58-59, M. 1991

12. V.A. Chernobrov "Mysteries of Time", M. 1999

# Aetherodynamics as a New Field of Physics Theory and Experiments





A crisis exists these days both in Natural science on the whole, and, in its basis, i.e. physics. This situation is caused by fundamental errors in the methodology of its theory. The postulate method and predominance of mathematics above physical sense can be also considered as the reasons for this. Crisis situation has also taken place in the past and the way out was always to use a deeper level of matter organization than the accepted one.

A large amount of material on elementary particles of matter is collected in physics. It was discovered that all these particles can be transformed in each other. Besides that, there was discovered the ability of vacuum to create such particles at strong electromagnetic fields. In this connection it becomes clear that all these particles and vacuum have a common building material, i.e. a physical medium which fills all the world space. This medium was renamed **aether** and the element of the medium was renamed **amer**.

The worked out methodology of aetherodynamics allowed determining that aether is a usual viscous coercible gas for which all laws of usual dynamics of gases are valid. It has allowed to determine its characteristics for near-Earth space and then to describe the structures of primary stable elementary particles (i.e. proton, neutron, electron, photon, atomic nuclei, atoms and some molecules) as well as physical essence of general fundamental interactions (i.e. strong and weak



nuclear interactions, electromagnetic and gravitational interactions) and some physical phenomena.

Also developed was the model of aether circulation in the Universe within the limits of perpetually existent matter, usual Euclidean space, and evenly flowing time. Formation and decay of matter, formation and decay of celestial bodies and galaxies as well as functional classification of galaxies are also included there.

To confirm some theses the author and his research team conducted several experiments mainly on electromagnetism that gave positive results. The research was conducted on testing of the presence of aether wind. These research works have confirmed the results obtained by D. Miller in 1925.



Report by Vladimir A. Atsukovsky

## **Electromagnetic Gravitational Interaction**

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In the article some mechanisms of electromagnetic gravitational interaction will be considered in the view of the Unified Theory of Field, Space and Time. See the complete description of The Unified Theory of Field, Space and Time at http://uic.nnov.ru/~kovy2; http://uft.h1.ru or in the book [1] which has the same title.

First of all, let us consider the structure of Space-Time where the radiation propagates. In our World gravitation is the unique substance which exists everywhere and gets over any obstacles. There are no known methods of insulation of gravitational field in modem science. It is impossible to imagine space and gravitation separately. Gravitation exists everywhere where there is some space. The gravitational field created by all masses of our metagalaxy is the aether in which cosmic objects moves and electromagnetic oscillations are propagated. The space surrounds us since the whole matter carries gravitational charge of only one sign. From astronomical research of cosmic space it follows that radius of metagalaxy is equal to the critical (gravitational radius) and hence gravitational potential is equal to  $c^2 \sim 10^{17}$  $[m^2/c^2]$  in each point of space.

In our space the sum potential of the electric field is equal to zero. All bodies and space-time as a whole are electrically neutral. This assertion follows from two unique properties of gravitational space-time:

- 1. Values of electric charges of different signs of elementary particles are exactly equal.
- 2. There is an equal number of elementary particles which carry electric charges of different signs.

If electric potential is equal to zero in the given point of space then energy of alternating magnetic field passes entirely to the electric field and radiation gains the parameters of electromagnetic oscillations. However electric potential of positive and negative signs can prove its properties at the simultaneous charging of different local spatial regions. In the electric field the character of radiation differs from that one which is observed in ideal gravitational space-time (without electric potential).



In the presence of electric potential some part of magnetic energy is spent to create gravitational alternating field. Radiant energy is absorbed. Electrically charged spatial regions are perceived by us as filled with a strong absorbing substance. At the same time if the potential of the electric field can be compared to the potential of the gravitational field then spreading of radiation becomes impossible.

Change of both electric and gravitational field results in the creation of a magnetic field in the region of spacetime which has a dual electrog ravitational nature. Change in the magnetic field results in the creation of both electric and gravitational fields. The amplitude of electromagnetic and magnetogravitational constituents of the unified electromagnetic gravitational oscillations depends on field potential of opposite nature. The electromagnetic constituent is determined by gravitational potential and the magnetogravitational one is determined by electric potential. Transference of gravitational masses of matter in electrogravitational field-aether causes the creation of the proper magnetic field. Coming from the direction of magnetic field some force influences upon the moving electrically neutral masses. This force is similar to Laurence force.

Electromagnetic gravitational converter designed according to the Searl Effect (Fig 1) visually demonstrates the mechanisms of electromagnetic gravitational interaction. A detailed description of the experiment is presented in the article [2] by Vladimir Roshschin and Sergey Godin (see http://www.n-t.org/tp/ts/dms.htm). The device consists of a cylindrical stator of about 1 meter in diameter which is surrounded by 24 cylindrical rollers. Stator and rollers are made of magnetic material and they are magnetically linked (there is no contact between them). Vector of the magnetic field of the stator and rollers is vertically oriented along the axis of the cylinder but it has opposite direction. Rollers are mounted on the movable separator which circles round the stator. Each roller rotates on its axis in the same direction. The weight of the device is 350 kg. During rest, the device is electrically neutral and has proper gravitational charge, inertial mass, magnetostatic field of the stator and rollers.

On rotating of the magnetic system the following effects were observed:

 $\cdot\,$  Depending on the frequency (up to 35%) the weight of the device was decreased.

• At a frequency of 550 rpm there is a spontaneous acceleration of the system and turns of the rotor abruptly increase (in quadratic dependence). To stabilize the mode it had to take off the excess energy to active load (up to 7 kWtt) by means of electromagnetic transducers.

• Magnetic field was distributed in a room as concentric surfaces of 5-8 cm thickness and 50-60 cm period. Depending on speed of rotation of the magnetic system there was a fixed temperature decrease from 0 to 8° within the regions of space which were curved by magnetic field.

• The glowing (corona discharge) appeared around the working converter.

Appearance of all mentioned effects is caused by the simultaneous presence of electric, magnetic and gravitational fields in the area of the converter.



Fig. 1 Electromagnetic gravitational converter

Because of the Searl Effect a very complicated configuration of electric, magnetic and gravitational

fields appears in the device. Rollers having their own field B rotate around the stator which has its field B. Cycloidal motion of numerous magnets which are built in the rollers causes change in the magnetic flux. EMF *E* appears in the area of rotation of the rollers. EMF is directed along the perimeter around the device. The electric field creates stationary waves which are registered around the device as concentric electromagnetic gravitational walls. Magnetic rollers should be made nonconducting in such a way as to allow electric field penetrating inside. In the presence of the electric potential change of the magnetic flux causes appearance of gravitational field G. This field is directed along the perimeter around the device. In the presence of electric potential the Lorenz force influences the gravitational masses of the rollers. These gravitational masses move in the external magnetic field of the stator. The Lorenz force is directed transversely to the velocity along the cycloid and in the direction of the field B. The value of the Lorenz force depends on the electrical potential, magnetic intensity, mass of the rollers and their traverse speed. The electric potential in its turn depends on speed of rotation of rotor of the magnetic system. As a result the Lorenz force depends on speed according to square law. Rotating gravitational masses of the rollers generate magnetic field  $B_2$ . Field  $B_2$  generates derived fields  $E_2$ and G, etc.

Spontaneous acceleration of the system does not depend on the direction of rotation. Directions of fields and forces change at change of the direction of rotation that corresponds to acceleration in the opposite direction. When the direction of rotation is changed the weight of the device changes. When rotation is in one direction the field  $G_{2}$  is directed upwards (decrease of weight), when rotation is in another direction, it is directed downwards (increase of weight). In the presence of electrical potential many other interesting but still unstudied phenomena are observed (for example, curve of space, change of speed of time-flow, changes of ambient temperature...). Magneto gravitational converter transforms gravitational energy of space-time into energy of electric field which in its turn is transformed into mechanical energy of the rotating magnetic system and electric energy of the load. Energy resources of the future are not coal and gas reserves or nuclear power. They are in the inexhaustible energy of gravitational aether of our space-time.

#### Reference

1. V.Ya. Kosyev. Unified Theory of Field, Space and Time. Nizniy Novgorod, "Arabesk", 2000.

2. New Energy Technologies #1, 2003, p.35.

## Medium For Existing of Matter in Nature

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By medium for existing of matter in Nature we understand physical vacuum which is a category determining all spheres of matter "life" (from particles of microworld to gravitational interactions in the Universe). Matter can not exist without this medium. Thus a question emerges, viz: how physical science can be developed without taking this fundamental aspect into consideration?

According to the Einstein postulate, in a void light always propagates with limited speed, which does not depend on the motion mode of a radiating body. It is a statement of deep physical sense which lies in the fact that only some physical medium can possess such a property. Indeed, if velocity of light, which was radiated by a body, further does not depend on speed of this body then it is possible only in a certain medium. For example, in air sound propagates with a certain speed which does not depend on the speed of the source and is determined only by density and volume elasticity of air. Thus, according to the Einstein postulate, there is a physical medium instead of void and velocity of light depends on the parameters of this medium (as is well known, velocity of light is equal to the square root from the product of inverse values of electrical and magnetic conductivity of vacuum).

The author of this article made an attempt to research this physical medium [1]. The author used a well-known experimental fact that at interaction of a photon with a charged real particle this photon transforms to electronpositron pair. Besides, it was taken into consideration that photon is an electromagnetic phenomenon. The research allows the following conclusion: the medium named in physics as vacuum (before the XX century it was called aether) is created by electric dipoles from (+) and (-) elementary charges. These dipoles are surrounded by magnetic (mass) continuum. There were determined dipole intervals, elasticity of decompression and ultimate strength of this interval. What does this model of medium mean?

1. This model is a physical validating for the "birth" of electron-positron pair at energy which is necessary to break dipole and create the "clot" of mass of

these two particles. A certain model for the "birth" of mass must exist. It is not clear as yet but can be represented as a vortex of magnetic continuum inside the charge shell of electron and positron.

2. Let us suggest that values of (+) and (-) charges differ at 7.848981x10<sup>41</sup> Coulomb, then this difference is sufficient for the medium to be a source of gravitation and inertia. According to Newton's law of gravity, a weak electric charge of medium (all material bodies exist in this medium) causes all bodies to attract one another (under Coulomb's law). On the other hand, weak medium charge of a like sign creates repulsive forces which manifest themselves in the form of the expanding Universe. Thus it becomes clear the amazing uniformity of gravity and forces of negative pressure for the Universe. The mentioned difference of values of (+) and (-) charges of medium dipoles is not used as arbitrary parameter but it logically follows from its electrical structure [2].

3. Hypothesis of nature of gravitation is confirmed by calculations of the deflection angle of electric waves by the Sun. Calculated angle differs from the experimental value only in the fifth sign, which depends on the accuracy of several physical values used in calculation formula. There is practically an absolute coincidence with Einstein's theory. The difference is that it is a concept of space and time (i.e. geometry) which prevails in the general theory of relativity while in the nature of gravitation physical basing is used. Velocity of light is unstable and determined by medium state which depends on electric, magnetic and gravitational potentials.

4. The existence of "black holes" relates to medium structure and nature of gravitation. At the edge of "black holes" the ultimate acceleration from gravity is realized. It causes breakdown of connections in electric dipoles of medium, creation of matter and antimatter (the so called "evaporation" of black holes which was theoretically predicted by E. Hoking, England). However at the border of a black hole the velocity of light is equal to zero since its propagation medium disappears. According to Einstein's theory it is such a deceleration of time that electromagnetic oscillations gain zero frequency.

5. Naturally the medium is a carrier of all types of electromagnetic radiation, beginning at stationary electric voltage and ending with super-high-frequency "photons", which can be determined not as electromagnetic but as magnetoelectric phenomenon. In the latter case magnetic continuum of medium has a crucial importance since it determines very small degrees of magnetoelectric disturbance. These degrees are thousands of times less than those of a hydrogen atom. It is reasonable that such small degrees creates illusion that a photon possesses properties of particles.

6. Medium structure directly leads to the notions of Quantum Mechanics, beginning at quantification of electronic "orbits" in atoms. This medium determines the "allowed" spots for electrons to be placed around a nucleus. Thus medium is a necessary place for the existence of all matter or matter of the Universe. The so called Compton length of electron wave is one of the validations of this statement. It is directly calculated to a high accuracy according to electric structure of vacuum.

7. Thus Plank's constant is not a mysterious "quantum of action", on the contrary it is entirely determined by medium parameters. Thereby the crisis (which conventional physics is accused of) can be logically overcame by the introduction of medium which is capable to take radiation in electromagnetic region only by quanta. Plank's constant is always presented at all quantum approaches. It is additional evidence in favor of the necessity to take into account the medium as natural place for existence of all the matter in Nature.

8. It is still a question what processes take place in the centers of galaxies. The observations show that the centers of galaxies create star matter. They often flow out the centers and settle themselves at approximately the same plane. It is an evidence of the fact that centers of galaxies quickly rotate and the favorable conditions for stars to reject matter are created. Similarly planetary systems are created around the rotating stars. It is thought that centers of galaxies are gigantic black holes. In the context of the concept of medium for matter existence it can be set up a hypothesis that being at some special state the medium creates stellar systems, i.e. galaxies. 9. Astrophysicists more and more trend to accept the existence of unknown "dark" matter, which occupies approximately 70% of all matter. It is said that due to antigravitation property this dark matter is responsible for the expansion of the Universe. Hypothesis on the nature of gravitation gives the affirmative replies to such suggestions as: expansion of the Universe is caused by weak electric charge of the medium and distributed mass of magnetic continuum is the very dark matter.

10. All elementary particles (electrons, positrons, mesons, protons, neutrons etc.) are in the medium and interact with it. In the case of electrons and positrons this interaction causes the great extension of dipoles of medium which directly adjoins to borders of particles. This extension helps photons to break the particles. In case of protons, there is such a breakdown of the medium at their borders that protons turn to be dressed in "coats" of virtual electrons and positrons. And medium is shown to be in entire state only when reaching the first Bohr orbit. This interaction of the medium and particles leads to the factors which determine the life time of some of them. Thus life time of a neutron is up to 30 minutes depending on the state which it has while leaving the nucleus. For mesons "the tearing" Coulomb forces, which exist between the medium and particles, are very powerful that makes the life time of mesons very short. However if the particles moves with a high speed relatively to the medium, then these forces noticeably decrease and if the speeds of motion is close to velocity of light then these forces become very small. The life time of such particles noticeably increases. In Einstein's theory it is said about "deceleration" of time. Finally the life time of particles is determined by the inner steadiness and outer influence of the medium. Protons have fantastic binding energy and they cause such great external destructive effect that their life time becomes immense.

11. When particles move in medium with high speeds, there is a concentration of magnetic continuum which is recognized as increase of mass of particles at increase of their speed. Evidently, we can continue the list of physical phenomena which relate to the presence of medium for existing of matter in Nature. However it seems to be enough to admit that medium (physical vacuum, aether) is of a great importance for the very existence of the Universe and for the processes which take place there. "Mechanism" of gravitation and inertia has a special importance since it is the only thing which can make clear the real mechanism of Nature. It is possible that the methodology, which is accepted in physics, is necessary for more accurate description of phenomena but it is not enough for understanding of the nature of "space" and matter. Research of the medium for existing of matter will be able to meet the conditions sufficiency.

The understanding of vacuum structure, which is created by electric lattice from charge dipoles, surrounded with magnetic continuum, gives an opportunity to control the forces of gravitation and inertia. The medium of vacuum can be influenced by:

1. The radiation which has frequencies coming to the frequency from point #11 of the list of parameters.

2. Electric voltages which exist in vacuum (it is not

very promising because of real matter breakdown). 3. Magnetic intensities (magnetic flux density). It is the most promising influence method (1-10 Tesla is enough to compensate terrestrial gravity).

4. Transformations of low accelerations to high accelerations of impact type.

Potential electric and magnetic energy is immense in vacuum medium. Reasoning from energy of one dipole, which is equal to  $1.6 \times 10$  (-13) Joule, we will derive the value of electric energy equal to about 10 (+31) Joule per one cubic meter of the medium that is equivalent to mass annihilation of 10 (+15) kg!

#### References

- 1. Rykov A.V. Foundations of aether theory// RAS, M., 2000, p. 54  $\,$
- 2. Rykov A.V. Hypothesis on the nature of gravitation// MSU, M., 2001, pp. 59-63

#### Spartak M. Polyakov (09 January, 1931 - 04 June, 2003)

Spartak M. Polyakov, a legendary physicist-experimentalist, known for his research in the field of gravitation, has died. Polyakov was the author of more than 50 research works, among them "Introduction into experimental gravitonics». Polyakov was the creator of the new model of photon. He also conducted numerous research in the field of electrodynamics,

gravitational phenomena and superlight connection.

Spartak M. Polyakov graduated from Kishinev State University with degree in "General Physics". For many years he worked at the top secret military engineering department "Istok" (Russia).

Plyakov's alternative physical theory allows explaining such phenomena as magnetostriction and optical magnetization. The basic postulate of this theory states that the speed of propagation of gravitational waves is dozens of times faster than velocity of light regarded by the traditional science as the limit. In his experiments Polyakov demonstrated such methods of generation of gravitational waves as precession of gyroscope and remagnetization of ferromagnetic.

While working for "Istok", Polyakov designed on his own a device which is possibly the first gravitational motor in history. Total specific thrust produced by rotation of gravitating mass comes to 2.5 kg/kWt. This index is close to that produced by the engines of modern helicopters, which is equal to 8 kg/kWt. Practical application and further development of Polyakov's ideas can provide humanity with new kinds of communication, gravitational engines and free energy devices.







#### Principle of Operation and Experimental Data

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Adams' motor-generator represents the type of devices which use, as their creators claim, so-called "free energy". The term "Zero point energy" is also used in some sources [1, 2]. Due to quanta-mechanical fluctuations, this energy exists even at zero temperature. Adams' motor-generator belongs to the group of Switch

reluctance motors [3]. Robert Adams, for mer Chairman of the Institute of Electrical Electronics Engineers, USA (New Zealand section), designed this machine in the late sixties of 20th century. Similarly to all the devices utilizing free energy (referred to in come sources as "overunity devices"), Adams' device remains practically unknown to the general public. The device is rather simple to assembled even at home, which I experimentally proved. However, it is necessary to be very careful while choosing the model parameters. As to the latter I have managed to collect quite a big number of instructions from existing sources; the summary of these instructions is presented below in this article. Based on these instructions, a low-power model can be assembled even without a mathematical analysis and modeling of electromagnetic field. Such model would certainly facilitate optimization of the device.

Adams' motor is most frequently a DC machine; however, it can also use an AC source through a rectifier. In the latter case only the adjustment of the device and its control system can be provided.

# *Editorial: We disagree with some assertions of the author; however this article is of great interest.*

My experiments on my own model do not yet allow me to make an unambiguously positive conclusion concerning the possibility to generate excessive energy. Experiments with my new control system designed on the base of AVR controller AT90s2313-10PI (it is produced by Atmel company (http://www.atmel.com) will allow to be more specific. Below there is a general analysis of the motor principle of operation and a number of recommendations concerning the construction and technology. I do not propose to take this as compulsory rules to follow; other technical solutions are possible.

Basing on the principle described in this article, R. Adams (the link to his articles is available at: http://www.aethmogen.com/wri/intro.shtml) created a few DC motor-generators which operate on permanent magnets. Some of them, according to information found on the Internet, have manifested 690% electrical efficiency and 620% mechanical efficiency. These devices operate at room temperature without overheating. My device has shown between 1 and 3 degrees overheating after an hour of functioning. However, it is easy to prove that such overheating is predictable for an average current of 0.15 A in coils of 35 mm long and 25 mm in cross sectional diameter. I have not been able to prove the data published on the Internet concerning the Adams motor capability to operate when the stator temperature is a few degrees lower than that of the environment. The temperature of the coil and of the power transistor is a good indicator of correctness of the circuit set-up and of functioning of the control circuit. There were cases when transistor and coil were noticeably heated after adjustment. Usually this was explained by a bad choice of points of transistor switching or by too extensive current impulses in the stator (which must amount to approximately 25% of period length). After the required adjustment the motor continued to operate almost without overheating.

Adams' motor was first mentioned in Australian Nexus Magazine in 1992. Later, Harold Aspden (Britain) proposed a slightly improved version of the motor and received Great Britain patent No. 282708 [4], which strongly reminds of the original version published by the above magazine. **Adams' device** represents an electrical motor and/or generator consisting of a rotor with radially directed permanent magnets and of a stator also constructed with a few radially directed and periodically magnetized cores with winding. (Fig. 1). In some models axial orientation of magnets and coils are also used.

Permanently magnetized poles of rotor can include any number of poles, even an odd number. Analogous poles of the magnets (all N poles or all S poles) are directed outside. A version with alternating poles is also possible; such model allows the torque to increase. In this case, after passing a rotor pole the stator is demagnetized by the current impulse and begins to be attracted by the magnet of different polarity. This circuit requires a more complicated control; on the other hand, it manifested rather good results in certain models.



Poles with winding placed on the rotor are radially oriented in order to obtain a supply of energy emerging as a result of the influence of counter emf from the rotor poles. Steel or iron cores are used for the poles of the stator with winding. It is also possible to use other materials, at that the core must have high magnetic inductivity and low level of magnetization reversal losses. The stator winding consists of a few hundred turns. The current inducted by the magnet in this winding will have the polarity which will cause repulsion of the magnet. Since the electromagnetic state of stator changes quite significantly and quite fast, then the stator core can be considered to be the most crucial element of the device. Ignoring this fact was one of the most frequent mistakes made by those who tried to reproduce Adams motor.

The current inducted in the stator is the function of:

- field size,
- · number of winding turns,
- · speed of flux changes.

Resultant parameters of this device cause each pole to

be attracted or repulsed by stator poles when the rotor is in certain position in case when the rotor is unbalanced. To achieve this effect it is required to switch the input current in control coils after the signal from sensor of rotor position. R. Adams used a mechanical switch as a sensor. My device and a number of other devices use the signal from two Hall sensors. However, according to experimenters' information, better results are achieved if a position optical sensor is used.

Time of switching of impulses is determined by the size of the motor itself, i.e. the speed of motor rotation, location of rotor magnets towards the stator windings and the distance the rotor magnets pass while moving by the poles with stator winding.

> It is necessary to take into account that any part of this motor can be modeled based on the existing electromagnetic theory and no part of the motor is in conflict with any laws of electromagnetism. There are so many ways to construct Adams' motor that any version may be considered to be correct.

> One can say that the frequently pulsating electromagnetic process in the stator core is what allows Adams' device to function as a kind of diode which borrows energy from the field

of permanent magnet but then does not return that energy in full.

5 stages can be defined in the periodical process which takes place in stator:

1. The magnet is attracted to the stator core. The permanent magnet is attracted to the iron core of the stator with winding. While doing so no consumption of electrical current takes place. It is as if kinetic energy is borrowed from an internal ferrite magnetic source and is supposed to be returned into the stator.

2. Stator core is magnetized. During the period when the magnet is positioned in front of stator core they both comprise a single magnetic conductor with an air gap and the stator core becomes an extension of the magnet side it faces. It is usually supposed that the energy "borrowed" on the first stage is getting back now.

3. Stator core is demagnetized. When the stator core becomes rotor magnet extension, the circuit closes and current impulse gets to stator windings. I have seen the instructions saying that the angle between

stator axles and rotor magnet must amount to 7-8 degrees as shown in Fig. 1. However, my model made it clear that at increase of speed of rotation it is necessary to start the coil a little earlier, when the magnet axle has not reached the stator axle. Probably this applies to the circuit with a Hall sensor only and if an optical switching is used the making angle will be different.

Magnetic field of this current acts to compensate magnetization of the stator, which is caused by the field of rotor magnet. Consequently, the summed current significantly compensates attractive force between rotor and stator and the rotor can freely rotate by using the inertia obtained at stage 1. This process is characterized by the fact that this current impulse is amplified by the current inducted in the stator winding by rotor magnet which, in accordance with Lentz law (1834), counteracts the power which induced it. Consequently, kinetic energy obtained as a result of attraction of the rotor to the stator at stage 1 is transformed into electrical demagnetizing impulse in stator winding during the period when the rotor and stator directions are congruent. This is the unique overunity characteristic of this model. However it is obvious that instead of returning this energy the motor transforms it into electromagnetic demagnetizing field.

4. Restoration: when the rotor is removed from the stator attraction zone the latter looses energy and returns to its initial demagnetized state. Decreasing electromagnetic field creates a current wave of reverse polarity which can be stored in the capacitor. 5. Reiteration of the process: This periodical process is renewed as described in stage 1 during the next magnetization of the stator, excluding the fact that emf preliminarily stored in the capacitor, on term of presence of suitable electrical circuit, can be used for facilitating stator demagnetization or even used to supply the load.

It may be briefly summarized that the frequently pulsating electromagnetic process in the stator core is what allows Adams device to function as a kind of diode which borrows energy from the field of the permanent magnet but does not return that energy in full. The important characteristic of such motors is that the stator windings are used for demagnetizing and not for magnetizing as it could seem from the first sight.

It is noteworthy that there is a small pause between attraction to the stator and repulsion from the stator. The effect of attraction to the core takes place a split second before the repulsion effect manifests clearly. This pause being the reason of electromagnetic asymmetry creates conditions necessary for achieving overunity effect. If the attraction to the core and repulsion by means of Lentz currents were taking place simultaneously and with the same power there would not be any overunity characteristics. That is why the rotor must be as lightweight as possible. From this point of view, T. Harwood's model is the most lightweight of the known models. In Harwood's device the magnets are mounted between two CD disks fixed on the shaft by means of plastic washers and glue. My model is heavier, which can be considered as one of its disadvantages.

The principle of operation of Adams' motor is based on the balance, which creates the electromagnetic asymmetry. To get the motor to operate the magnet must be attracted to the stator core which must have a smaller cross-section area in order to create attraction without any significant repulsion effect from the stator windings mentioned above. When stator and rotor axles are congruent the Lentz induced current must be sufficient for compensating the natural attraction of the magnet to the stator core. Consequently, stator windings must have enough turns for demagnetizing effect, but not to the extent that this effect fully manifests before the rotor reaches the stator axle when Lentz current has its maximal value.

During my experiments at 12 V voltage and on using two independently controlled stator coils the speed of rotation reached 3400 rpm. Please note that while reproducing such device it is necessary to take certain measures in order to ensure safety in case of possible breakdown. The magnet disconnected from the rotor may be dangerous!

Technological recommendations are as follows:

1. The device must be low power. It is better not to try to begin with a motor functioning in kilowatt range. This is feasible only on condition of having all necessary technological documentation which is not available at the moment.

2. The preferable voltage for the first model is 12 V. If the voltage is less the speed of rotation is too slow for indicating the expected characteristics of the device.

3. The best magnets are ferrite ones with dimensions 4x4x5 (where 5 is the magnet length). The practice has shown that at 12 V voltage neodymium-iron-boric (NdFeB) magnets cause a jerky rotation of the rotor.

4. The side of the stator core facing the rotor must

#### Control circuit with hall sensors



R<sub>1</sub>,R<sub>3</sub>,R<sub>5</sub>,R<sub>6</sub>,R<sub>8</sub>,R<sub>9</sub>, - 1000hm

#### Fig. 2

have the size which is 4 times smaller than the

corresponding side of the magnet. If cross-section area of the stator is larger, a bigger part of magnet field comes to the stator core when their axles coincide and thus there is nothing to induce Lentz' currents in the stator windings. It is a common point of view that it is necessary to try to minimize the volume of a

device and to obtain the maximum efficiency at minimal material expense. In practice, it has always been the goal while designing electrical machines to decrease losses in stator I<sup>2</sup>R. As for the Adams motor, it requires not only the use of disproportionate magnets but also stator windings with disproportionate number of turns specially designed to obtain maximum Lentz' currents that is achieved by hundred of turns of winding.

5. It is necessary to define approximately the effective zone of the magnet field. If practically applicable magnet field is equal to, for example, 8 cm, and the stator has a 10 cm long winding, then more than 20% of turns will not be efficiently crossed by magnetic force lines and will only create an excessive mass of the device. To define the degree of effective action of the magnet we can put a

paperclip on the table and move it gradually in

direction of the magnet until the paperclip is attracted to it. Actually if we take into account friction losses then the magnet influence zone will be a little larger. That is why the stator winding in the axle direction can be 10% larger than that in this experiment. The description of this test has been found on Tim Harwood's website

(http://www.geocities.com/theadamsmotor/cdmotor.html). 6. The air gap clearance between the stator and the rotor must not exceed 1 1.5 mm.

7. Use as little metal in the device as possible. It is preferable that the metal is used in the core and stator windings only.

In order to increase the efficiency of this motor, it is necessary to build it in a manner, which allows removing the counter emf from the stator windings. To do that, this emf may be taken off and stored in the capacitor. The article published by Nexus magazine and Great Britain patent No. 282708 consider special generator windings; however, no sufficiently detailed data on operating rules are provided. Michael Smith (Australia, http://www.Fortunecity.com/greenfield/bp/16/content1.htm) has unequivocally informed me in one of his letters that





he has not achieved generation of excessive energy in such a system. During his experiments a two-battery circuit proved to be more effective. In this circuit, during a part of periodical process the energy is stored in the capacitor and then a

command is transferred to a thyristor, which discharges it into the second battery. At that capacity, the

In order to increase the efficiency of this motor, it is necessary to build it in a manner, which allows removing the counter emf from the stator windings.

a considerable decelerating torque will manifest. The shaft penetrates the lower moving base. It is possible to rotate the base at a small angle for the precise alignment of axles and then to fix it

with screws and nuts.

second battery must be no less than 4 times more than the capacity of the first one. Otherwise the excessive energy does not have enough time to be stored during the discharge. I have also managed to provide the charge of the second battery, but the control circuit has not been assembled fully yet, as it is shown below in Fig. 4. Better results are expected when its final adjustments together with AT90s2313 controller program have been made.

I managed to start my first model of the motor in April, 2002. Afterwards, I spent approximately six months increasing its rotational speed from 750 to 3200-3400 rpm, decreasing vibrations and improving control In order to decrease aerodynamic losses, two veneer parts are mounted between the magnets. Thus I managed to increase the speed, although the rotor weight has also been increased.

circuit. In order to achieve a better rotor balance I had

to re-construct it twice. It is very important to align the

axles of the bearings with maximum precision; otherwise

Stator cores are made of plates taken from a disassembled radio transformer. Tim Harwood used nails with winding, however, my own results with such core proved to be poor. Dimensions of the core are 10x11x50 mm.

The type of power source is also important. First, I connected a 9 Volt accumulator of "Krona" type in series

with three metal-hydride 1.2 V accumulators. The speed of rotation did not exceed 1500 rpm. But when I used a lead/acid accumulator with 1.3 Ah capacity, the speed increased to 2600 rpm if there was one coil on the stator.

Four magnets mounted on the rotor have the dimensions of 20x20x35 mm and are fixed on a 105 mm glass fiber laminate disk. The current impulses proved to be too wide, by up to 40%. In order to make them shorter (down to 25-30%), I had to use the control circuit (Fig. 2) with two Hall sensors. At the signal from the first sensor the stator current is started, the second sensor switches it off. Many experimenters used a timer to control the impulse length while working with Adams' motor that is more practical since impulses are supposed to be wider during the start. I took this factor into account while designing the controller circuit. Current impulses are shown in Fig. 3. Their fronts are supposed to be shorter; it is probable that the coil has more inductivity than necessary. The impulses amplitudes are slightly different which is explained both by the difference in volume of induction of the magnets and by difficulty in achieving similar air gaps while working at home.

I have provided the charge mode of the 2-nd battery at my two-battery design. After 75 minutes of operation of the device the source lost 0.17 Volt whereas the second battery was charged at 0.36 Volt. The capacity of both batteries in this experiment was equal. Besides after such charging the second battery started to discharge quickly. The circuit where stator current charges the battery directly has to be considered ineffectual (see Fig. 1). To evaluate the charge, which is gained in non-hermetic accumulators, the density of electrolyte can be measured.

To obtain a more uniform torque I added the second stator which is controlled independently. This required installing two more Hall sensors and an additional power transistor. The angle between axles of the coils amounts to 135 (180-90.2=135) degrees. When the current is present in one part of the stator it is absent in another and vice versa. The speed has increased up to 3200-3400 rpm, and I deemed the further increasing of this characteristic unnecessary.

Increasing the number of circuit elements does not seem a good idea. Futhermore the adjustment process becomes more complicated. In order to improve the circuit of battery charge adding a timer circuit is required. Thus, I decided to use a controller circuit. A simple Basic program has been developed for AVR controllers. This program operates in mode similar to transistor circuit, but its capability can be significantly increased due to the built-in processor timers. Today program improvement is the most efficient way to solve the task of generation of excess energy in this circuit.

This article is meant to elucidate the principles of operation of one of the simplest devices which pretend to become an "overunity device", "free energy machine", "perpetual motion machine", whatever you call it. Probably someone will try to create such motorgenerators on their own. I hope that my article will serve as a guide and will help to avoid the mistakes made by many experimenters (including myself) before they managed to build their own model.

#### References

- 1. Puthoff H.E. Source of vacuum electromagnetic zero-point energy. Phys. Rev. A 40.4857-4862; also 44. 3385-3386
- 2. Bernard Haich, Alfonso Rueda, Puthoff H.E. Physics of the zero-point field: implications for inertia, gravitation and mass. Speculation in Science and Technology, Vol.20, p.p. 99-114, 1997 (preprint version)
- 3. Miller, Switched Reluctancy Motors & Their Controls, ISBN: 10881855-02-03
- 4. Patent No. GB 2,282,708 (from NEN,Vol. 4, No. 8, December 1996, pp. 1-7).



### Prediction and Experiment on Field Transformation in the Model of Extended Space

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A series of preliminary experiments on checking the possibility of generation of gravitational field at deceleration of charged massive particles in matter was carried out.

#### Introduction

In previous works [1-3] generalization of the special theory

of relativity (STR) for the five-dimensional extended space with metric (+;-,-,-) was offered.

The model of extended space (ESM), combining electromagnetic and gravitational interactions, was made. For this, there was made (1+3)-dimensional space extension  $M(T; \vec{X})$  of Minkovsky to (1+4)-dimensional space  $G(T; \vec{X}, S)$ . Let us call it extended space. As the 5-th additional coordinate the value already existing in Minkovsky space, i.e, S interval

$$s^2 = (ct)^2 - x^2 - y^2 - z^2$$
 (1),

is used.

Let us note that attempts to combine gravitation and electromagnetism have a substantial background.

Modern approaches to this problem trace back to the work of F. Klein [10] in which he proved that dassical Hamiltonian mechanics can be represented as optics in the space of a great number of dimensions.

Then T. Kaluza tried to generalize Einstein's theory of gravitation to include electromagnetism in this theory as well [11]. He proposed to consider (1+4)-dimensional space with metric depending on potentials of the electromagnetic field. Kaluza's idea was evolved by O. Klein [12], G Mandel [13] and V. Fock, and the model they had created got the name of the Kaluza-Klein theory. They proved that the trajectory of a charged particle has the form of a geodesic line with zero-length in 5-dimensional space.

In his works on 5-optics Y. Rummer [15] proposed to assign action dimensionality to the new dimension and to consider it periodical with the period equal to Planks' constant. Note that rest mass of particles in all these constructions unlike the model of extended space evolved in the works [1-7] was considered a fixed value. Subsequent development of multidimensional theories is given in the monograph [16].

A separate approach is represented by multidimensional constructions in the theory of strings and superstrings [17].

Approach to construction of (1+4) dimensional space evolved in [18] is close to the proposed model of extended space. Here it is proposed to use mass (matter) as the 5-th coordinate. However, in this model, as its originators admit, it is impossible, for example, to create the energy-pulse tensor. There is no such disadvantage in the extended space model [8].

Mechanics of a material point [1, 2, 7] and electrodynamics [1, 8] were made in the introduced extended space. Besides Lienar-Vihert potentials [6, 19] corresponding to such a model were also considered and properties of solutions of Maxwell augmented system of equations which are in conformity with these potentials were analyzed there.

Gravitational effects in extended space, such as the second orbital velocity, red shift and light deflection [4, 20, 21] were considered. It is proved that the formulas received in the general theory of relativity for calculation of values of these effects can be received by an absolutely different method within the framework of the extended space model as well.

It was proved [6, 19] that the fields in the model of extended space can change their signs. Such change of field-intensity sign and, consequently, change of sign of Lorenz force can be associated with radiation reaction of these fields which occurs when charged particles move with acceleration. Thus, on the one hand, it was proved in the model of extended space that it is possible to get certain formulas describing gravitational effects of the general theory of relativity [4,20] using the technique of turns in extended space. On the other hand, it was proved that the electromagnetic field can be a source of gravitational field [6, 19].

Besides, a moving massively charged particle under deceleration can create a variable gravitational field around itself [9, 6, 19]. The following experiment was offered for experimental check of the latter assumption. In this experiment probable occurrence of gravitational field at deceleration of relativistic electrons was determined by change of oscillations of a massive torsion pendulum.

#### **Experimental device**

A narrow bunch of relativistic electrons from a microtron 1 (average power of the bunch is 450 Wt, electrons energy is 30 MeV) was directed to a brake target (position 2 or 3) made of wolfram exactly where deceleration of accelerated electrons took place.

A special torsion pendulum suspended on a vertical suspender 5 made of a springy metallic string with 1,8 mm diameter was placed near the brake target to register gravitational field which could probably appear at electrons deceleration. The length of the suspender made is 85 cm. The pendulum could rotate freely on the suspender only in horizontal plane.

The pendulum consisted of a light aluminum rod 4 (with a length of 120 cm) on the ends of which massive loads 6 and 7 made of non-magnetic material were fixed. The weight of each load was equal to 4kg. In the center a pendulum was fastened to a vertical suspender 5 by a special mounting preventing slippage during turns. To reduce the influence of magnetic inducings the pendulum was grounded and additionally screened by metallic grid from all sides. The period of free oscillations of the pendulum made were about 40 s.

Rigidity of the pendulum vertical suspender could be changed by means of limiting the length of effectively operating part of the suspender. As a result, the period of oscillations could be continuously changed within the limits of 40 to 27 s.

To reduce the influence of mechanical noise and to introduce additional attenuation in pendulum oscillations two liquid dampers 10 and 11 located near the pendulum massive loads were used.



#### Fig. 1 Experimental device

1 – microtron, brake target made of wolfram – positions 2 or 3, 4 – rod, 5 – vertical suspender, 6 and 7 – massive loads, 8 – mirror, 9 – He-Ne laser, 10 and 11 – liquid dampers, 12 – optical system, 13 – concrete protection, 14 – observation channel, 15 – video system, 16 – screen.

Pendulum deflections were observed on a graduated screen by deflection of a laser beam reflected from a flat mirror 8. For this, the beam from a continuous He-Ne laser 9 through the optical system 12, which constricts the divergence angle of the laser beam, was directed to the mirror through a special narrow channel 14, located in concrete protection 13 around the microtron. By means of a video system 15 the beam reflected by the mirror was registered on the screen 16 located at a distance of 500 cm from the mirror. The video system allowed remote checking of vibrations of the laser spot and additionally enlarged the visual angle up to 12 times. The diameter of a focused laser beam on the screen was made 0.15 mm. The maximum turn angle of pendulum for the reflected beam to remain within the receiving channel was approximately 2 degrees. The accuracy of turn angle registration of the whole system was 5x10<sup>-4</sup> degrees.

The pendulum was placed in such a way that one of the massive loads were close to the brake target at a distance

of about 20 cm. There was also an opportunity to move the brake target from one end of the pendulum (position 2) to the other (position 3). This allowed changing the place of deceleration of electron bunch at constant parameters of all unaccounted mechanical noise and magnetic inducing. Thus, direction of pendulum torsion was changed under probable exposure of occurring gravitational radiation.

Below there is a photo of the experimental plant (see also the colored photo on the cover page).



**Calibration Measurements** 

To make measurements it was necessary to select optimal parameters of the pendulum (masses of loads, suspender rigidity and the value of oscillations attenuation). On the one hand, while carrying out the measurement it is desirable that the amplitude of pendulum oscillations should be as maximal as possible. On the other hand, the beam reflected from the mirror should not go outside the limits of observation, restricted by the diameter of the narrow observation channel in radiation protection around the accelerator. Besides, the typical operating time of the loaded accelerator usually is 10-15 minutes. Necessity to accumulate the minimum of sufficient statistical data within this time limited oscillations period and the time of setting of the pendulum in a new equilibrium position at outside influence. All these requirements were as far as possible taken into account during selection of the final setting parameters.

An example of free oscillations of the pendulum in the presence of minor mechanical vibrations caused by the operating of vacuum pumps is given in Fig 2, series I (the experiment took place on 31 May, 2001). The diagram shows the amplitude of laser beam oscillations on the screen 16 (upper and lower rows of values) depending on the number of oscillation. The laser beam is reflected from the mirror 8 which was fixed to the pendulum. The diagram also shows the current central equilibrium position (the central row) calculated by these amplitudes. Series I represents oscillations at influence of the background mechanical noise. Series II represents the response of the pendulum to minor permanent outside force. Accuracy in determination of position of the center of a light spot was 0.1 mm.



Calibration Measurement 31 May, 2001

Measurement was carried out with one liquid damper in service and with increased rigidity of suspender (it was made by means of limiting the effectively operating suspender length). The period of free oscillations in these series was 29 sec. In this case there were set continuous oscillations of the pendulum around the average value of balance of 2.2 mm with the average amplitude of values fluctuation of about 0.2 mm.

Air cooling of one of the massive loads by a very light continuous air flow was carried out to study response of the pendulum to a minor constant external force. In this case (Fig 2 Series II) noticeable change of pendulum oscillations already took place after 3-4 periods. Absolute setting of a new balance took place after 7-8 oscillations.

In the case of another series of calibration measurement (held on 7 June, 2001) both liquid dampers were used and rigidity of suspender was decreased. The period of free oscillations of pendulum was about 40 sec.

Addition of the second damper and decrease of suspender rigidity caused, on the one hand, increase amplitude of pendulum oscillations at influence of the external force and, on the other hand, in that case noticeable change of the equilibrium position of the pendulum took place after 1-2 oscillations.

Periodical checking of the invariability of initial central position of pendulum balance in time was also carried out. Thus, for example, in the series of measurement of 7 June 2001 measurement of equilibrium position was checked not only before the start of the main series of measurement, but also 2 hours after completion of the main works.

#### **Experimental Results and Their Analysis**

Within the period from 17 May, 2001 to 7 June, 2001 7 measurement series were carried out at various operation modes of the accelerator and at various pendulum parameters.

A record of check of equilibrium position of the pendulum was carried out before and after switching off the electron bunch (as well as during calibration measurement). At the same time, all electric inducing and mechanical noise remained stable within the whole measurement period. This was achieved by means of additional switching on all the devices which were used during measurement (water and vacuum pumps, magnetron, deflecting magnets, etc.) and their switching off only on completion of the measurements.

In Fig 3 there are results on measuring the central position of the pendulum when brake target is in position 3 (see Fig 1). Series I and III on the diagram correspond to check measurement directly before switching on and several minutes after switching off the electron bunch. Series II-A and II-B totally reflect pendulum oscillations at the time when the accelerator is operating (for about 10 minutes) and for some time after the bunch is off. Additionally, a trend line is drawn (averaging by 3 points).



Fig. 3 Measurement of central position of pendulum equilibrium when brake target is in position 3.

Results of a similar experiment are given in Fig4. The only difference in this experiment is that the brake target is in position 2. Also a trend line is added (averaging by 3 points). Series I and III are check measurements made directly before switching on and after switching off the electron bunch. Series II are pendulum oscillations at the time when accelerator is operating.



Brake target in position 2

From qualitative comparison of trend lines (Fig. 3 and Fig. 4) it can be derived that there is a correlation between switching on the electron bunch and the average deflection of the pendulum from equilibrium position if compared to checked series before and after switching on. At that, direction of deflection changes depending on what pendulum load the brake target is close to.

Unfortunately, due to circumstances beyond the control of the author it seems to be difficult to improve experiments accuracy or to accumulate much of statistical data by now. Estimate of the value of the force which may cause such a shift of position of pendulum equilibrium was carried out. In the experiments this deflection did not exceed 1-2 mm (in the units of registering scale). Calibration of a rigid suspender (if it applies to a massive load at a pendulum end) gives the upper boundary of this force of not more than  $10^{-6}$  N.

#### Conclusion

A series of experiments were made on checking the possibility to generate a field at deceleration of charged massive particles in matter.

Electrons accelerator was used as a source of charged particles. A narrow bunch of relativistic electrons (average beam power is 450 Wt, electrons energy is about 30 MeV) was directed at a brake target made of wolfram where deceleration of accelerated electrons took place.

Measurement proved appearance of statistically reliable deflection of a torsion pendulum, one of massive loads of which was located close to a brake target by the time of deceleration of relativistic electrons.

Change of direction of pendulum torsion at shift of a brake target from one end of the pendulum to the other was also registered. The value of the force which causes pendulum deflection has the upper boundary of N. Of course, these first experimental results on checking the predictions made on the basis of development of the model of extended space are of preliminary nature and need more thorough checking. That will be the basis of future experiments.

#### References

1. Tsipenyuk D. Yu. Andreev V. A, "Extended space and model of combined interaction", Short reports on physics FIAN, No.6, pp. 23-24, (2000); gr-qc/ 0106093

2. Tsipenyuk D. Yu., Andreyev V. A., "Explored in Russia" E-magazine,60, (1999);

http://zhurnal.ape.relarn.ru/articles/1999/060.pdf 3. Tsipenyuk D. Yu., Andreyev V. A., "Structure of extended space", Preprint IOFAN, 5, 25p., Moscow, (1999)

4. Tsipenyuk D. Yu., "Field transformation in the model of extended space: prediction and experimental test", Gravitation&Cosmology, Vol.7, No.4(28), pp336-338, (2001); physics/0203017

5. Tsipenyuk D. Yu., "Field transformation in the extended space model: prediction and experimental test", Short reports on physics FIAN, No, 7 p.39-49, (2001); physics/0107007

6. Tsipenyuk D. Yu., Andreyev V. A., "Lienar-Vihert potentials for the extended space model", Short reports on physics FIAN, No 6 p.3-15, Moscow,(2002); physics/0302006

7. Tsipenyuk D. Yu., "Explored in Russia" emagazine, 81, p.907-916, (2001);

http://zhurnal.ape.relarn.ru/articles/2001/081.pdf 8. Tsipenyuk D. Yu., Andreyev V. A., "Electrodynamics in extended space", Preprint IOFAN, 9, 26p., Moscow, (1999)

9. Tsipenyuk D. Yu., Andreyev V. A., "Interaction in extended space", Preprint IOFAN, 2, 25p., Moscow,(2000)

10. Klein F. Zeits.f.Math.a.Phys., 375, (1901) (see translation in collection "Variation principles of mechanics", M.: Physmatgis, 1960)

11. Kaluza Th. Sitz.d.Preuss.Akad., 966, (1921) (see translation in collection "Albert Einstein and gravics", M.: Mir, 1979)

12. Klein O. Zeits.f.Phys., 37,895, (1926)

13. Mandel H. Zeits.f. Phys., 39,136, (1926)

14. Fock V. Zeits.f. Phys., 39, 226, 1926

15. Rumer Yu. B. Investigations on 5-optics, M., Gostehizdat, 1956

 Vladimirov Yu. S. Dimensionality of physical spacetime and integration of interactions. M., MGU, 1987.
Green M., Schwartz G., Vitten E. Theory of superstrings, v.1, 2, M.: Mir, 1990

18. Wesson P.S. Space, time, matter: Modern Kaluza-Klein theory. Singapoure, World Scientific publishing Co.Pte.Ltd, 1999

19. Tsipenyuk D. Yu., Andreev V.A., "Lienar-Vihert potentials and Lorenz force in extended space", Preprint IOFAN,1,20p., Moscow,(2001)

20. Tsipenyuk D. Yu., Andreev V. A., "Gravitational effects in extended space", Preprint IOFAN, 4, 15p., Moscow,(2001)

21. Tsipenyuk D. Yu., "Field transformation in the model of extended space: prediction and experimental test", Preprint IOFAN, 5, 24p., Moscow, (2001)

22. "Tsipenyuk D. Yu., report "Electromagnetic and gravitational interaction in extended space" at the Conference of Nuclear Physics Department of the Russian Academy of Sciences (RAN) "Physics of Fundamental Interactions", 27 November-1 December 2000, ITF, Moscow, http://www.itep.ru/23. Tsipenyuk D.Yu. and Andreev V.A., "Interval as the fifth coordinate" proc. of 5-th Int. Conf. on Gravitation and Astrophysics of Asian-Pacific Countries, PFUR, Moscow, 2001, pp.29-30.

http://rgs.da.ru/

24. Tsipenyuk D.Yu., "Direct transformation of the electromagnetic field to gravitational field in the model of extended space: predictions and possible way of its experimental test", proc. of 5-th Int. Conf. on Gravitation and Astrophysics of Asian-Pacific Countries, PFUR, Moscow, 2001, p.28.

http://rgs.da.ru/

25. Tsipenyuk D.Yu., "Model of extended space: Prediction and test experiments on possible transformation of electromagnetic field into gravitational field", proc. of XVIth Workshop on High Energy Physics and Quantum Field Theory (QFTEP), Moscow, Russia, 2001, pp.398-405.

http://theory.sinp.msu.ru/~qfthep/2001/Proceed2001.html 26. Tsipenyuk D.Yu., "Model of extended 5-d space and possible checking experiments", presented at 5th Moscow international ITEP school of physics (30th ITEP winter school of physics), 20-28 Febr., Moscow, 2002, http://www.itep.ru/

27. Tsipenyuk D.Yu., report "Second experiment on checking prediction on field transformation in extended space" at the scientific conference of nuclear physics section OFN RAN "Physics of Fundamental Interactions", ITF, 2-6 December 2002, Moscow, http://www.itep.ru/

28. Urbah V. Yu., Mathematical statistics, M., USSR Academy of Sciences Publishers, 1963.



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There is a widespread opinion common to the mainstream academic community and also to various alternative scientific forums, that some kind of exotic new physics will be required to design and implement over-unity technologies. That is to say electrical motors, electrical generators, or other apparatus, which produce an excess of magnetic force or energy above the value actually inputted.

However, this has recently been experimentally demonstrated not to be the case, as I have validated myself in simple \$20 experiments undertaken at home with parts bought from the local hardware store. It is the purpose of this article to educate readers that with care, thought, and a little work, it can be demonstrated that existing textbook physical law, freely allows for the extraction of excess electrical energy from magnetic systems.

#### The Flynn Research Project

Joe Flynn has been engaged in magnetic flux research for over 25 years now. His work is long standing, comprehensive, and in later years, well funded. It is reported \$7m has been spent to date, with over \$1m alone developing a revolutionary high performance magnetic motor. His equipment is validated, and apparently already in mass production for select customers. Yet few researchers have heard of Joe Flynn. This surprising situation will hopefully shortly be changed, and Joe Flynn awarded the scientific accolades he deserves, for being the genius master mind behind one of scientific history's most outstanding research projects. Since many lines of research have been formulated and explored by Joe Flynn, the following article presents only a brief summary of some of his best art apparatus, but is nonetheless sufficient to convey the basic ideas.

The first illustration (Fig. 1) is taken from Joe Flynn's US patent 6,246,561, and explains a simple magnetic force multiplication experiment, which forms the basis for the Flynn magnetic art. If the windings on either side of the central magnet, which are normally connected in series, are properly pulsed, the field of the permanent

magnet in the center will be diverted to the opposite side of the core flux path provided. Or in alternative language, the side of the core that is pulsed is demagnetized, relative to the field of the permanent magnet used in the apparatus. This is elementary textbook physics anyone can understand.



1.75 times more force is delivered to the legs of the core than is provided by the electrical input to the control coils

So what is surprising about this apparently simple apparatus is that the armature on the side of the flux core will contain 1.75 times more units of magnetic force, that could be manifested by the electrical input to the apparatus alone. Since the ability to arbitrarily move the force from one point to another is the basis for motion or work, however simplistic, we therefore have a basis for a system that can be developed for practical technological purposes. Expressed in alternative language, we also have the capability to engineer a time varying magnetic field, without the need for moving parts, which will allow development of systems that output electrical energy. Both capabilities are highly desirable, and offer substantial opportunity for technical development.

Following on from this basic experiment, there is a second simple and logical improvement in layout illustrated in Fig. 2, which should be obvious, but has been shown not to be the case. In this instance, the pulse is centrally located, and a dual flux field layout employed, which both demagnetizes the core relative to one magnet, and magnetizes it relative to the other. Since the two actions are complementary, the input required to manifest the flux switching effect is halved, therefore doubling 'efficiency.'





3.47 times more force is delivered to the legs of the core than is provided by the electrical input to the control coils

It should be noted that while the efficiency is doubled, the absolute output may not be significantly improved. This is because the major weakness of this effect and technology is flux saturation of the core, with values depending upon the specific properties of the B-H curve of the core material employed, limiting the absolute output of both layouts the same. The previous statements are not required to be taken on trust, and simple experiments have been proposed by Joe Flynn, such that anyone can validate this effect for themselves. Figure 3 is a simple experiment taken from the Flynn website (http://www.flynnresearch.net), that can be used to validate the principals put forth in this article.



#### Simple Magnetic Force Multiplication Experiments

Fig. 3

Parallel Path can deliver 3.47 times more force to the legs of cores than any competing conventional technology

An even simpler non electrical flux experiment was proposed by GM in the Parallel Path Egroup. My apparatus is illustrated below in Figure 4. It is no more than magnets and steel staple strips, bought from a local hardware store for a total of under \$10. The Parallel Path effect can be replicated with identical apparatus, at only a slight increase in cost and complexity, with the addition of a simple 12V polarity reversible power supply, such as those commonly sold to power computer speakers, among other applications.

#### Simple Magnetic Force Experiments



Fig. 4

Relatively small changes in layout produce large changes in force

#### Conservation of Energy / Field Potential

One of the aspects of the Flynn technology people find most difficult to understand, is how you can have a device that delivers 3.47 times more magnetic force than is electrically inputted, yet not violate accepted principals of text book physics, as stated in the introduction. The key point here is conservation of energy. Magnetic fields do not gain energy – they are conservative. You can only ever obtain less energy from a magnetic field minus losses, than is in fact present. I feel this apparent puzzle can not be better explained, than by reference to Joe Flynn's own words:

"Since the Parallel Path System produced 3.47 times more force than the conventional system, with the same electrical input, it appears to violate conservation, this is only true when observed from a traditional view point. The system contains three flux producing sources (2 magnets and an electromagnet) which together are capable of producing a far greater force than is actually produced. All of the flux sources together can produce a force of 13.11 units, therefore in the physical sense a loss of 1 - (9.01 / 13.11) = 31% is realized."

So the system is 350 % efficient, in terms of delivered magnetic force compared to net electrical input, yet still conforms to the accepted physical principals of energy conversation, by being only 69 % efficient, in terms of the fields present in the system. However surprising this result may appear, the analysis presented is in outline correct, with the difference between fields present in the system, and net electrical input, being the important concept presented.

#### Losses in the System and Optimisation



In order to properly optimise flux cores, an appreciation of the physics that underlies the transfer of flux within a core is required. The normal magnetization curve, or B-H curve, is a mathematical relationship between applied field intensity H, and resultant flux density manifested in the core B. It varies according to core material, and the curve will shift, if there is a starting magnetism within the core, such as that provided by the field of a permanent magnet. If the start magnetism is excessive, the core is saturated, and will not properly respond to the applied force H. A simple B-H curves is illustrated in Fig. 5.

Hysteresis is a delay between applied magnetic force H, and resultant flux density B, that again varies according to material type. It also manifests as a delay between the termination of force H, and the manifestation of flux density B. So, the system will not turn on instantly, and will not turn off instantly, in simple terms. This is because the magnetic memory of the core, means a flux vector remains within it, even when the application of magnetic force H has been terminated. If we apply a reversed force H to the core, the basic B-H curve is now expanded as in Fig 6, with the memory effect also illustrated.



Fig. 6

Thus as can be seen, to return to the initial switched state, the remnance magnetism must now be overcome, hence input once in operation, will be greater than that required for the very first pulse. The area within the hysteresis curve gives a rough estimate for the amount of wasted energy, and along with other conventional sources of losses resultant in flux transfer within a core, is what reduces the efficiency of flux cores from maximum values of 2, or 4, down to values such as 1.75 or 3.47, typically.

#### **Motor Apparatus**

#### Simple Parallel Path Technology Demonstrator Motor





Designed to demonstrate core principals, not provide over-unity

Although numerous practical applications abound for this effect, electric motor design remains the most outstanding opportunity. To this extent, again a few simple images, should be sufficient to explain how the basic flux switching apparatus, can be turned into a highly efficient electrical motor.

The first motor shown in Fig. 7 is one I have proposed to validate the flux switching effect at a most basic level. It illustrates the point made in the Flynn patent, that the armature of the core can be removed, and replaced with a motor flux path. This first motor is not claimed to be highly efficient, but it helps one to understand how the transition from simple flux core to motor takes place.



Magnetic force is alternately switched from one leg to the other, imparting motion to the rotor sections

The next motor shown in Fig. 8 is again taken directly from the Flynn patent, and illustrates the next intermediate step to motor design. The fields of the permanent magnets are alternatively switched from one side of the surrounding flux cores to the other, alternately interacting with N and S poles on the rotor, imparting motion to the central rotor shaft.

With proper financial support, and the facilities to have metglas cores custom moulded, Joe Flynn was able to develop his final best art, shown in Fig. 9. No detailed performance numbers have been released for this motor, whose precise performance characteristics remain proprietary to Joe Flynn at this time. But the optimisation is so expert, it is stated to posses certain exotic properties, such as cool ambient operation, even during prolonged periods of continuous load. This 'cold running' is said to be of great interest to the American military, as it offers excellent stealth performance characteristics.



Fig. 9 Optimal Flux Core Motor Construction

#### **Electrical Apparatus**

Many readers will no doubt have noticed the similarity of the first illustration presented in this document, to the so called 'Tom Bearden MEG.' This is fair comment, and Joe Flynn has always highlighted this issue. However, it has been commonly stated Joe Flynn has simply developed mechanical apparatus, and the MEG with its electrical functionality, is distinct art, more advanced than the mechanical Flynn apparatus. However, this is shown not to be the case by a careful examination of the Flynn patent, in which the following is stated in the 'Power Conversion' section:

The construction (shown in Fig.10A) utilizes four control coils and a single permanent magnet and the construction (shown in 10 B) uses two control coils and two permanent magnets. The flux that would normally be supplied by a primary winding is supplied by the static flux of the permanent magnet or magnets and the control coils convert this static flux into a time

varying flux in a novel way. Both arrangements use two secondary coils, the secondary coils are placed in the region of the continuous flux path that would be occupied by an armature or rotor in the linear or rotary arrangements. The regions of the flux paths that perform work are the same in all cases.'

By alternating the polarity of the control coils during one cycle, one working region experiences an increasing flux and the opposite region experiences a decreasing flux and during the next cycle the opposite occurs. This results in the induction of a voltage in the secondary coils that is decided by the magnitude of the change in flux in the working region and the time in which this change occurs. The novelty of this discovery is that the primary flux inducing the voltage in the secondary coils is supplied by the permanent magnet or magnets and is far greater than the flux supplied by the control coils.'



Fig. 10

Fig10 taken directly from the Flynn patent makes the point even clearer. As can be seen, the device illustrated is in all functional respects absolutely identical to the so called 'Tom Bearden MEG.' This identical prior art, therefore calls into question the intellectual property rights of Magnetic Energy LTD, as the same invention can not be patented more than once. Joe Flynn has also stated that his intellectual property rights will be robustly defended, by legal action if necessary, and he regards

himself and his company as being in possession of exclusive rights to the so called 'MEG' unit.

As regards replication of electrical output

orientated flux core devices, certain important details need to be stated. For example grade 8 ceramic magnets should be used, so as to avoid flux saturation of the core. A basic error, many early experimenters wasted time on. The requirement for strong magnets to obtain over-unity results, is as much of a myth, as the idea new physics is required.

domain.

But perhaps the greatest trade secret of the electrical devices, one which several lengthy non disclosure agreements are required to be signed before it can be disclosed, is that the input and output circuits must be closed in series. The disclosure of this technique amounts to putting the basic MEG methodology fully into the public domain.

The reason for this circuitry requirement is obvious enough, with only a little analysis. If the output circuit is closed when the input circuit is activated, then the input energy simply leaks into the output circuit, as in an ordinary transformer. So no flux switching effect is manifested, and the field of the permanent magnet is static in time. Thus you have an ordinary transformer, with reduced efficiency, because of the core flux saturation effect provided by the permanent magnet.

This is one of the most important point to make about the Flynn apparatus. If you approach it as if it is a normal piece of scientific equipment, then proper optimisation is not greatly problematic. For example more turns on the output coils, simply means more voltage and less current, exactly as standard textbook equations predict. Generally, problems only occur, if you imagine the effect is based upon exotic scalar type or vacuum energy physics, when in fact it is ordinary flux manipulation within a core.

#### Present Status of the Flynn Project

Initially Joe Flynn was remarkably open about his work and research. However, since performing a working demonstration of various advanced hardware samples for the American Department of Defence, little has been heard.

I want to clearly emphasize I do not speak for Flynn research, nor am I in any way connected with Flynn

the input and output circuits must be

closed in series. The disclosure of this

technique amounts to putting the basic

MEG methodology fully into the public

research, and by consequence, have no inside information whatsoever as to the present status of the project. But we all sincerely hope, that the project has not been

swallowed whole by the American deep black military industrial research complex.

However, even if this is the case, it does not mean the technology is lost. Extensive and generous details have been provided by Joe Flynn of his research, both in his patent deposition, website, and other comments, such as to enable persons of scientific training and skill, to replicate the effects stated.

While replication of the electrical effect remains extremely demanding, the mechanical apparatus is very easy both to understand and replicate. There is no reason why scientists and home tinkers together, can not build Flynn type flux core motors, and explore over-unity flux manipulation for themselves. The future has arrived, and it is simpler and cheaper than anyone imagined to be possible.

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- Telecommunication

Energetic

- Information technologies

# **Flynn Research Company**

#### http://www.flynnresearch.net

understanding or provable definition of what is

a line of magnetic flux.



Photo 1

3.3" 1.2" stack height 1/2 hp weight 59 oz

Editor: Below we publish information and photos, represented on Flynn Research Company website (http://www.flynnresearch.net), and a description of the patent on methods for controlling the path of magnetic flux.

Flynn Research is dedicated to research focused on the novel application of permanent magnet and

e l e c t r o m a g n e t i c technology. Magnetism is a field that has potential for tremendous growth from both a science and application perspective. The

application perspective. The researchers of Flynn Research Company believe that magnetism is one of the least understood and most misinterpreted of the natural forces, with the exception of gravity.

Even though much work has occurred in the advancement of magnetic materials, little advancement has occurred in the basic understanding of magnetism. The field of magnetism is based on both theory and 'myth' and is generally described as a 'phenomenon'.



Photo 2

Dynamometers, Power Analyzer etc.

We still do not know what a line of flux is and how it travels through space. We know flux "appears" to originate within a permanent magnetic material, forms a loop from one end to the opposite end of the magnetic material, appears to occur without a time constant, produces a force (attractive and

> repulsive) between other permanent magnets and "magnetically permeable materials and has a relationship to current flow. Everything known

about magnetism is based on "effect and relationships" without a clear understanding or provable definition of what is a line of magnetic flux.

The research is based on the "magnetic force of attraction effect" that is related to magnetic flux by the number of lines of flux occupying a given area or flux density squared. The simple fact that if the number of lines of flux occupying a given area "doubles" the force of attraction becomes four

Id that has potential *Everything known about magnetism is based on "effect and relationships" without a clear*


Photo 3

8" dia x 8" height motor presentation



Photo 5 Technology Discussion



Photo 4

8" X 8" motor testing

Photo 6

Parallel Path Test Apparatus

times greater. The basic model shows that with specific structures electromagnetism acting with permanent magnet materials can divide and multiply force in a manner that cannot be explained with conventional physics.

Rotary devices, linear devices, reciprocating devices and power conversion devices are now a patented product of this research. The goal of the Company is to commercialize their devices for use in an energy dependent world. Flynn Research is a research & development company and in cooperation with Magnetic Revolutions LLC licenses their technologies for use in the electric motor and power conversion industries.

The researchers do not construct their own test equipment nor write capture and data evaluation programs but use industry / scientific accepted products. Close to \$1.5 million has been expended developing, protecting and evaluating the technology. Many fine minds have been involved in the development and evaluation of the technology. Many presentations have been given both to motor companies and academic groups. The prototypes have all been professionally built, which include a 1/2 hp 3.3" dia 1.2" stack height, the assembled motor weighs 59 oz and a motor 8" dia with a stack height of 8" currently undergoing testing.

# **United States Patent No.** 6,246,561 **June** 12, 2001

# Methods for controlling the path of magnetic flux from a permanent magnet and devices incorporating the same

Inventors: Flynn; Charles J. (Greenwood, MO) Assignee: Magnetic Revolutions Limited, L.L.C (St. Louis, MO) Appl. No.: 127056 Filed: July 31, 1998



A permanent magnet device includes a permanent magnet having north and south pole faces with a first pole piece positioned adjacent one pole face thereof and a second pole piece positioned adjacent the other pole face thereof so as to create at least two potential magnetic flux paths. A first control coil is positioned along one flux path and a second control coil is positioned along the other flux path, each coil being connected to a control circuit for controlling the energization thereof. The control coils may be energized in a variety of ways to achieved desirable motive and static devices, including linear reciprocating devices, linear motion devices, rotary motion devices and power conversion.

### *Editorial: The principle of designing of the device (two counter parts of the flux are used) resembles* Φ-machine or Gramm's generator. Read in this issue more details on these devices.



Review prepared by correspondent Alla Pashova, Russia

Flux-machine (or  $\Phi$ -machine, since configuration of its field resembles the Russian letter " $\Phi$ ") was designed by Alexander V. Frolov during the first half of 1990s.  $\Phi$ -machine description was published more than once on the pages of scientific periodicals (1994, Institute of New Energy, Newsletter, June 1994, p.9.; 2002, New Energy Technologies, 2002, p.3), and it is well known to many researchers concerning themselves with such kinds of engineering.

Let us consider the arrangement of  $\Phi$ -machine; see Fig. 1 (first published in 1994). A report was presented at the conference «New ideas in natural science», 1996 in Saint Petersburg (see photo in Fig. 1). The primary coil is mounted in the center of generator; two secondary ones are diametrically wound on a ring core. An air gap between ring and central magnetic circuits are of particular importance. Two magnetic fluxes from two coils are balanced, and, thereby, there is no reaction in the primary circuit.





**Fig.1** See also Fig. 7, p.29 – the analogy is evident

The device bears some similarity to the Gramm's generator (Zenob Theophyl Gramm, 1826-1901, Belgium-France, took out a patent for an electric ring-rotor generator in 1869). In Gramm's generator (Fig. 2) the ring rotor with a toroidal winding rotates. The toroidal winding touches two diametrically located conducting brushes. It turns out that in the ring of the rotor all winds of one rotor half create a field which is directed towards a field created by the other rotor half.



Fig. 2

An example of analogous device is represented in Fig. 3 (information is from the website:

http://www.skif.biz/energy/arhiv1-6.shtml), and also in Fig. 4 (we have written about this invention in New Energy Technologies, Issue #5 (8), 2002, article by V.I. Boryak, Email: spin@i.com.ua).



In August 1999, according to Stephen Hartman (Hartman Multimedia Service, Email: hart@harti.com, info@ccard.net), a German research team designed a toroidal generator. As stated by the researchers, it obtained more than 1.200 W by load while efficiency exceeded 100%!

This subject has become very popular among different researchers. Fig. 5 illustrates a design with a magnet rotating in the center (designer - Olaf Berens, Email: olaf.berens@prognost.com).



Fig. 5

One more example from the USA: in February, 2003 Donald Hofmann (USA) filed an application for patenting "Generators and transformers with toroidally wound stator winding». Below we publish the description of the patent.



Fig. 6

### Inventors: Steven L. Sullivan, USA; David L. Goulet, USA; Donald Hofmann, USA.

Electrical generators are provided with toroidally wound stator windings electrically connected in series; a high permeability stator core, preferably an amorphous magnetic alloy material, glassy metal or HYPERCO<sup>TM</sup> 50 laminations; and a rotor. The toroidally wound stator coils and the stator core trap essentially all of the flux fields generated by the stator coils within the stator core. Since there is essentially no magnetic field leaving the stator, there is essentially no flux field interaction with the field generated by the rotor. The reduction of flux field interaction also reduces counter torque.

According to another embodiment of the invention, open positions of a rotor may be filled with magnetic material, preferably iron. Filling open portions of the rotor may assist in reducing undesirable flux leakage from the rotor. By trapping substantially all of the flux within the rotor, interaction between rotor and stator flux is reduced. In this manner, counter torque is reduced thereby increasing the overall efficiency of the device.

A prototype of this embodiment was constructed using a standard 10 kWtt gas-powered generator. The stator was removed from the generator and its housing. The stator windings were removed from the stator and rewound by hand using a No. 10 size copper wire with 180 winds wrapped in a toroidal fashion around approximately 180 degrees of the stator. The stator was then reinstalled in the modified housing and re-attached to the gas-powered generator. A standard 12 volt car battery was attached to the input of the rotor. A 12.92 volt input with 0.8 Amps was measured as the input to the rotor. The output was measured as 6.5 volts with a 40 Amp output. A series of input and output measurements were taken for various inputs.

*Editor: Thus input power is 10 Wt, and output power is 260 Wt.* 

So, the old well-known ideas have found new ways of embodiment, though their essence remains unchanged. Let us note that Faraday Labs Ltd has been working on creating a prototype of I-machine with a toroid of 200 mm in diameter.

## Please, read more about this in the next issue!

Editorial: We publish the specification of several interesting patents, which were taken out by Russian inventors for recent years.

# Russian patents on alternative energetics

- . №93001754, 1996.06.27, Converter of gravitational forces into energy, V.V. Mironov and others
- . №92008720, 1995.02.10, Slavic method to produce energy by conversion of gravitational forces, V.V. Mironov
- . №93006696, 1995.04.30, Supporting converter of gravitational forces into energy, V.V. Mironov
- . №2001121071, 2003.04.10, Method to create energy in liquid, heat-generator and heat-and-power device, A.Yu. Baurov and others
- . №2132109, 1999.06.20, Generator of mechanical energy, A.Yu. Baurov and others
- . №2001125794, 2003.05.10, Generator of static electricity, S.I. Danilov
- . №2001120796, 2003.04.10, Electric power device, D.M. Beliy
- . №98116077, 2000.05.10, Heat engine (monotherm, "perpetual mobile of second-type"), V.I. Likhachov and others
- . Nº93048971, 1996.04.20, Float engine, I.P. Tchinarev
- . Nº94023174, 1996.03.27, Gravitational-hydrostatic engine, I.P. Tchinarev
- . Nº98112650, 2000.03.20, Water engine, V.A. Gylchuk
- . Nº2001115953, 2003.03.20, Potential engine by Prokopenko, V.F. Prokopenko
- . Nº2001115954, 2003.03.20, Potential amplifier by Prokopenko, V.F. Prokopenko
- . Nº2001124364, 2003.04.20, Drum of gravitation (gravity), I.A. Strelnikov
- . №95107181, 1997.02.20, Method to convert energy of physical vacuum into energy of physical space, O.K. Polev and others
- . Nº92008695, 1995.04.20, Method to get overunity efficiency, Yu.V. Karasev and others
- . №93006851, 1995.04.30, Principle, method and device for circulation of mass by force of gravitation and inertia, G.S. Kirichenko
- . Nº93039885, 1996.05.20, Hydro-gravitational electric power station, L.S. Konkov
- . №93036371, 1995.11.27, Method to convert energy created in result of interaction of earth's gravity force and air bearing capacity into electric energy, V.I. Kovalenko
- . №93025690, 1996.07.27, Method and device to convert heat energy into mechanical one, A.I. Lendyaev
- . №2001122885, 2003.04.20, Rotary method to convert magnetic energy into mechanical one, L.N. Mezentsev
- . Nº2001106783, 2003.02.10, Gravitational source of energy, A.D. Yurik and others
- . Nº2001115968, 2003.03.20, Method to convert energy, V.S. Gorelyuh

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- . №2001121071, 2003.04.10, Method to create energy in liquid, heat-generator and heat-and-power device, A.Yu. Baur ov and others
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- . №95107181, 1997.02.20, Method to convert energy of physical vacuum into energy of physical space, O.K. Polev and others
- . №92008695, 1995.04.20, Method to get overunity efficiency, Yu.V. Karasev and others
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- . №93039885, 1996.05.20, Hydro-gravitational electric power station, L.S. Konkov
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- . Nº2001106783, 2003.02.10, Gravitational source of energy, A.D. Yurik and others
- . №2001115968, 2003.03.20, Method to convert energy, V.S. Gorelyuh

- . №2002131190, 2003.04.20, Method to convert heat energy into useful work, G.R. Umarov and others
- . №2001122676, 2003.05.27, Device to get energy by conversion of energy from one state to another, T.A. Trushina and others
- . №2131636, 1999.06.10, Fuel-less engine, V.E. Alekseenko
- . №5037775, 1996.10.10, Magnetic engine, V.E. Alekseenko
- . №94003087, 1995.12.27, Gravitational engine, A.A. Voznyukov
- . №93058095, 1996.06.27, Perpetual mobile, Yu.S. Parshutin
- . №93056706, 1996.07.27, Perpetual mobile, A.V. Remezovich
- . №93039002, 1996.01.20, Gas-dynamic perpetual mobile, A.I. Lendyaev
- . №94011000, 1995.11.27, Perpetual mobile by Makagyan, V.S. Makagyan
- . №97114829, 1999.06.27, Perpetual mobile by Makagyan, V.S. Makagyan
- . №95114965, 1997.08.10, Electric perpetual mobile by Abrakitov, V.E. Abrakitov
- . №9512209, 1998.02.20, Perpetual mobile, V.V. Sharov
- . №99111572, 1999.09.27, Perpetual mobile, N.M. Rotar
- . Nº98116343, 2000.05.10, Engine-electric saw (perpetual mobile), V.V. Smirnov
- . Nº2000101256, 2001.11.20, Perpetual mobile, V.D. Rykov
- . Nº2000120592, 2002.07.20, Perpetual mobile, K.I. Harazov
- . №2001117783, 2003.03.20, Magnetic perpetual mobile, S.N. Verevkin
- . №2001123502, 2003.04.20, Magnetic engine, A.E. Ryumin
- . №5032711, 1995.02.20, Ferromagnetic engine, V.P. Levkin
- . №94019782, 1996.01.10, Device for demonstration of conversion of permanent magnet energy, M.F. Ostrikov and others
- . №95103846, 1996.11.27, Magnetic generator, M.F. Ostrikov and others
- . №95112010, 1997.06.27, Method to convert permanent magnet energy into rotary motion, A.V. Starostin and others
- . №2143170, 1999.12.20, Method to convert energy of mechanical loading into energy of repeated transference, V.I. Rahovsky and others
- . №2000119415, 2002.06.20, Method to convert energy of fields of permanent magnets into mechanical work, Yu.S. Pilipkov
- . №2001109811, 2003.02.27, Method to capture and convert energy of physical vacuum into electric energy, S.N. Kovalev
- . №99121374, 2001.11.10, Perpetual mobile, E.M. Volodin
- . №94026259, 1996.05.20, Device to convert magnetic field energy into kinetic energy, P. Imrish



# Device for conversion of magnetic field energy into kinetic energy

No. 94026259, 1996.05.20

Author: Pavel Imrish



The invention refers to a device for conversion of magnetic field energy into kinetic energy. The device has a rotating wheel with at least two radially opposing non-magnet holders used as guide ways for at least two permanent magnets, respectively. The permanent magnets are mounted in the holders so that there is a possibility to remove them. From the both sides of the wheel plates made of magnetic material are mounted axially; the plates surround the wheel partially. Depending on direction of the both poles, namely on location of the similar and opposite poles towards each other, compression element is situated on the holders, or between the wheel and the outer end of the permanent magnet located at the furthest radial distance from the axle of the wheel, or between two permanent magnets. (The device operation principle is obvious from Fig. 1).

Editor: We have found an example of a similar device whose description is presented in the book by R. Ford The Perpetual Motion mystery [1].

In this case, there is an analogous process, during which half of the cycle is screened and the rotor is supposed to rotate permanently (see Fig. 2).

1. RA. Ford, The Perpetual Motion mystery. Lost Technology Series, p.23.





Review on Grigory R. Uspenskiy's works, Russia

#### http://space21.boom.ru/gravity.htm

The level of development of modern astronautics is primarily determined by the energy capabilities of space carriers. So, nowadays, the single-mission carrier rockets equipped with chemical engines allow space exploration within the solar system. These carriers have delimited the near-earth space in the form of a geostationary orbit, where the practical-purpose space complexes operate.

Newer and higher levels of quality will be reached by cosmonautics upon its mastering gravity power engineering. Flights towards the near est stars will become possible and by the end of the next century this will be followed by travels throughout Galaxy.

Gravity engines are structurally simple (**two bodies of different density are rigidly connected**). To form some practicably significant value of thrust it is required to use absolutely new technology regarding creation and retaining of matter of high density which can be compared to that of atomic nuclei. For instance, at an engine mass of about 2 t, it is possible to attain 10 N thrust using bunches of aluminum and lead nuclei. The nuclei are approached to each other at a distance comparable with sizes of these bunches.



Fig. 1

Use of matter which is denser than nuclei bunch, increase of mass of the gravitating bodies, and reduction of the distance between the bodies causes increase of thrust. So, for a level of density of gravity holes (i.e. for extremely dense state of matter in which it is not attracted by other bodies) limit value of acceleration of the gravity engine reaches the order of  $10^{100}$  ms<sup>-2</sup>.

In engineering we usually use units of distance as meters, centimeters, millimeters, and microns. Let us consider one of them – millimeters. With such a size of the gravitating bodies and distance between them, it is possible to obtain substantial thrust forces of the gravity engine and, accordingly, accelerations of its motion.

So, using an engine of 20 ton mass we will get the thrust of  $2x10^4$  N, with mass of 200 ton we will get the thrust of  $2x10^6$  N, and so on. Thus, by increasing the engine mass by one order of magnitude, we obtain increase of thrust by two orders, while sizes of the bodies remain unchanged. But acceleration, in this occasion, remains constant and equal to approximately 1 m/s<sup>2</sup>.

Decrease in size of gravitating bodies of the engine leads to the corresponding increase of thrust by an order. Decrease of size is realized by increase of density of these bodies by 3 times up to 0.3 mm at the same masses. The acceleration they produce is increased by an order as well, i.e. up to 10 m/s<sup>2</sup>. Decrease of sizes of the gravitating bodies and the distance between them down to 0.1 mm results in further increase of engine thrust by one more order and also increase of acceleration up to 100 m/s<sup>2</sup>. If size of the bodies is 1 micron then acceleration increases up to  $10^6$  m/s<sup>2</sup>.

It is apparent that even with up-to-date technological possibilities of miniaturization the gravity engine with masses of dozens and hundreds of tons is capable to create great thrust forces and form accelerations considerable enough to fly across the Galaxy. Therefore, the problem of creating a gravity engine is, mainly, the problem of producing and retaining the high-density matter. It will be possible after studying the mechanism of interaction between matter & gravitational substance followed by developing techniques for synthesizing of high-density, large-mass, and small-size substance from this matter.

It is possible to control the value of thrust of the gravity engine changing the distance between gravitating bodies. Thrust direction can be changed by turning the rigid connection of the gravitating bodies. The engine can be activated by bringing the gravitating masses together, and switching-off by moving them apart.

In a 24-hour period, such a ship can reach a speed of  $10^6$  m/s and cover a distance of about  $10^{10}$  m. In a month, with a top speed of  $3x \ 10^7$  m/s the ship will cover the distance of  $10^{13}$  m; in a year, with a speed of  $4x \ 10^8$  m/s the ship will cover a distance of  $10^{15}$  m; in 10 years -  $4x \ 10^9$  m/s and  $10^{17}$  m, respectively. Apparently, the ship with sufficient over-load can be used for flights within the solar system and for manned flights towards the nearest stars.

When transporting unbreakable and non-urgent cargoes, the acceleration can be increased up to a few dozens of unities. The flight duration might be also increased by several tens of years. This extends the area of utilizing the gravity ships with over-loads of several unities. Besides these ships can be used for transporting operations within near vicinities of the Galaxy. The high-speed flight will demand protection against approach flow of matter. So, per second (with a ship speed of  $10^{10}$  m/s)  $10^{-12}$ kg of matter will approach the ship. At that density of interstellar material is  $10^{-24}$  kg/m<sup>3</sup> and midship area is  $10^2$  m<sup>2</sup>.

The great speed of approaching matter will create a substantial resisting force. At a speed of  $10^{10}$  m/s, this force will come to the order of  $10^{-2}$  N, whereas with a speed of  $10^{18}$  m/s it will come to  $10^{14}$  N. This is a great value, but as compared to thrust of such a ship which is to equal to  $10^{17}$  N, the former value is a small one. That is why it is possible to overcome such resisting force.

Intercommunication with these ships might be, most likely, realizable by means of distortion of gravitational field. It is possible that the gravitational field distortion will be formed, on the contrary, by generating the matter from the gravitational field, and, most probably, by a method as yet unknown.



Monograph "General Etherodynamics. Modeling of matter structures and fields on the basis of conception of gas-like aether" by Vladimir A. Atsukovsky. 2<sup>nd</sup> edition, M., Energoatomizdat, 2003; Brochure "12 experiments on etherodynamics" Zhukovsky, Publisher "Petit", 2003.

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In order to demonstrate the reality of tapping free energy from the vacuum, we have now made available a very reasonably priced DVD of the bench tests of the late Floyd Sweet's Vacuum Triode Amplifier, with commentary by Tom Bearden.

During these two tests, the unit, which weighed about 6 lbs., can be seen to be putting out well over a million times more power than was put into it.

This DVD makes an excellent educational or instructional tool, and is priced at USD 9 including US domestic shipment. Running time is about 20 minutes.

Note: the full length Sweet DVD, which includes Sweet's proprietary conditioning process for the magnets, is also still available.

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S.A. Gerasimov, V.V. Stashenko, Russia

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*Editorial:* We publish a summary of the article. The original text you can receive from the authors.

A drive-free system made on the basis of a planar mechanism is described. The experimental results on average velocities of the drive-free propulsive system are presented in a scaled view.

During usual motion, a system is repealed from the surface in the case of its motion on a plane or from the medium when it moves in a resistance medium. This kind of motion is achieved by using a drive mechanism. In contrast to the usual motion, the drive-free propulsive system moves due to interaction of a body of a system with another body of the same system. Sometimes such machines are called inertioids [1] or vibration propulsive devices [2]. To produce such kind of motion it is sufficient to provide anisotropy of the resistance force [3-5] or asymmetry of the internal force [6]. One of the simplest ways to do it is to use a simple two-link planar mechanism. A device for such a motion is shown in Fig. 1.



Fig. 1

Experimental device

This device with a total mass of M+m consists of a platform P on which an electric motor E rotating a drive rod R of length r is mounted. This is only one part of the planar mechanism. Another link is the connecting rod C of length c which connects the unbalanced load L and the drive rod R by means of two bell bearings B. The unbalanced load L of mass m on the rod I slides in guide G. The basic distinction of this mechanism is in that this variant of drive-free machine allows us to analyze the experimental data on average velocities of

motion. Actually the only forces, which act on the platform and are collinear to the moving direction, are the force  $\mathbf{F}$  caused by vibrations of the load L and the frictional force  $\mathbf{F}_{f}$ . The platform starts to move when the force acting on the platform becomes greater than the frictional force.

Let us discuss possibilities of the real propulsive system shown in Fig. 1. Measurements were made at r=0.01 m and at three mass ratios m/M. The values of frictional coefficients were measured for each parameter of the system and vary from k=0.25 to k=0.4. The system starts moving when theoretically the drift does not take place. When motion becomes reversible, the velocity of drivefree drift does not decrease.

Thus drive-free motion is possible even if the frictional coefficients are very small. When increasing the frequency of vibrations velocity does not decrease. We can not discuss the existence of some third force acting on the platform (we can suggest the existence of frictional force  $\mathbf{F}_f$  and the internal force  $\mathbf{F}$  caused by vibrations). Let somebody else take the liberty of making such a conclusion!

#### References

1. Tolchin V.N. Inertioid. // Perm: Perm Book Publisher. 1977. Blekhman I.I. Vibrational Motion. // Moscow: Nauka. 2000. Nappo F. Sulla Influenza Indiretta Delle Forze Inertne sul Moto del Baricentro. // La Ricerca Scientifica (Rendiconti). 1965. V. 8. No 1. P. 3-14.

2. Gerasimov S.A. Anisotropy of Frictional Force and Vibrational Motion. // Problems of Applied Physics. 2001. V 7. P. 85-88.

3. Gerasimov S.A. Self-Similarity of Vibrational Motion in a Resistant Medium. // Journal of Applied Mechanics and Technical Physics. 2002. V. 43. No 1. P. 90-92.

4. Gerasimov S.A. A Real Model of Vibratory-Impact Propulsive Device. // Problems of Applied Physics. 2000. V 6. P. 117-118.

5. Langhaar H. L. Dimensional Analysis and Theory of Models. // New York: Willey. 1951.

**ELECTROMAGNETIC SELF-ACTION** 

#### S.A. Gerasimov, A.V. Volos, Russia

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The torque of a self-action exerting on the mobile part of the reactionless engine is measured. It is shown that there exists a value of the height of the mobile electrode at which the torque of self-action is maximal.

There is an opinion that a body can not act on itself [1]. The existence of the so-called force of self-action is believed to contradict to the law of conservation of momentum. This is nothing but prejudice. Though the experimental confirmations of existence of self-action [2-4], conventional science is ready to refuse modern electrodynamics and make up a new theory of electromagnetism [1, 5] in order to save Newton's third law in use. It is comprehensible. First of all, these are the theoretical [5] and experimental [3] errors. The equivalence [5] of the Biot-Savart force is mathematically coarse since in this case the highest terms of expansion of force of self-action are cast out. This equivalence violates law of action and reaction and Ampere force law for which the principle of equality and collinearity of action and reaction forces is valid. Non-linearity of dependence of the torque of self-action on the current intensity [3] makes us doubt in the validity of these results. Moreover, typical values of force [2, 4] and torque [3, 6] are too small even if direct current in the circuit is significant. It is required to pass through the direct current of hundred amperes to produce the considerable displacement or turn of a body. As a result, small values of the effect caused ambiguity in the explanation of the phenomenon [1].

In fact, searching the reactionless propulsive devices we usually forget about the magnetic self-action which arises when a body consisting of a magnet and incomplete electric circuit can move violating law of action and reaction [7]. This violation is proved theoretically [8] but peculiarities of this motion are not well discussed. The principle of such a motion is shown in Fig. 1. This is the magnetic interaction between two current elements one of which is a part of a closed circular loop L and another is perpendicular to the first one. Since the force  $d\mathbf{F}_{jm}$  acting on any current element of the loop L is perpendicular to the density of current  $\mathbf{j}_m$  then the Z-component of the torque  $d\mathbf{N}_m = [\mathbf{r}_m \mathbf{x} d\mathbf{F}_{im}]$  is equal to zero while torque which exerted on the second current element by the magnetic field of the loop, does not.



Fig. 1

Violation of law of action and reaction. The force  $d\mathbf{F}_{jm}$  with which the magnetic field  $\mathbf{B}_{j}$  of another current element acts on the current of density  $\mathbf{j}_{m}$ , is not equal nor opposite to the force  $d\mathbf{F}$  with which the magnetic field  $\mathbf{B}$  of the first current element acts on the current of density  $\mathbf{j}_{l}$ .

An experimental device is shown in Fig. 2. A commercially available ring-shaped carbon-steel magnet M(inner radius – 20 mm; outer radius – 55 mm, height - 25 mm) of 2.2x10<sup>5</sup> A/m magnetization is located on the cover of a cylindrical electrode Esuspended by thread T. The electrode E is furnished with a central electrode C of the same height h and 5 mm diameter. The radius of the electrode *E* is 130 mm. The open end of electrode *E* and the central electrode Care submersed in a conducting liquid  $L_{\perp}$  and  $L_{placed}$ in two volumes of a vessel V so that the depth of submergence of these parts is about 5 mm. In this experiment the conducting fluid is 10% solution of copper sulfate (CuSO  $_{5}H_{2}O$ ). The vessel V consists of two thin coaxial plastic cylinders of 2 mm thickness. The radii of the plastic cylinders having the common bottom are equal to 10.5 cm and 18 cm. The height of the vessel is 12.5 cm. A disk and a ring-shaped electrodes S and S of 1.5 mm thickness are placed on the bottom of the vessel to supply the direct electric current of intensity I. All conducting parts of the device are made of copper. The thickness of the electrode E is 1.5 mm.

When the direct current *I* of density **j** flows through the electric circuit, the magnet and the electrode *E*rotate in the direction of the magnetic force  $d\mathbf{F}$  which is proportional to the vector product  $[\mathbf{j} \mathbf{x} \mathbf{B}]$  as shown in Fig. 2. This is a force of self-action by means of which the mobile part of this device consisting of the magnet Mand the electrode Eacts on itself. However there is no force of reaction which could cause such a rotation. This is really true since a ring-shaped magnet is equivalent to two cylindrical surfaces with the surface current of density  $\mathbf{j}_m$ . The force of self-action  $d\mathbf{F}$  acting on the cover of the electrode is compensated by the force of self-action  $OF_*$  acting on the cylindrical part of the electrode *E*. Magnetic induction field  $\mathbf{B}_*$  "does its part" as shown in Fig. 2. Therefore, it would be appropriate to find out how the height of the electrode Einfluences the value of the torque N. Such an influence is demonstrated in Fig. 3.



(•) and (x) – directions of magnetic forces acting on various parts of the mobile electrode *E* 





Thus there exists the value of the height h at which torque of self-action is maximal. This is the first result of the present work. At I=1 A and h=2 cm the electrode Eturns at angle of 2.2 radian (126°) with respect to the equilibrium position. Such a turn corresponds to  $3.4 \times 10^{\circ}$  gxcm<sup>2</sup>/s<sup>2</sup>rad, i.e to the constant of torsion of the thread. The second result is that the maximum value of the torque of self-action N at the current I=1 A is even larger than the value of the torque produced by the traditional unipolar device [3] at the current 50 A.

In fact, this work represents an attempt to draw attention to a more effective and simple practical application of the self-action. It remains only to transfer electric current in an unclosed electrical conductor and such a possibility really exists.

#### References

- 1. Graneau N. The Finite Size of the Metallic Current Element. // Physics Letters A. 1990. V. 147. N. 2-3. P. 92-95.
- 2. Sigalov R.G., Shapovalova T.I., Karimov H.H., Samsonov N.I. Magnetic Fields and Their New Applications. // Moscow: Nauka. 1976.
- 3. Das Gupta A.K. Unipolar Machines. Association of the Magnetic Field with the Field-Producing Magnet. // American Journal of Physics. 1963. V. 31. N 6. P. 428-430.

4. Cavalleri G., Bettoni G., Tonni E., Spavieri G. Experimental Proof of Standard Electrodynamics by Measuring the Self-Force on a Part of a Current Loop. // Physical Review E. 1998. V. 58. N 2. P. 2505-2517.

5. Christodoulides C. Equivalence of the Ampere and Biot-Savart Force Law in Magnetostatics. // Journal of Physics A. 1987. V. 20. N 8. P. 2037-2042.

6. Serra-Valls A., Gago-Bousquet G. Conducting Spiral as an Acyclic or Unipolar Machine. // American Journal of Physics. 1970. V. 38. N 11. P. 1273-1276.

7. Gerasimov S.A., Volos A.V. On Motion of Magnet in Conducting Fluid. // Problems of Applied Physics. 2001. V.7. P. 26-27.

8. Gerasimov S.A. Self-Interaction and Vector Potential in Magnetostatics. // Physica Scripta. 1997. V. 56. N 3-4. P. 462-464.

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# **Uranium Photoaccumulator**

#### Anton N. Yegorov, Russia

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Photoaccumulators are galvanic elements consisting of two communicating vessels, one of which is exposed to light and another is kept in darkness. Ionic composition of electrolyte, which fills these vessels, depends on intensity of illumination. If an inexpensive electrode is placed in each vessel, then a potential

difference will appear. If the electrodes are closed at external working resistance the electron stream will begin to equalize ionic composition and the difference in illumination intensity will tend to disbalance it. As a result, a certain working mode will be established which will allow to utilize the photoaccumulator for production of industrial electrical

energy. As distinct from the solar battery, which works while exposed to the light, the photoaccumulator stores some part of solar energy in its electrolyte which is supplied with electrical energy after sunset too.

The idea of photoaccumulator is not a new one. It was established in the end of  $19^{\text{th}}$  century that it is feasible to create a photoaccumulator containing electrolyte made of the following mixture: Fe<sup>2+</sup> + Hg<sup>2+</sup> = Fe<sup>3+</sup> + Hg<sup>+</sup>

This photoaccumulator was not adopted in practice because of high toxicity of the electrolyte and very low EMF (approximately 0.018). Development of technology is accompanied by

a widening range of materials and matters which can be used in large scale production and power industry. Among such materials are, in particular, titanium, depleted uranium and rare-earth elements. Nuclear power industry uses U235 isotope only. Naturally occurring compound contains only 0.72% of U235. Hundreds of thousands of U238 from which U235 has been extracted are kept as useless stock.

In the end of sixties in one of radiochemical laboratories of LINP (Leningrad Institute of Nuclear Physics) P.N. Moskalyov repeated the same experiment over a long period of time. In the morning he placed a tightly closed retort filled with uranylchloride soluted in compound of water, spirit and hydrochloric acid on the window-sill. The solution in the retort changed its color from yellow to emerald-green. Before leaving the laboratory Moskalyov removed the retort with green solution from the windowsill to a closed chest. In the morning Moskalyov retrieved the retort with the solution (which was already yellow) from the chest and placed it on the sill. The solution became green again and the whole process repeated daily. Chemical processes in uranium electrolyte are rather complicated: first, under the light influence the uranyl ion oxidiz es ethyl alcohol, which is then transformed to aldehyde:  $UO_2^{+2} + C_2H_5OH^+ = U^{iv}(OH)_2 + C_2H_4O.$ 

In the dark ions of urany-4 interact with aldehyde and are transformed to  $UO_2$  uranyl ion and spirit again. Thus, this cyclic process can take place over a significant period of time being supported by the energy provided by light quanta of visible light which are transformed into the heat.

The idea of utilizing this process in order to obtain electrical energy emerged in the late nineties. The mechanism of uranium photoaccumulator is very simple (Fig. 1): two glass vessels, one



made of transparent glass and another of nontransparent glass, are connected with a black acid-proof rubber tube. The communicating vessels are filled with aqueous electrolyte containing 40% of spirit, 80-100 g/l UO Cl and 0.2 m HCL. The electrolyte is previously activated by multiple cycles of exposing it to light and then placing it in darkness in order to obtain a significant volume of aldehydic fraction. The major difficulty of designing uranium photoaccumulator is connected with the choice of the material for electrodes. In galvanic elements carbonized platinum electrodes are usually used. For practical use platinized titanium gives the best fit. Titanium foil covered with superfine layer of platinum

is currently widely used in electrochemical industry and is procurable.

In the transparent vessel the titanium petal-shaped electrodes are parallel the light flow, so the light quanta move freely through the solution.

In working condition each photoaccumulator produces 10 mA of current at 0.3 volt voltage, so they are to be connected in large batteries, both in series and in parallel.

It is also necessary to consider the aspect of safety. Until now, the depleted uranium has been used for one purpose only, namely, for manufacturing of cores for armor-piercing shells. When used in this manner, the uranium is pulverized, which leads to environmental damage. The battery of photoaccumulators is placed in hermetic metal chest; the front panel of the latter must be made of solid safety glass. Such a system will protect the photoaccumulator battery from malicious intent and the security staff from weak uranium radioactivity.

# International Prize on Power Engineering "GLOBAL ENERGY"



Zhores I. Alferov

International Prize "Global Energy" was first presented in St. Petersburg on June 15, 2003. The bonus fund of \$900,000 was shared between three scientists "whose work has been and is still important both to the last century and future research", said Zhores Alferov, Chairman of the Global Energy Prize Award International Committee.

Nick Holonyak, Professor at the University of Illinois (USA), was awarded for "fundamental contributions to the development of power silicon electronics and invention of the first semi-conducting light-emitting diodes in a visible part of the spectrum". Thyristor invented by Holonyak allows the transformation of direct current into alternating and vice versa, to direct this process, to store and accumulate energy. This device is used for every electric locomotive, for frequency transformation. Such devices help to save significant amounts of energy, thus, about 30 percent of all energy produced in the world is processed through thyristors.

said the Chairman of Expert Commission, Academician Vladimir Fortov. "This is one of the key inventions leading to the search of new ways of sustainable energy saving".

Gennady Mesyats, Academician of Russian Academy of Sciences, and Ian Douglas Smith, Senior Scientist at The Titan Pulse Science Division, were awarded for giving birth to a new



Diploma of Global Energy Prize laureate

direction in the field of power engineering, i.e. power pulse energy. Due to their research, commutation of high-level currents at megavatt levels of voltage has become possible; a number of powerful current choppers have been created, futher more, there have been developed transformer constructions which allow avoiding energy loss in power transmission lines. These research and innovations resulted in the creation of a number of unique pulse power machines and devices widely used in Russia and abroad ("Aurora", "Helia" (USA), "Sinus", "Gamma", "Maus", "Pik" (Russia) and others).

Nick Holonyak's other invention, i.e. semiconducting light-emitting diodes in a visible part of the spectrum, has led to development of a new field of the modern power engineering. Supposedly, efficient and safe lightemitting diodes will replace daylight lamps in the next ten years.

"Although Nick Holonyak's invention dates back to the end of the 50ies of the last century, it remains current"





Review prepared by correspondent Alla Pashova, Russia

For conventional science, the term "teleportation" is not worthy of serious consideration unless ascertained by compulsory "quantum" teleportation. Thus, teleportation is unconditionally referred to microworld phenomena and, in fact, comes to distant information transfer. Spatial transference of a macroobject of definite mass has been excluded.

### **Teleportation** of states

What does quantum teleportation mean? During active development of quantum theory, in 1935, the so-called EPR-paradox (Einstein-Podolskiy-Rozen paradox) was formulated in the well-known work "Can quantummechanical description of reality be full?" written by Albert Einstein, Boris Podolskiy, and Natan Rozen.

The gist of the paradox is as follows. There are two particles interacting for some time, thereby forming a common system. From the position of quantum mechanics, this coupled system can be described with a certain wave function. When interaction is over and particles scatter within arbitrarily large distances, they still will be described by the same function as before. At that, state of each separate particle cannot be known in principle that is apparent from uncertainty relation. Only when one of the particles enters a receiver, which records its parameters, the relevant characteristics of the other one emerge (exactly emerge, but not become known!). Thus instant unlimitedly distant "transmission" of quantum state of the particle is possible. Therewith, teleportation of the particle itself and transference of mass do not take place.

Einstein and his colleagues believed that existence of such particles predicted by quantum mechanics prove theory incompleteness. Thereof, the scientists inferred the necessity of other parameters (besides wave function) to describe quantum states. Otherwise, from the local viewpoint, correlations between elements of such a system could not be understood. It was far much later, when Bell showed that some of measurements could define these correlations and exclude any local hidden parameters. It was not until early 1980-s that famous experiments were performed finally eliminating a possibility of local hidden parameters. In 1980, Alan Aspect experimentally proved that EPRparadox in quantum world takes place indeed. Special measurements of state of EPR-particles indicated that EPR-pair not only has a common origin, but in addition, that one of the photons somehow "get to know" the way the second one was changed. In further experiments, existence of EPR-paradox was affirmed, even if particles of EPR-pair were removed from each other over a distance of 10 kilometers or so.

In 1993, Charles H. Bennett and his colleagues worked out a method to transfer the quantum state of some object of the microworld to another quantum object by means of EPR-pair and called this method "quantum teleportation". In 1997 a group of experimentalists under the direction of Anton Zeilinger for the first time implemented quantum teleportation of the photon state in the University of Innsbruck.

In such a way, researchers keep on improving the process of quantum teleportation. In 2001 Danish scientists managed to link gas particles spaced at a substantial interval from each other, by transmitting information about quantum state from one particle to another by means of laser. The quantum teleportation between two gaseous clouds were attained by Eugene Polzik and his colleagues in Orkhus University. They succeeded in coupling about million of cesium atoms, whereas the previous record was only four atoms.

Scientists of Australian National University destroyed a laser beam and nearly instantly recreated it in another point in space; in other words, they teleported photons of the laser beam. In contrast to previous similar experiments, the physicists managed to obtain the required result in 100 percents of cases. Ping Koy Lam, the head of the task group of Australian University, claimed that the first atom of solid substance was likely to be teleported within near three to five years. However, as most scientists admit, a task to teleport a human remains almost impracticable. Even teleportation of atoms, as compared to that of photons, is much more complicated process. It is even harder when dealing with molecules. It is basically possible (though practically very difficult) first to transfer a molecule to a minimumenergy state (ground state) causing it to radiate a certain sequence of photons. These photons will find themselves in a certain superposition containing all the "quantum" information, which was available in the molecule. Thereafter, it is possible to teleport photon states by means of EPR-pairs. Moreover, it is also required that the classically measured information about a molecule. If molecule of minimum-energy state is present in the receiver, then this molecule, by interacting with teleported photons in a required order, will transform to the quantum state identical to that of the initial one. Consequently, the quantum state of molecule of a certain material will be transmitted, actually with velocity of light. When that happens, the quantum state at the transmitting side will be destroyed.

The human organism comprises about  $10^{27}$  atoms. To save and transmit information on properties of that number of particles seems to be practically unachievable. "Theoretically, nothing prevents us from doing that, but complexity of the problem is such that now no one seriously thinks about the solution" – states Ping Koy Lam.

Being a method of information transmission, quantum teleportation has found its application in quantum computers, whose information is stored in the form of a set of quantum states. Impossibility to wiretap and copy transmitted information is considered to be an advantage of such computers. Those researchers, who, nevertheless, wish to answer the question of "How to teleport matter, but not its state?" have to seek for more perspective theories and techniques.

#### Teleportation of material objects

Those people, who really want to realize instant spatial transportation of objects, i.e. teleportation, should refer to studying properties of Space and Time. Quantum teleportation has a certain finite velocity that cannot exceed that of light. The genuine teleportation assumes that an object should set off from a starting point to a finishing point (these points differ by a certain distance X), at that the transference time comes to zero. The object to be teleported is not changed or taken to atoms to be gathered later at a distant point of space according to information transferred to this point. (Fig.1).

The object disappears from one place and simultaneously appears in another place. How is that possible? A body will disappear from point A and appear in point B if to bend space in such a way as to let point A and point B coincide. Then the object will instantly appear in point B since there is no interval between points A and B. Teleportation could be realized by a device, which would make it possible to superpose points A and B.



Fig. 1

Space is supposed to be unbendable without enormous energy consumption. However, Alexander V. Frolov points out that this issue is not so unambiguous: "Normally we consider space in connection with "natural" course of time existing in it. That is some degree of space curvature. Let us assume that it can be changed. The space curvature can be considered as acceleration or deceleration of time. Acceleration always demands, for instance in mechanics, some energy consumption. But if we "decelerate" time, energy is liberated and it can be accumulated for subsequent use".

K.Z. Leshan suggests surrounding a transferred object with a closed surface consisting of vacuum holes. Inside such a "hole sphere" there is geometry similar to that of a black hole. This place is absolutely isolated from the external Universe. No radiation is able to penetrate through the hole in space and time. For an observer, who is inside the hole sphere, the distance between sphere center and its border is infinitely large, since spatial metrics is ever-varying from the center to the border. Distances between the points is continuously shortened so that the distance between any couple of points comes to zero at the very hole surface. A matter transmitter can have inner or outer hole surface. In the first case a teleportation station has a spherical chamber to place the object. Equipment to produce holes should be located upon the outer side of the sphere. Such a station is capable to provide hundreds of launches a day by instantly expulsing spaceships to deep space over distances of millions of light years.

#### From microcosm towards macrocosm

**Simeon Bocharov** (member of Chemistry and Biochemistry Department, University of Delaver, Newark, USA) considers teleportation phenomenon using microobjects as an example and applying an interesting conception of protomatter. In S. Bocharov's opinion, many paradoxes of the present-day science could be solved under condition of considering the whole existing matter to be a single continuum, i.e. protomatter. At this approach, the microcosm objects are not independent ones, being represented in the form of distortions of the very continuum and its manifestations here and now. Protomatter, whose distortion degree is beyond modern possibilities of detection, corresponds to vacuum. In the present-day paradigm redistribution of protomatter distortion corresponds to motion of particles. The important peculiarity is a refusal of such concepts as structure, dimensions, mass and other macroscopic characteristics with respect to microcosm objects, since here they are not considered as separate entities.

For experimental justification of his theory, S. Bocharov suggests to consider teleportation of microobjects incorporated in fullerens under low temperatures and pressure.

As a basis for reasoning he takes the fact that identical or similar conditions, whereon distortions are located, bring them to the state of identical or similar by lability/ diffuseness. And vice versa, distortions, which are similar by lability/diffuseness, influence their near surroundings, creating, as a result, similar macroscopic states. In such a case protomatter distortion (in some spatial domains and under similar conditions) will cause appearance of similar distortions in another domain, whose degree of removal depends on presence of other distortions and their characteristics. In other words matter will be teleported from one spatial domain to another.

Possibility to realize teleportation of microobject causes the well-known phenomenon, which is nowadays described as embedding of particles into inner hollows of spheroid fulleren molecules without reacting with them. As object of teleportation there can be used distortions classified as elementary ones, such as hydrogen, helium or stable matters (noble gases). In both cases the influence of objects upon surroundings is minimized.

The researcher believes that in case of successful experiment, new pattern of matter structure will be confirmed, and valuable teleportation of microobjects (with prospects of such possibility for macrocosm objects) will be demonstrated.

One more approach to teleportation of physical macroobjects was considered in the work "Practical application of time rate control" (New Energy Technologies No. 3, 2001) by Alexander V. Frolov. It is assumed that density of space (aether) energy determines rate of passing of any processes including the very process of matter existence. Changes of aether density (increase or decrease) must result in the emergence of a force analogous to that of buoyancy, though acting towards the fourth dimension. This "chrono-motive force" (CMF) is also an analogue of electromotive force (EMF) and can be generated by analogy with electrodynamics. According to Alexander V. Frolov, laws of quantum mechanics as to discretization of levels of energy of material system, which exist in the domain of increased or decreased aether density, are valid in the macrocosm as well. Teleportation (as a transition from one state of the system to another one) can be studied with electron transference from one orbit to another as an example with the only difference that for the teleported object not only its location, but also the very spatial properties are changed. In aether of different density (after discrete transition) the same object will have different space around it, wherein time is decelerated or accelerated. Experiments of this field have already been in development stage.

Therefore, modern theoretical physics has handed the problem of teleportation to researchersexperimentalists, who possess sufficient breadth of mind. Perhaps, using teleportation technologies, they will manage to fundamentally alter the process of space exploration and raise our civilization up to radically new development level.



# **"Mass defect" in Home Conditions**

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The idea to conduct experiments on "mass defect" demonstration appeared after a cycle of seminars, which took place in1993-1996 at the Moscow Aviation Institute under the direction of V. I. Patrushev, Doctor of Technical Sciences, Professor of "Designing of aerohydrodynamic systems" Department (the author of the article is also a graduate of the Department). At the seminars, an enterprising group studied and developed an applied theory of "Displacing fields" by Alexis V. Murlikin and an associate "Theory of energy exchange processes". Later the group was called "Group studying non-inertial transference" (non-inertial natural processes).

The experiment was aimed to test some theoretical suppositions, namely, that it is possible to influence on existent energy flows which input and output to the matter. At that the simplest way to influence indirectly is to change the medium the flows come through. In general, optic experiments on luminous flux refraction show the same. But light refraction and change of speed of light propagation at passing through different mediums is one thing; and change of mass of a material body is something new that has not ever been dealt with. Moreover you can consider light (i.e. electromagnetic radiation) to be the secondary manifestation of output energy flow. Besides mass defect is very important for nuclear physics because it "helps" to develop this branch and stimulates drawing "energy dividends" in splitting reactions, decay reactions and nuclear fusion reactions. But unfortunately we can not touch element nucleus and even million nuclei while we can easily touch metallic balls of 1 gram weight.

Let us note that a concept of mass is one of the most uncertain in physics. We can not measure mass directly. It is possible to do it only indirectly, by gravity, using scales (it does not matter what kind of scales are used), or by kinetic momentum (in this case mass is a measure of inertia) by means of dynamometers.

Thus it is evident that change of WEIGHT shown by scales is not MASS change as measure of matter **quantity.** Since one of the most important points of the theory of "Displacing fields" is creation of a vehicle of new generation, then one of the major tasks is to overcome gravity (to decrease weight). And this "home experiment" shows the way to solve it. However we can call it "home" only in part, because for weighing there were used electronic scales (mass-comparator with measurement accuracy of 0.1 microgram. (See Fig 1).



Fig. 1

Precision scales METTLER TOLEDO allows making: High-accuracy weighing in the range from 0.1 microgram to several tones Measurement with resolution up to milliard points

Two sets were designed for weighing. The first one had an aluminum (Al) ball-kernel which weighed 1 gram and a lead (Pb) casing-shell consisted of two parts (halfspheres) which also has weight of 1 gram. The second set had on the contrary a lead kernel and an aluminum casing. The sets were disassembled and then hermetically assembled to make a single device with no gaps (See Fig. 2).

Since it had to be done with great accuracy and it was a piece article, not a Moscow product company undertook to produce it. And only one of the students, Nicholas Sorokin, a young boy with skilful fingers, had helped. He invented a technology which allowed making balls of the necessary size at home conditions. He was literally pickling every micron of metal with acid and finally got the necessary size and weight.

So, the weight of a non-assembled set was: 1 gram (weight of kernel) and 1 gramm (weight of shell). Weight of an assembled set, according to the "Theory of energy exchange processes" by Murlikin, is not equal to the simple sum of the non-assembled components, and mass defect would be different for various sets right up to the change of sign.



Fig. 2

Set of experimental balls

More than 50 experiments was carried out on weighing for every set. Assembled sets as well as nonassembled sets were weighed. It was confirmed that there was an interaction between input and output flows for MATTER MAINTENANCE. It became apparent in the form of mass defect. Defect appeared in the sixth sign, i.e. it comes to the range from 0.0002% to 0.0007% of "kernel" mass (or "shell" mass). At that the lesser mass defect corresponds to aluminum shell, while the greater one corresponds to lead shell. Accuracy of weight measuring by the mass comparator exceeded the acquired result by 10 times. So we could not tell about inaccuracy of measurements. So we had to apply to the "Russian center of testing and certification" which was very famous all over the world (Rostest-Moscow).

In general that is all, we have got an answer for ourselves, and the period of testing is behind. We have to advance; very much is still to be done. In addition let us mention one more surprise we got during the experiments. The matter concerns some time delay in receiving final results of every weighing A qualitative picture of it is represented in Fig 3. We did not expect that this effect would appear at such a rough level of measurement of energy exchange processes.



Time stabilization of the process for receiving final weight

The subsequent report and detailed discussion of the experimental results by specialists (including physicists of various specializations) resulted in an unexpected non-recognition of facts and distrust. The main argument was a demand to increase the number of experiments up to 5-10 hundreds. And only then scientists would be ready to accept facts. It was quite a predictable reaction for the orthodox science in the middle of 90s. It remains to hope that if the discussion took place today it would have a paved way. However it is not a fact.

In conclusion let us note that this experiment on revealing mass defect ranks with famous experiments, in which rotating gyroscopes also demonstrate mass defect (decrease of weight) and even one of higher order than in our experiment. But in return we have no rotation, no chemical and nuclear reactions, while mass defect is presented.

Let us add that it is possible to complicate the task: to make a double casing and to choose other materials for "kernel" and "shell". (See Fig 2). In our case low prices and availability made us use Al and Pb. The results will be more interesting, for example, with Li and Os (and with other supertransuranic elements).

# Aether as Unified Field

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Based on the original observations and experiments, the article gives more precise definitions of aether model, than which was elaborated. previously General laws of the Universe aetherodynamic are considered. There is described a new physical reality in the form quasi-real of



aetherodynamic structures ("topological harmonics") generated by dynamics of the substantial world.

At the present-day stage of physics development words of Maugham, an English philosopher, take on particular topicality: "The great verities are too important to be new". Indeed, we are increasingly making certain that our remote ancestors were familiar with fundamental laws of the Universe; furthermore, they knew these better than we do. But which methodology of cognition of Nature and what kind of information sources did the ancient scientists have? Today, we can openly say: they had not ordinary experience only, but also esoteric, pretersensual one, without feeling any necessity to be divided into materialists and idealists. For more details on evolution of physical ideas, refer to work [1].

In discovering all over again, I also had to elaborate a "cellular taction" strategy, which enables the most important characteristics of aetherodynamic processes to be sensually perceived and evaluated. The main thing is that all my sensory observations are definitely reproduced at laboratory experiments while the simplest physical equipment is used.

We may get reliable knowledge about Nature from Nature itself only. Thus foundation of classical physics describing usual substantial world is also based on empirical facts studied by Galilei, Newton, Faraday and many other physicists-natural philosophers. I also would like to defend great Newton against attacks on his adherence to inductive methods which really brought imperishable values into science. A new convolution of cognition is possible on condition of introduction into science of new concepts based on empirical study of physical entities previously unknown. Thereupon, I share the thought of Elena Ventzel, professional mathematician: "Mathematical methods are not useful, but harmful until phenomenon is not studied at a pre-mathematical, humanitarian level". It is ideological and logical language that may be used today to discuss the aether problem, whose solution calls for comprehension of natural-science facts, which are beyond traditional notions settled over centuries.

The long-term investigations have confirmed that exhaustive definition of a fundamental natural entity was given by Rene Descartes: "Universe does not contain anything but aether and its vortexes". This is not merely a postulate; this is an objective summary of empirical observations of Nature phenomena. In any academical model of microcosm there is no answer to the question: what kind of substance are electrons, quarks, strings made of? That is the very substance our forefathers called aether. Aether is unified field indeed; and it appears that for nearly his whole life Einstein had been searching for something that was under his foot.

It must be recognized that there is no undistorted, quiescent aether in Nature; as well as no zero-size vortexes exist. Therefore, in a customary sense, the aether concept is pushed behind transcendental horizon and turned into an inconceivable entity whose mystique is tantamount to religious ideas. However, all quantum vortex-wave distortions of the superfluid threedimensional aether, which have an appearance of tori, threads, solitons and occupy spatio-temporal spectrum from zero to inter-universe scale, are material and contain energy under scientific interpretation. Any spaces such as turbulent fields, physical vacuum, gravitational fields and, of course, matter are material. All of them are etherodynamic structures of the real world. Spatial hierarchy of aether vortices is referred to as quantum stairs, fractal structure or "matreshka" [2-5].

To understand basic laws of aetherodynamics it is necessary to give a general definition for classical matter and other aether states. As a first approximation, let us give the name of matter to aether microscopic left-screw self-oscillating vortex-wave systems (elementary particles), whose existence and parameters are conditioned by higher hierarchical systems. This is our displayed world, with its electromagnetic fields and fundamental constants. Let us refer to vortex-wave structures of any vortex size, which in the considered space domain are balanced by a number of left- and right-screw vortices corresponding to matter and antimatter with prefix "quasi" to a free aether. Stable vortex lattices with alternating direction of helicity can be also considered in this case. Under natural conditions everything but classical matter or electromagnetic and gravitational fields can be related to the free aether. In the first place, these are the so-called physical vacuum and vortex fields, which attend gravitation. They represent anisotropic nonlinear subspaces and occupy definite places on spatio-temporal spectrum of the world aether. Particular free subspace creates an aggregate of topological harmonics [5] attending all the physical processes. Satellite of the gravitational field is distinguished because it belongs to specific class of stable vortex lattices.

Apparently, in general case, energy of free aether is virtual for our world due to its helical symmetry and quasi-matter, from the view of difference in sizes of typical vortices which correspond to protomatter. But this is not the entire point. There is also superfluidity of aether, whose vortex viscosity has marvellous properties. As a result, there are created phenomena of inertia and energy-information barrier separating material world from constant influence of quasi-real structures or turbulated space.

Classical inertia, as vortex viscosity, arises in the microscopic and more fine-structure free aether (in Newtonian space) and ever regularly reveals itself during acceleration of material bodies. However everything is different at stage of macrovortex aether, where inertia has properties of adaptation. Here it is affirmed that inertia phenomenon is "spread" throughout the spatialtemporal spectrum of vortex distortions of aether field. At that nature of inertia is changed. Within topoharmonic subspace in laboratory scales, the inertia law "diminishes" in time according to exponential dependence, whose time constant is determined by specific conditions and varied over wide limits (from seconds to many days). On the expiry of this time, inertial intercoupling transforms to the law of flicker effect. It may be said that flicker effect specify

penetrability of energy and information barrier after expiry of time of paraphysical regular phenomenon [6]. Consequently, most of time the interaction with free macroaether is of random character and should be evaluated by mean observation.

To extend conceptual scope of our investigation it may be added that in classical hydrodynamics a liquid, along with ordinary inertia, has determined vortex macroinertia, which is created by vortices of the liquid itself. Therefore, it is necessary to keep on comparing processes at all levels of the unified field of aether. For instance, electric inductance is a kind of specific inertia, and topological harmonics of electromagnetic and other phenomena are subjected to the energy-information barrier (under laboratory conditions).

In the above arguments, the principle of relativity is latently and unconsciously presented. However, this complicated question needs to be separately considered. Physical nature of the energy-information barrier and reason for dependence of the inertia properties upon the size of vortices of free aether remain unclear, too. However, it can be supposed that classical elementary particles, as distinct from protomatter, have selfoscillating properties and are commensurable with vortices of the surrounding free world; and that the above-mentioned energy-information barrier does not exist for them on microscopic section of the spectrum. The gist of the barrier itself comes to "memorizing" topoharmonic processes by Earth's gravitational fields and laboratory equipment. Turbulent fields (physical vacuum) do not have such a "memory".



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Fig1 depicts diagrams of spectral density of vortices' energy; diagrams of rate of interaction transfer v and circular frequency  $\omega$  depending on sizes of vortices of the world aether  $\Lambda$  (in picometers). As we can see, velocity of distortions propagation v is equal to velocity of light C in the physical vacuum, i.e. in electron sizes, exceeds C in nanocosm and tends to zero toward meg acosms. Circular frequency of vortices rotation and course of physical time have the analogous qualitative dependence. However, vortices energy W has a feature and grows toward both ways from the lab scales; the aether numbers have been assigned conditionally, but all the specified phase states reflect some physical reality.

One of the most complicated questions is a definition of vortex matter in each particular case. The diagram demonstrates energy of free aether in the form of protomatter (simplest elementary particles - vortexes), and energy of classical elementary particles as helically definite self-oscillating emissions of aether field is localized in the most nonlinear subspace (physical or substantial vacuum). Unification of the elementary particles into atoms and macrobody does not denote direct transition to parallel world with different fundamental constants, whereas change of vortex size in the diagram exactly implies such a transition, though at a level of protomatter. This is a very intricate and crucial point. For example, a star is, unconditionally, an elementary particle of the relevant level of the Universe, even though comprising the ordinary matter.

Left wing of energy spectrum reflects property of the turbulent field of aether to gravitate, to sink down to the "bottom" transferring energy to the vortices of lesser scales. This phenomenon of distributed "gravitation" is available in every space point and explains a leastaction principle. An illustrative analogue of this regularity is represented by the Earth's gravitational field and structure. Dense plasma assumed as iron core is situated in the center, and higher - there are magma, solid crust, water and air. These phase states exist in free aether within universe scales as well. Consequently, in femtocosm, and maybe at an even deeper energetic "bottom", there must be a plasmic subspace; evidently, it is assignable that aether translated from Greek means "fire".

Increase of energy to the right is connected with extending a dynamic band of the vortices spectrum, as the scale increases. In our world, this increase follows the flicker effect law, but this is only what we perceive across the energy-information barrier. Actually, at this section the vortex energy must increase well more

strongly, because our observation capabilities are limited by accessible matter processes. Turning back to stars, one may affirm that modern science is unable to evaluate their real energy (evaluations are considerably underrated). The Galaxy vortex entrains such deep levels of multidimensional space-aether to its rotation that this causes violation of the Newton's law of inertia. Notion of "hidden mass" is unnecessary for explaining dynamics of galaxies. It is quite enough to take into account that differential rotation entrains the fine-structure aether (inertial subspace), and this process results in decreasing the inertia and external centrifugal forces. Unfortunately, Fig 1 reflects only a characteristic size of the galactic vortex and does not visually demonstrate its active band of the spectrum. The finer is the space structure, the more inertial and closer to the absolute reference frame is the space. Obviously, the non-homogeneous, stereodynamically multidimensional and multiphase aether requires a perfectly new theory of random fields, which would also make allowance for the phenomenon of the material world.

Energy motion processes or spectral energy-cascades along abscissa axis are of decisive importance for existence of our world and the Universe. These processes have unusual properties. The "violet" cascade is attended with reduction of vortices size, absorption of matter energy and tends to increase energy concentration at the "bottom" of the world aether (near ordinate axis on Fig.1). This regularity experimentally confirmed in both spatial and temporal domains is a direct consequence of the above-mentioned phenomenon of distributed gravitation and clarifies an existence of the left wing of the spectrum. In classical physics "the violet" cascade effect is reflected in the least-action principle as well as in the thermodynamics laws.

The "red" energy cascade (right wing of the spectrum) corresponds to increase of vortices size and is accompanied with energy liberation. To start it up under earthy conditions special technologies are called for [7]. This has been confirmed with laboratory experiments and underlies the "perpetual motion" theory, where energy is pumped from nanocosm to the classical material world. Conception of artificial biofield [6], I have developed, considers methods of creating the aether vortex-wave macroscopic-scale distortions in physical systems. As a matter of fact, we deal with ways of extending of natural spatio-temporal spectrum of aether (which settled into itself) by creation of a subspace of the topological subharmonics of the classical elementary particles, atoms and molecules

# (physical bodies), within the context of the etherodynamics fundamental law [5].

Even within action of fluctuating energy-information barrier, the spectrum right wing exhibits existence of natural processes in Nature that, supposedly, violate the known laws of thermodynamics [8]. But, as far as Nature cannot conflict with itself, we have to recognize that there is another physics, which "works" in geographic and greater scales, where role of the energy-information barrier demands to be reappraised. To all appearance, the universe vortex partialyl entrains plasmic subspace of aether into its rotation, and conditions for realizing "red" energy-cascade and generating matter are created on the sections of the maximum density gradient ("spectral" non-linearity). But the same way as a fish in ocean does not know reasons for storms and currents, we will never learn which force untwists the Universe handwheel, whose energy feeds our substantial world.

There are two components of free aether field that are the most essential for the present-day physics. The first one (left wing) is positioned on the spectrum beside the "bottom" in the form of dense liquid-crystalline "plasmatic" medium transforming to the Newtonian inertial subspace (physical vacuum). Since inertia is as regular as electric inductance is, the first subspace proves to be especially material and not such free, because it has properties which were imposed by the Universe rotation and distributed "gravitation". Let us conventionally limit the spatial spectrum of the first component with a nucleon size. The second component of aether space (right wing of the spectrum) stretches towards larger scales.

Except for known cosmic objects, this is an unknown ocean of the macrovortex and really free aether, or topoharmonics, which are born by dynamics of the substantial world. It is an experimentally proven fact that topoharmonics are generated by photons, electrons, and all the moving bodies [5, 9].

The second component has an ability to conversely affect the matter it was generated by as well as other material objects via "flickering" forces [10, 11]. This special subspace turns out to be doubly virtual, a genuine phantom. That is why, it has been winning the status of a real physical entity with such a difficulty, while Chinese philosophers were familiar with the same thousands years ago, separating entities "yang" and "yin".

The laboratory experiments indicate that topoharmonics have not only properties described in [5], but also an

ability to interact with the space, creating a static domain of the excited aether in the course of propagation of the vortices-waves. At that physical bodies placing within this space volume are "charged" [2, 9]. The mentioned active domain (horizontal route) is "separated" by the Earth's gravitational field as follows: quasi-substantial constituent rapidly settles down creating vertical flow, but some phase structures are disintegrated very slowly (days, months, years).

The surprising thing is that biosystems equally belong to both aether components, not experiencing any constraint from the side of the energy-information barrier. The so-called human biofield is a topoharmonic part of physical body. It occupies its place on the spatiotemporal spectrum (Fig. 1). Quasi-substantial constituent (yang) and antiquasi-substantial one (yin) are strictly balanced, and acupuncture points and chakras are an analogue of Hartmann's geophysical grid, which is wellknown to paraphysicists.

Conceptual generalization of physical ideas in the context of unified field of aether gives a constructive, cognitive impulse in solving of different problems, such as Nature's choice of exclusive laws for existence of "left-screw" material world as well as the problem of flicker-effect. At that, researching into the physical processes responsible for proton positive charge is of fundamental importance.

In conclusion, let us take note of conventional character of dividing the aether field into two components by the form of energetic spectrum. As a matter of fact, topoharmonics are generated by matter towards both larger spatial frequencies (subharmonics) and smaller ones (harmonics) and fill all levels of the Universe. The aforesaid is aimed at making perception of the most studied aspect of the **new physical entity** (vague due to diversity of hypothetical descriptions which exist in publications on this subject) more accessible.

#### Reference

1. A.P. Smirnov, I.V. Prokhortsev. Order principle. – Saint-Petersburg: ZAO «P and K», 2002. - 296 p.

<sup>2.</sup> A.M. Mishin. The aether model as a result of the new empirical conception. New ideas in natural sciences. (On materials of International Conference). Part 1 "Physical". - St.-Petersburg: RAS, 1996, p. 95-104.

A.M. Mishin. Fundamental properties of aether. Fundamental Problems of Natural Science. Series «Problems of the Universe research», fascicle 21 – Saint-Petersburg: RAS, 1999, p. 176-176.
 A.M. Mishin. Physics of parallel worlds / Fundamental Problems of Natural Science and Technics. Series «Problems of the Universe research», fascide 23 - Saint-Petersburg: Publishing

House of the Saint-Petersburg State University, 2001, p. 258-269.

5. A.M. Mishin. Etherodynamics basic law. / Fundamental Problems of Natural Science and Technics. Series «Problems of the Universe research», fascicle 26, part III. - Saint-Petersburg: Publishing House of the Saint-Petersburg State University, 2003, p. 206-218.

6. A.M. Mishin. Physical system with artificial biofield. / Fundamental Problems of Natural Science and Technics Series «Problems of the Universe research», fascicle 23, - Saint-Petersburg: Publishing House of the Saint-Petersburg State University, 2001, p. 258-269.

7. V.F. Zolotarev, V.V. Roschin, S.M. Godin. About space-time structure and some interactions. - Moscow: Publishers «PREST», 2000. - 309 p.

8. V. Starr. Physics of phenomena with negative viscosity. - Moscow: MIR, 1971.

9. V.V. Kvartalnov, N.T. Perevozchikov. Discovery of a "nonphysical" component of OKG radiation. Journal «Parapsychology and Psychophysics». - Moscow: 1999, No. 2 (28), p. 64-67. 10. A.M. Mishin. Longitudinal thermomagnetic effect. / Fundamental Problems of Natural Science and Technics Series «Problems of the Universe research», fascicle 26, part III.- Saint-Petersburg: Publishing House of the Saint-Petersburg State University, 2003, p. 219-228.

11. A.A. Efimov, A.D. Shpitalnaya, Y.A. Zakoldaev. Eruptive prominences and earthquakes in the view of global space anisotropy. / «New Ideas in Natural Science». Series «Problems of the Universe research», fascicle 19, part II. – Saint-Petersburg: RAS, 1996, p. 403-413.



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Lately, the notion "Global energy" has become widely spread as a prize corresponding to this notion has been instituted in Russia. Since the Euclidean times, an unwritten law exists in science: to give definition to the notions, which are involved in scientific analysis. It is done for the purpose that everybody who uses this notion can understand the sense implied in it.

The Global energy problems have been discussed for a long time; they are well known. Depletion of natural energy carriers (oil, gas and coal) is the first problem. Environmental safety of energy carriers is the second problem. It is generally recognized that the solution of the issues connected with the aggregate of these two problems is of a global character. The results of scientific research, which should deal with global energy, originate from it. First and foremost, they are such scientific investigations, which result in the possibility to use an inexhaustible and environmental friendly energy carrier. It has been known for a long time. It is hydrogen produced from water.

Why hydrogen and why from water? At combustion of hydrogen, water is regenerated; thus, the energy carrier is inexhaustible. As far as inexhaustibility and environmental safety are concerned, hydrogen has no competitors. However implementation of these qualities is restricted by large energy expenses for hydrogen production from water. For hydrogen production, modern electrolyzers use from 10 to 20% more energy than it is produced at combustion of hydrogen.

It is easy to imagine what financial and intellectual resources of the world are included in the search of the ways to reduce energy expenses for hydrogen production from water. In Russia many scientific institutions of applied research and educational institutions deal with this problem. There is a Research Hydrogen Institute.

The associations of scientists on hydrogen energetics have been established in USA and Europe. This year, they carry out their regular scientific conferences, to which the author of this article has been invited.

Editorial: Let us note that it is not necessary to coin new scientific term "global energy", since quite for a long time the notion of "free energy" is used. This term represents the idea of the possibility to freely use energy by a consumer.

Energy problem is global not due to depletion of oil and gas, but due to their environmental unsafeness. However the confirmations exist that the world owners of energy resources do not bother about the problem of environmental unsafeness of modem energy carriers. In history of science, the facts of annihilation of the scientists who have won success in reduction of energy expenses for production of hydrogen from water have already been registered. The requesters of these actions think that they will lose their profits with the coming of hydrogen energetics. They do not understand that this process cannot be abrupt. It is impossible to replace the infrastructure of the existing energy carriers by infrastructure of hydrogen energetics within one or even ten years. Besides, infrastructure of hydrogen energetics will not be created on a blank place. It will be integrated into the existing infrastructure of energetics gradually; and its owners will automatically become the owners of hydrogen energetics. The first step has already been made in this direction. In the USA, a decision has been taken to equip all filling stations with pumps to fill the cars with hydrogen.

It is known that a priority of results of theoretical investigations is their publication in press. Usually, such priority is a personal one. Generally a patent is a priority of the results of experimental investigations. As a rule, this patent belongs to a group of authors. A published patent is a genie released from a bottle. No finesse of the authors to hamper a reproduction of experimental data given in a patent without the participation of the authors can stop the process of their implementation. Thus, the authors or a group of the authors who have filed an application for a patent are deprived automatically of the opportunity to influence the process of practical realization of their ideas.

In Russia, the state is a main patent holder of the global patents. Due to the well-known reasons, it has proved to be unable to control the course of scientific investigations and to for ecast significance of their results.

It is known that if it becomes possible to reduce energy expenses for hydrogen production of water fivefold, it will be the cheapest energy carrier. Russia has already got technology, which reduces these expenses tenfold and more. However another way of looking is more perspective. Is there any use to decompose water into hydrogen and oxygen and to use hydrogen as fuel for heating, for example, of water in heating systems? Is it possible to make water generate heat? It turned out that, it is possible.

In Russia, three firms ("Yusmar", "Termovikhr" and "Noteka") sell cavitation heating equipment with energy performance index up to 150%. Official science looks awry at this activity, since such results conflict with one of the main laws of physics: law of conservation of energy. But market profit is stronger than this law.

Meanwhile, engineering practice has already proved that additional energy in the form of heat is generated in the ventilation systems and in the systems of water cavitation. Thorough scientific analysis of this problem shows that physical vacuum is the most probable source of additional energy in the systems of ventilation and water cavitation. Valence electrons of destroyed molecules of water take energy from physical vacuum and release it during repeated fusion of these molecules.

Why is additional energy generated in the air systems of ventilation and in systems of water cavitation? Because they are mechanical systems and mechanical destruction of chemical links requires half energy as compared with thermal destruction of these links. This is the main reason why one fails to increase energy performance index of cavitation processes over 200%.

Certainly, an increase of efficiency of any process by 30 or 50% is a good result; if it is obtained, it is possible to get even better one. But what if a water molecule is destroyed not mechanically, but electrodynamically? In this case, it becomes possible to find resonance frequencies of influence on the molecules and therefore to reduce considerably expenses of electrical energy for their destruction. Subsequent fusion of destroyed molecules will release determined quantity of energy unavoidably. It is a simple idea, and it has already been implemented. At electrodynamic influence on water molecules, electrical energy is converted into thermal energy with tenfold energy performance index. It means that if we spend 1 kWh of electric energy, we will get 10 kWh of thermal energy. To obtain such results, it is necessary to have knowledge of physchemistry of the microworld, which corresponds to knowledge of the 21st century, and it has already been published. Every month more than 1000 foreign scientists become familiarized with this knowledge at http://Kanarev.innoplaza.net and http://book.physchemistry.innoplaza.net. The Russian speaking readers get this information from:

http://www.n-t.org/tp/ns/if.htm, http://www.ikar.udm.ru/sb28-2.htm and

http://www.n-t.org/tp/ts/eb.htm.

I hope that now the readers will know the essence of the notion "global energy" and will understand those results of scientific researches which can really solve the related problems.

# Energy Balance of Fusion Processes of Oxygen, Hydrogen and Water Molecules

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There is revealed the cause of appearance of additional energy during formation of covalent bonds in the fusion processes of oxygen, hydrogen and water molecules, besides the source of this energy is described.

#### Introduction

Engineering practice connected with servicing of ventilation systems allows revealing appearance of excessive thermal energy in circulated air. Similar phenomenon has been registered in systems of water circulation with the devices for its active cavitation. The results of our investigations explain not only a cause of these phenomena, but they give an opportunity to perform quantitative calculations for energy processes, which generate additional thermal energy [1], [2], [3], [4], [5].

#### Theoretical part

An oxygen atom is the eighth element of the periodic table. It is situated in the sixth group. The structure of its nucleus is given in Fig. 1 [1], [2], [3].



Fig. 1 Diagram of nucleus of oxygen atom: light – the protons, dark and grey – the neutrons

In Fig. 2 a diagram of the oxygen atom originating from the structure of its nucleus is given (Fig. 1). It has eight electrons. The electrons situated on the axis of symmetry are the most active ones (1, 2). Other six electrons situated in the plane, which is perpendicular to the axis line (a line of symmetry), by means of their total electric field remove electrons 1 and 2 from the nucleus at a large distance at that forming conditions for their large activity during the interaction with the electrons of the neighbouring atoms [1], [2], [3].



Diagram of the oxygen atom

The least ionization energy of the electron of oxygen atom is equal to  $E_i = 13.618$  eV. Binding energy of this electron with the atomic nucleus corresponding to the first energy level is equal to  $E_1 = 13.752$  eV. Let us call this electron the first one. The calculation of energy indices of this electron, including its binding energies  $E_b$  with the atomic nucleus, according to the formulas (1) and (2), gives the following results (Table 1) [1], [2], [3].

$$E_{ph} = E_i - \frac{E_i}{n^2} = E_i - \frac{E_1}{n^2}$$
(1)

$$E_b = \frac{E_1}{n^2} \tag{2}$$

 Table 1

 Spectrum of the first electron of the oxygen atom

Values	n	2	3	4	5	6
$E_{ph}$ (exp.)	eV	10.18	12.09	12.76	13.07	13.24
$E_{ph}$ (theor.)	eV	10.16	12.09	12.76	13.07	13.24
$E_b$ (theor.)	eV	3.44	1.53	0.86	0.55	0.38

The oxygen molecule structure is given in Fig. 3, a. It is formed by means of a connection of unlike magnetic poles of axis electrons of two oxygen atoms [1], [2], [3]. It is known that the fusion process of the oxygen molecules is accompanied with a release of 495 kJ/mole of energy, or in calculation for one molecule

$$E_b = \frac{495 \cdot 1000}{6,02 \cdot 10^{23} \cdot 1.602 \cdot 10^{-19}} = 5.13 eV.$$
(3)

What principle does the Nature follow by distributing energy of 5.13 eV between the electrons of oxygen molecule (Fig. 3, a)? Energy of 5.13 eV is a thermal binding energy between the electrons 1 and 2' of two oxygen atoms (Fig. 3, a). When the oxygen molecule is formed, it is emitted in the form of the photons by the electrons, which enter into the bond. Hence it is equal to an amount of energies of two photons emitted by these electrons. Consequently, each contacting electron emits a photon with energies of  $5.13/2=2.565 \text{ eV}=E_b$ (Fig 3). According to Table 1, in this case the valence electrons are situated between the second energy level and the third one [1].



Fig. 3 Diagram of binding energy distribution between the electrons in the oxygen molecule

Two oxygen atoms are combined into a molecule in an excitation state. The excitation state is the state of an atom when its valence electrons are situated at such distances from the nuclei when the binding energy  $E_b$  between them is reduced to the thousandth of fractions of an electron-volt. In such state the atom can loose an electron and become an ion. Otherwise, without loosing electrons it is combined with an electron of the neighbouring atom by the valence electron, and a process of formation of oxygen molecule begins. It is an exothermic process when the axis valence electrons 1 and 2' emit photons, descend on lower energy levels and release 2.565x2=5.13 eV.

Let us pay attention to the fact that energy 5.13 eV is released by two electrons, which form a bond with energy of  $E_b$ =2.56 eV. In modern chemistry this bond is called a covalent bond. In order to break this bond it is necessary to use 2.56 eV of mechanical energy. For thermal deavage of this bond, double quantity of energy is required, i.e. 5.13 eV. It is explained by the fact that the photon energy of 5.13 eV is absorbed by two electrons simultaneously. Only in this case, both electrons will be transferred to the highest energy levels with minimal binding energy  $E_b$  when they are disconnected, and each oxygen atom becomes a free one.

Thus, energy expenses for destruction of oxygen molecule depend on the method of influence upon the bond. During thermal action upon the bond it is destroyed when energy is 5.13 eV. During mechanical effect upon the bond, it is necessary to spend 2.56 eV of energy in order to destroy this bond. Therefore energetic of fusion process of the oxygen molecule depends on method of its destruction.

After thermal destruction of the oxygen molecule process of its formation begins from emission of the photons with energies of 2.56 eV by both valence electrons, and the previous electrodynamics binding energy ( $E_b$ =2.56 eV) is restored between the electrons of both atoms.

Thus during thermal destruction of the oxygen molecule the same amount of thermal energy is spent than that which is released during its further formation. No additional energy appears during thermal dissociation of oxygen molecule and at its further fusion.

If oxygen molecule is destroyed by a mechanical method, then it is necessary to spend 2.56 eV of mechanical energy for this purpose. Valence electrons of oxygen atoms are in a free state at lack of energy, which corresponds to such state, as there is no process of absorption of 2.56 eV of energy by each of them. The electrons cannot remain in such state; they should replenish immediately the energy, which they have failed to receive during a mechanical break of the bond between them. Where should they take it from? There is only one source: the environment, i.e. the physical vacuum filled with aether. They convert aether into energy of 2.56 eV immediately. The next stage is a connection of two oxygen atoms, whose valence electrons have replenished the reserves of their energy by means of aether. This process is accompanied by emission of the photons with energies of 2.56 eV by two electrons. Thus energy of absorbed aether is

converted into thermal energy of the photons. If we spend 2.56 eV of mechanical energy for destruction of oxygen molecule, we will get double quantity of energy (2.56x2=5.13) eV during further fusion of this molecule. Additional energy is equal to 2.56 eV.

Much experimental data show that in ventilation systems thermal energy of circulated air exceeds electric energy spent for a fan drive. Now we know that this energy is generated at mechanical destruction of covalent bonds in the molecules of gases, which the air consists of.

Using the above-mentioned method, let us analyse energetic of water molecule, which sometimes generates additional thermal energy. A water molecule consists of one oxygen atom and two hydrogen atoms. Binding energies  $E_b$  of the hydrogen atoms with its nucleus are given in Table 2 [1], [2], [3].

Table 2Spectrum of hydrogen atom

Values	n	2	3	4	5	6
$E_{ph}$ (exp.)	eV	10.20	12.09	12.75	13.05	13.22
$E_{ph}$ (theor)	eV	10.198	12.087	12.748	13.054	13.220
$E_b$ (theor.)	eV	3.40	1.51	0.85	0.54	0.38

It is known that combination of hydrogen and oxygen is accompanied by an explosion, but its cause remains unknown. Let us try to find it.

Energy of fusion of hydrogen molecule is equal to 436 kJ/mole, or 4.53 eV per a molecule. As the molecule consists of two atoms, then the above-mentioned energy is distributed between them. Thus energy of one bond  $E_b$  between the hydrogen atoms is equal to 2.26 eV (Fig 4). At mechanical destruction of this bond 2.26 eV is enough. At thermal destruction of this bond double quantity is required (2.26x2=4.53 eV) [1].



In order to form two water molecules, it is necessary to break two hydrogen molecules and one oxygen molecule into atoms. At mechanical destruction of covalent bonds 2.26x2=4.53 eV is required to break two hydrogen molecules and 2.56 eV to break an oxygen molecule. Sum of these energies is equal to 7.13 eV. If the destruction processes of the above-mentioned molecules are carried out with a thermal method, then 4.53+4.53=9.06 eV is required for the destruction of two hydrogen molecules, and 5.13 eV is required for the destruction of one oxygen molecule. In total, it is equal to 14.19 eV. The difference between the energy spent for mechanical and thermal destruction of covalent bond of hydrogen and oxygen molecules is almost double.

It is known that during fusion of one mole of water 285.8 kJ or 285.8 kJ or  $285.8 \times 1000/6.02 \times 10^{23} \times 1.6 \times 10^{19} = 2.96 \text{ eV}$  per a molecule are released. As a water molecule consists of one oxygen atom and two hydrogen atoms, 2.96/2=1.48 eV falls per the bond (Fig. 5). Hence the electrons of hydrogen and oxygen atoms in water molecule are between the forth energy level and the fifth one at the usual temperature ( $1.48/2=0.74 \text{ eV} = E_b$ ), Table 1, 2 [1].



Diagram of water molecule:

1, 2, 3, 4, 5, 6, 7, 8 are the numbers of the electrons of oxygen atom;  $P_1$ ,  $P_2$  are the nuclei of the hydrogen atoms (the protons);  $e_1$  and  $e_2$  are the numbers of the electrons of hydrogen atoms

Thus when two hydrogen molecules  $2H_2$  and one oxygen molecule  $O_2$  are destroyed by the thermal method, 14.19 eV are spent. As a result of fusion of two water molecules ( $2H_2O$ ), 2.96x2=5.98 eV is released. There is some disbalance here since fusion process of water molecule is an exothermic one and 2.96 eV is released by one molecule. The given calculation shows that (14.19-5.98)/2=4.10 eV is absorbed during fusion of one water molecule. What is the cause of this contradiction?

The oxygen atom in the water molecule should reduce its volume when the transition from gaseous state into liquid state takes place. It will happen when the ring electrons of oxygen atom descend on lower energy levels (nearer to the nucleus). They will emit the photons and their total energy will be equal to energy spent to destruction of two hydrogen molecules and one oxygen molecule, i.e. 14.19 eV. Since two water molecules have 12 ring electrons, each of them will emit 14.19/12=1.18 eV= $E_b$  (Fig. 5). It is more than energy ( $E_b$ =0.74 eV) of binding of axis electron with the nucleus, and it shows that the ring electrons are situated nearer to the nucleus than the axis ones.

In this case quantity of energy produced due to fusion of two water molecules (14.19+5.98) eV exceeds energy, which was spent for the destruction of two hydrogen molecules (9.06 eV) and one oxygen molecule (5.13 eV). Energy difference of 5.98 eV is divided between two water molecules. It means that 5.98/2=2.99 eV or 285.8 kJ/mole fall per a molecule. It corresponds to the existing experimental data completely [1].

The above-mentioned facts clarify a cause of the explosion, which takes place when hydrogen is combined with oxygen. Simultaneous transition of six ring electrons of each oxygen atom in the nascent water molecules to lower energy levels is accompanied by simultaneous emission of the photons, which generate explosion phenomenon.

Let us pay attention to the fact that two binding energies  $E_b$  between valence electrons e2 and 2 and between 1 and e1 are shown in Fig. 5, b. Energy of one electrodynamics bond is equal to  $E_b = 0.74$  eV. If this bond is destroyed by the thermal method, 0.74x2=1.48 eV is required. This energy will be released during further fusion of the water molecule from hydrogen atom H and hydroxyl ion OH<sup>--</sup>. In this case, no additional energy is generated.

Therefore the given bond is destroyed by the mechanical method spending 0.74 eV per a bond, each electron will have energy deficit equal to 0.74 eV after bond destruction. This energy will be immediately absorbed from the environment and will be emitted during the repeated fusion of the water molecule from the hydrogen atom H and the hydroxyl ion OH<sup>--</sup>. At mechanical destruction of one bond of water molecule, the covalent chemical bond forms  $E_b = 0.74$  eV of additional thermal energy, which is registered in systems of water cavitation constantly (as we have already noted) [1], [2], [3].

It is known that water molecules combine and form clusters. If the bonds between the molecules in the clusters are covalent ones, mechanical destruction of these bonds should be accompanied by a release of additional thermal energy as well [1], [2], [3].

#### **Experimental Part**



Fig. 6

Diagram of the experimental device: 1 - reservoir for solution; 2 - thermometer; 3 - electronic scales; 4 - solution supply duct; 5 - rotameter; 6 - feed solution regulator; 7 - a special thin plasma reactor is in the process of patenting; 8 - thermometer; 9 - discharge of heated solution; 10 - inlet reservoir

Thus, chemical bonds between the atoms in the molecules and the molecules in the clusters can be destroyed mechanically, by electrodynamic and thermal influence. We have already shown that the mechanical way of destruction of such bonds requires half energy as compared with thermal energy. It appears from this that energy expenses for electrodynamic destruction of these bonds should be less than thermal expenses as well. Electrodynamic impact on the bond gives the opportunity to form the resonance modes where energy expense for the destruction of these bonds is reduced to greater degree. In order to check this hypothesis a special experiment was carried out. It was connected with electrodynamic destruction of chemical bonds of water molecules with a changing frequency of impact. To test this hypothesis the check experiment was prepared and carried out by (besides the author of this article) A.I. Tlishev, G.P. Perekotiy, D.A. Bebko, D.V. Korneev. A diagram of the experimental device is given in Fig 6. The results of this experiment are given in Table 3.

Table 3Protocol of control test

Indices	1	2	3	Mean
1 – mass of the solution, which has passed through the reactor m, kg.	2.112	2.153	2.118	2.128
2 – temperature of solution at the input of the reactor $t_1$ , degrees	24	24	24	24
$3 -$ temperature of the solution at the output of the reactor $t_2$ , degrees	33.5	33.5	33.5	33.5
4 – differential temperature of the solution $\Delta t = t_2 - t_1$ , degrees	9.5	9.5	9.5	9.5
5 – durability of the experiment $\Delta \tau$ , s	300	300	300	300
6 – reading of voltmeter V, B	25.0	25.0	25.0	25.0
7 – reading of ammeter I, A		1.40	1.40	1.40
8 – electric power consumption according to indices of voltmeter		10.50	10.50	10.50
and ammeters, $E_2 = IxVx\Delta\tau$ , kJ				
9 – power spent for heating of the solution, $E_3$ =4.19xmx $\Delta t$ , kJ	84.10	85.70	84.31	84.70
10 – reactor efficiency index according to the reading of voltmeter	8.00	8.16	8.03	8.06
and ammeter $K = E_3 / E_2$				



Fig. 7 Photo of heat reactor

In the Russian market three firms (Yusmar, Termovikhr and Noteka) sell cavitation water heating equipment with energy efficiency index of 150%. Soon, an air heating devices with the same efficiency will be produced. The processes of mechanical destruction of covalent bonds of the air gas molecules, molecules and clusters of water and their further fusion serve as a source of additional energy generated by these devices [1], [2], [3].

## Conclusion

Analysis of energy balance of the molecules with covalent bonds shows the possibility of additional thermal energy formation during mechanical and electrodynamics destruction of these bonds.

#### References

1. Ph.M. Kanarev. The Foundation of Physchemistry of Micro World. Krasnodar. 2002.320 pages. (In Russian).

 Kanarev Ph.M. The Foundation of Physchemistry of Micro World. The second edition. (In Russian). http://www.ikar.udm.ru/sb28-2.htm
 Kanarev Ph.M. The Foundation of Physchemistry of Micro World. The second edition. (In English).

http://book.physchemistry.innoplaza.net

4. Kanarev Ph. M. Energy Balance of Fusion Processes of Molecules of Oxygen, Hydrogen and Water. (In English) http://Kanarev.innoplaza.net

5. Kanarev Ph. M. Energy Balance of Fusion Processes of Molecules of Oxygen, Hydrogen and Water. (In Russian)

http://www.n-t.org/tp/ts/eb.htm.

# The Fourth State Of Matter (Plasma Energy) Power Generation

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Under the proper configurations and in the correct pre glow discharge environment more electrons can be released than what is required to trigger the release. This release of energy attains a high frequency oscillation that is indicative of the metal or metals involved in its release.

The release of high frequency energy from metals and

semi metals (semi conductors) through the mechanism in the preglow discharge leads to the generation of radiant energy. This correlation has been identified

The release of high frequency energy from the atoms of electrical conductors is credited to my identification of the mechanism in the pre-glow discharge, or fourth state of matter. This has lead to extremely efficient alternative energy circuits. It was not until 1989 when I observed a high frequency signal on my oscilloscope coming from the pre-glow discharge phenomenon.

These signals were coming from across the room and originated from a crude component that I had built. This crude component consisted of a guitar wire that was centered through a section of PVC tubing. Around this tube was wrapped a coil of insulated transformer wire. This was my first ion-valve. It was excited with the same power supply where I had observed the plasma effect several years previous.

Early in the summer of 1981, the pre glow had first caught my attention. This is where I had observed it

between two plastic insulated hook-up wires from radio

shack. The plasma between the two wires was called

into existence because of a high voltage power supply

that I had obtained for my electrogravitic experiments. The two wires were twisted together and given a charge

of around ninety kilovolts.

I knew that my ion valve was generating high frequency oscillations using air ions but did not find any practical applications for it until six years later. It was in this year (1995) when I realized the importance of the ion valve and its associated high frequency ion field, known as radiant energy to Moray, it being the essential principle behind his energy receiver.

In one experimental set-up, it was confirmed that when a charged capacitor is discharged through a spark gap that the stored energy is transferred by way of high frequency electrical oscillations. It was found that these oscillations occur directly before the discharge of the capacitor, thus the term, pre-glow discharge. It was found that during the pre-glow discharge plateau, energy is transferred from a primary to a secondary electrical coil. Directly after pre-glow discharge, a surge of current is measured. At the point of current surge is where most

through my findings. The release of high frequency energy from the atoms of electrical conductors is credited to my identification of the mechanism in the pre-glow discharge, or fourth state of matter. This has lead to extremely efficient alternative energy circuits.

The pre-glow discharge condition occurs when a sufficient amount of charge difference is applied across the gap of two electrical conductors. It makes a hissing sound if the electrodes are surrounded by air. The electrical properties between this gap change: electrons become "stripped" from their respective atoms and are liberated. In this state, air is **ionized** and is transformed into a **plasma** and is no longer a gas. It is now in the fourth state of matter, the other three being solid, liquid, and vapor (gas). The fourth state of matter is a good conductor of electricity, its average resistance being much lower than that of the same substance in its gaseous state.

A good readily available spark gap combination is lead and iron. This combination generates plenty of radiant energy and causes noise to be heard on a radio in its vicinity. As a general rule, the better the thermoelectric difference between the dissimilar couple the more radiant energy that will be generated when it is exposed to a plasma field. of the stored energy in the capacitor is released as wasted heat. It was apparent that by maintaining the pre-glow discharge plateau a very efficient mode of energy transfer and conversion can be obtained. Logically what is required is a control mechanism. This is where my ion valve finds its niche. Upon further investigation, it is found that it keeps pre-glow discharge oscillations at their plateau, and suppresses current surge in a spark gap. It is a self-regulating quenching device. When it is placed in series with an air-core transformer and arc gap, its plasma hisses smoothly, the arc in the spark gap is almost silent and is very small. Continuous oscillations can be seen on an oscilloscope. A light bulb connected to the secondary will glow brightly. This result is not possible without the ion valve included in the circuit. The ion valve has the added feature of preventing back electromotive force, generated from inductive loads, from being discharged back through the circuit. Without the ion valve, energy is normally lost when it is discharged and is transformed into heat. Using the ion valve therefore has the effect of conserving energy.

### Fundamental Radiant Energy Device

"Standard" scientific principles are not being violated. There is no fringe science involved with radiant energy power generation. This is a very old source of energy being extracted and harnessed in a unique way through my discoveries. What I have discovered is practically a limitless source of energy. Radiant energy has existed since the beginning of time. What I hold daim to is an improved method to generate and to convert radiant energy, kinetically active ions, cosmic energy, call it what you will, into useful electrical power. Think of the radiant energy power generator as a type of energy detonator that liberates great quantities of energy with only a small exciting spark. No laws of physics are being violated. No new laws are being implied. They are being expanded. The concept is not that much different from how a lighted matchstick is able to start a bonfire.

The power generated from my circuits comes from the transformation of matter into radiant electricity. It does not come from the splitting of atoms. To obtain high wattage from a spontaneously radioactive substance would require unsafe amounts of radioactive material.

Under the right conditions, or dinary matter can be made to generate intense surges of radiant energy that can be heard on a radio receiver as static noise. Build a device that can efficiently capture this energy and convert it into useful electrical currents and you will have yourself a powerful source of electrical power. This device will be powered by artificially disintegrating matter as described by Gustave Le Bon in his book "The Evolution of Matter" and in his book "The Evolution of Forces".

Energy and matter are two distinct entities of the same manifestation. Matter represents a stable condensed form of energy. Heat, light, electricity, etc., are uncondensed vibrations of matter oscillating at differing rates. "Cosmic Energy" is the term that Le Bon used to define matter and energy as being one and the same manifestation. He theorized that when stable matter is disintegrated it is transformed into energy that we recognize as heat, light, electricity, radioactivity, etc.

Semiconductors will generate intense surges of electron oscillations that become powerful sources of radiant energy. A simple ion valve, or call it what you will, can be used to generate and convert this form of radiant energy into useful electromagnetic oscillations. A tuned transformer can be used to directly convert these oscillations into to a practical voltage and amperage. This unique valve is shown in Fig. 1. Before it can function it must be connected to a suitable voltage source. The circuit in Fig. 2 demonstrates the full working concept. Other embodiments are also possible. The proof of concept circuit reveals how radiant energy can be generated and converted into useful electrical currents. Many additional stages can be added for more power. Many other circuit and component configurations can also be used but the fundamental conversion principle remains the same. The circuit and components shown should give you a very clear idea of how the technology works. The actual mechanics and electronics of building and validating a radiant energy prototype are relatively simple. Contrary to what some people might think, dangerous levels of radioactivity are never used in my devices.

### Ion-valve Converter Technology Explained

The ion-valve converter (ion-valve) shown in Fig.1 has an axial negatively charged tungsten cathode wire that extends the length its cylinder and is capable of emitting secondary electrons. The anode cylinder is positively charged and is made from a semiconductive material that will readily capture electrons.

Within a few milliseconds the accumulated negative ions are attracted to the positively charged onrushing atomic ions. When the negative and positive charges collide they neutralize each other generating high frequency electrical oscillations.

There appears to be a common thread shared between several alternative energy devices. It is the pre-glow discharge. The report on the Hans Coler device released by the British Government indicates that there is excess energy released when electrical contacts are opened and closed. The Lester Hender shot device utilized a buzzer circuit that opened and closed its electrical contacts. In the Alfred Hubbard coil pre-glow discharge flowed through electrical contacts, a distributor cap and radium soaked spark plug. The Joseph Newman motor used a sparking commutator. Thomas Moray invented a glowing, cold cathode discharge tube that was the heart of his radiant energy device. Hermann Plauson was granted U.S. Patent No. 1,540,998 that used spark gaps to convert atmospheric energy. Frank Wyatt Prentice was granted Canadian Patent No. 253,765 that detailed his invention, which lighted 50 sixty-watt carbon lamps with an input of only 500 watts. His invention utilized a spark gap driven high frequency tuned resonant system. Chancy Britten used ion-valves constructed with a central wire that was surrounded by a coil of wire which is described in his US Patent No. 1,826,727. Britten's valve was said to have lit up his home in the 1930's according to a local newspaper article of that time period. Alexander Chernetski experimented with what appears to have been a type of ion-valve that was filled with hydrogen gas. It is said that he got up to five times more energy out of his device than what he put into it. Edwin Gray was granted U.S. Patent No. 3,890,548 for his efficient spark gap driven capacitive-discharge motor. He improved on this patent by replacing the spark gaps with a pre-glow discharge switching tube. His U.S. Patents No. 4,595,975 and No. 4,661,747 describes this tube in detail. Gray's patents claim to conserve battery power by sending unused energy back to the supply batteries. On close examination, we also find that his switching tube is actually a quenching device.

Radiant energy was generated during the pre-glow discharge cycle that also contributed to recharging the batteries. **Paulo N. Correa** and **Alexander N. Correa** obtained patents to a pulsed pre-glow discharge system that recovers energy and recharges a battery.

I have found that radiant energy is generated when a plasma field is in contact with the atoms of an electrical conductor. Most importantly, the quantity of radiant energy is greatly increased when the plasma field occurs between the inter-electrode couple of two differing electrical conductors. That, the wattage produced will depend largely on the type of electrode materials that are used. I do not suspect that the above referenced inventors were aware of this amplifying mechanism.





In the embodiment in Fig. 1 the negative charge on the wire in the ion-valve negatively ionizes any gas that contacts it. These ions rush towards the positively charged cylinder. When a metal ion that carries an excess electron hits head-on with an elementary differing positively charged onrushing metal ion a violent union of the two metals occurs. This causes the newly for med bimetallic alloy to violently oscillate, break up (dissociate) and to liberate a burst of electrons. The "sea electron model" helps to explain this effect. According to the sea electron model metals are bonded to each other through electron sharing. The model suggests that metal atoms be bathed in a sea of valence electrons. If this model is taken one step further it can be seen that when metallic atoms are dissociated from each other excess electrons are released in the form of electrical oscillations of high frequency (radiant energy). This occurs because the electrons no longer take part in the inter-atomic binding force that existed before the dissociation took place. It becomes clear that the freed electrons will add amperage to the output circuit to which it is connected. Henceforth, the equation  $I \times E = P$  holds true in this system. Where, "I" represents the electrons (amperage), "E" electromotive force (ionic voltage), and "P" the power generated.

### Obtaining Electrical Energy from the Transformation of Cosmic Energy

Matter is cosmic energy in a condensed state according to Le Bon and Moray. What this means is that matter can be excited its plasma state and caused to rapidly disintegrate transforming itself into electricity.





Proof of Concept

The proof of concept shown will obtain energy from the dissociation of matter bringing the circuit to life. It does this by creating a plasma field between differing electrical conductors. Electrons are unleashed and feedback to the circuit where they are converted into useful power.

Plasma oscillating on the correct wavelength will act like a spark on a mass of explosive material but releasing electrical particles instead of heat. This is to say that the excited fourth state of matter (plasma) causes

condensed energy (solid matter) to become uncondensed (radiant energy). The reaction will be far superior to the force that invoked it in the first place because the energy stored in matter is released. The energy that is condensed in the elements of matter is immense. The result is that an enormous amount of energy is released with only a slight loss of matter. Gustave Le Bon proved this when he demonstrated that the action of solar light and from electric arcs on bodies produced electric particles similar to those of uranium. He showed that it caused all bodies to disintegrate to different degrees. According to the law of conservation, when we give to a material body a determined quantity of energy, this energy might be transformed, but the body will never give back a quantity in excess of what it received. This principle is considered too self-evident to be disputed. It makes sense that matter can only give up energy that

the excited fourth state of matter (plasma) causes condensed energy (solid matter) to become uncondensed (radiant energy). The reaction will be far superior to the force that invoked it in the first place because the energy stored in matter is released is given to it and is unable to create excess energy. Without violating this law, matter can be excited into giving up its stored interatomic energy. Condensed matter can become uncondensed if its oscillations become

violent enough and henceforth transforming itself into radiant energy. No laws have been violated. They have been expanded. The first law of thermodynamics describes the principle of the conservation of energy. It states that "energy is not created or destroyed; it merely changes form". The fact is that the creation or destruction of energy is a result of matter being broken down or built up. They both go hand in hand.

Naturally occurring radioisotopes were created through the billions of years of **cosmic ray** bombardment of ordinary matter. Their matrixes became unbalanced. The correct trigger will cause these isotopes to seek their original balanced state. Enormous amounts of electrical energy can be obtained from the transformation of stored cosmic energy. These isotopes contain a very old energy reserve that can be released in a unique way with my discoveries.

Have you ever wondered about spontaneous radioactive decay? Is it really a super charged state of matter? If an atom can become ionized by either gaining or by losing electrons then why can there not be a nuclear ionization too? I hypothesize that atoms do become ionized on the nuclear level by gaining or losing neutrons. This may appear incidental but could be at the very heart of an ultra-chemistry. It is highly probable that this hypothesized phenomenon is behind natural spontaneous radioactive decay and explains many unanswered questions about nuclear science.

### **Liberated Energy**

With a slight excitement from a pre-glow discharge in a spark gap, or even with no excitement at all, as we observe in spontaneously disintegrating radioactive bodies, such as U235, we can obtain large quantities of energy. Clearly, we did not create this liberated energy, since it already exists in matter, but we release it under the right conditions. This is being done without violating the law of energy conservation. The idea that matter could be transformed into energy was absurd before the acknowledgement of nuclear transformations.

A Nu Science is on the horizon. It involves the means of transforming matter into energy without splitting atoms. This science recognizes several isotopes of matter that spontaneously liberate energy as observed in naturally occurring radioisotopes. My research indicates that it is also possible to artificially speed up the natural decay process of condensed energy (matter) using a minute plasma field, as from a pre-glow discharge, etc... With a very small quantity of energy, we will be able to produce a very large quantity of energy without splitting the atoms.

## **Capture Capacitor**

Nature offers us cosmic energy that manifests itself in many different forms. Electricity is only one of its manifestations. From this knowledge, we can obtain electrical power with no moving parts. The natural world contains many storehouses of this cosmic energy. Energy is all around us just waiting to be transformed. The capture capacitor is one such example. It is called a capture capacitor because it captures and transforms electrical charge into electrical current. It does this with the aid of naturally occurring radioactive matter (N.O.R.M.). Put a pair of dissimilar metal electrodes together with a porous ceramic dielectric material sandwiched between them, along with a weak electrolyte and you have built a capture capacitor. In a low power capture component there exists a minute impurity of N.O.R.M. It is always present in clays and is usually present in ceramic materials.

If you want a capture capacitor to generate more power all you have to do is to add additional amounts of radioactive material to the dielectric. Lead–210 is the optimum choice because it has a half-life of ar ound 22.3 years and is a pure beta (electron) emitter. Its half-life is almost twice as long as tritium. This means that it is feasible to build a component that will put out power for several years with little maintenance. Lead-210 is a decay product of radon gas. The parent source of radon is uranium. Therefore, uranium ore can be powdered and mixed into the ceramic material.

The atomic ions emitted from naturally occurring or artificially induced radioactive transformations can be directly converted to electrical power. The circuit shown can be used to convert radiant energy into useful electrical currents. Additional stages can be added for more power. The circuit shown gives a general idea of how such an energy conversion device functions. By no means is this technology limited to this one circuit, configuration, or source of radiant energy.




♦ A new type of high field superconducting magnet from Oxford Instruments has enabled physicists at the University of Nottingham to balance the force of gravity and levitate heavy and dense materials such as lead, gold and diamonds. The patented Minim um Condensed Volume<sup>TM</sup> (MCV<sup>TM</sup>) Cryofree<sup>TM</sup> superconducting magnet, developed and manufactured by Oxford Instruments in collaboration with the University of Nottingham, is the first of its kind in the world. Unlike conventional superconducting magnets, the MCV magnet never needs to be refilled with liquid helium and yet can generate a field over 300,000 times stronger than the Earth's magnetic field. MCV has a very small footprint and, operating at 4.2 K with a room temperature bore, can generate highly stable magnetic fields up to 16 Tesla.



http://www.oxford-instruments.co.uk

◆ Polish inventor Zygmunt Orlowski called attention of the scientific society to his perpetual motion machine **METOZ**, which according to the author after further improvement will be able to extract energy from the earth's gravitation.



http://www.nets.pl/~metozor/perpetual\_motion\_machine.htm

◆ It is necessary to change behavior of people in order to decrease environmental damage. This was the message of "Green Week 2003" which took place since June 2 through June 5 in Brussels.

The conference's key issues were three aspects of United Europe environmental policy: sustainable production and consumption, renewable energy and water supply.

Green Week is the first environmental forum of such a scale. Three thousand participants from all over the world represented governments and funds, industry and mass media. The exhibition organized in the framework of Green Week included 62 displays from 14 European countries and were dedicated to the newest environmental technologies and projects. During the Green Week 26 conferences and seminars took place, as well as a great number of press conferences and actions for young people.

## British researchers (Gardner Watts company) believe that they have made a groundbreaking scientific discovery after apparently managing to "create" energy from hydrogen atoms.

The device represents "thermal energy cell" which appears to produce hundreds of times more energy than that put into it. If the findings are correct and can be reproduced on a commercial scale, the thermal energy cell could become a feature of every home, heating water for a fraction of the cost and cutting fuel bills by at least 90 per cent.



http://www.telegraph.co.uk

## Gravity Conversion Rotary Device

The below figure is from

http://www.theverylastpageoftheinternet.com/newclaims/ GravityMotor/gravity\_motor.htm



Does it really work?



## Tim Ventura, USA

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Editorial: This overview is devoted to the fantastical device created by inventor Marcus Hollingshead that encountered more than its share of publicity and controversy between November 2002 and March 2003. You can participate in discussion on aggroup@yaboogroups.com.

The problem with Marcus has been that he was pressured by too many people to produce too fast results. I started talking to him in November, and he is always sounded like an honest, rational man with a good heart. The problem is that once people started to hear his private claims that he could lift something like 2 tons of weight, things kind of went south.

While people in general have been very well-meaning, they are desperate to solve many of our current energyproblems, and when Marcus appeared with a potential solution it got out of control. Pretty soon film crews were showing up at his house unannounced, and he was getting unwanted phone calls from people who had looked up his number online.

In my opinion, it is really a problem of a "social dynamic" at work here – too many people, with too much access, all at once. This also correlates to the type of person that different people are. For instance, I am a very open person, and I really do not value my privacy a heck of a lot — therefore, when TV crews drop by with 5 minutes notice (and they have), I tend to just let them in for a demo. However, Marcus, who is much more of a private person, seems to have become a bit overwhelmed at this proposition.

Also, keep in mind that I had initiated working with the media because I felt that it was time for the excellent work in the Lifters groups to see the light of day. There was some debate about this, but the Lifters group as a whole has greatly benefited from being about to tell people about this new technology.

Marcus had not actually "gone public" about his work. He had leaked information about his research to a few people, and from there it was leaked to several others, who in turn told their friends about it. Unlike the Lifter technology, which has hundreds of people that can talk about how it works and where it came from, Marcus technology was represented solely by himself. That means that everything surrounding his device came back ultimately to him alone. Without any real group ownership of the expertise behind the device

As I said before, Marcus was new to the publicity, and did not have time to prepare the resources that the rest of us have had to answer questions, provide demo materials, etc. Naudin and Saviour have a masterful manner with regard to teaching people about Lifter technology, but they have had years to prepare this information and perfect a method of presenting it to people.

Most of us in the AG groups tend to proselytize for the technologies that we believe in. I know that I do, and if you haunt the newsgroups much you will notice that everybody there believes in something and can go on for months non-stop telling the world about it (again, I do this). Marcus, however, does not really have this personality — he is more of a "take it or leave it" type of person.

For me, this was another indicator that he was the "real deal". You have to understand that I have never seen working prototype pictures of the Marcus device, and all that I had to go on was the feeling that I got from interacting with him on the phone and online. The fact that he did not try to "sell me" on the idea was a big plus. He told me about the device, and his story was always consistent. The other people that he talked to also had a consistent story – I have not talked to anybody and heard a different version than I heard from Marcus himself. That is a big plus from the credibility perspective.

Marcus initial goal (from when I started talking to him in November) was to gradually ease into working with the public to tell them about the technologies he was working on. Unfortunately, I probably aggravated the issue a great deal, because his early descriptions of the technology might have gone unnoticed if it had not been for some of the things he had mentioned about his research.

When I read Marcus' firsts posts on the device, my very first thought about his daims was that they were bogus. Judging from the reaction of the Antigravity newsgroup, I gathered that a few other people also had the same initial reaction. The reason might be a little selfish – after you hear claims but do not see results for a long enough period of time, you tend to protect yourself emotionally by becoming skeptical to the idea that somebody can be lifting hundreds of pounds of weight using a completely new and revolutionary technology.

Nonetheless, something that Marcus had said resonated with me. I remember that he was talking about his results being based on a study of the Earth's fields, which is something that I had read about myself during the college years. Telsa had done a lot of work involving the Earth's electrical and magnetic-fields, and I had always felt that this research might come in handy later as a potential basis for Antigravity research. However, I did not have any specific ideas, and began asking Marcus questions offline to find out more about his research.

In reality, I am nobody special, so I think that perhaps this would have happened in any event no matter what my reaction would have been. Certainly I am not the only person that took an early interest in his work, and from what I learned later he had already been a little bit too honest in the BBC online newsgroup before he ever became involved with the Antigravity newsgroups.

From January to mid-February Marcus became like somewhat of an addiction in the newsgroups. This was a strange phenomenon to watch, but if he did not answer questions in the newsgroups for even a day people started asking whether he had been kidnapped or the government had assassinated him.

You have to understand that most inventors tend to segregate their time into "public" and "private". I do, Naudin does, and everybody does this. When you talk to the public about what you have built, you really get into it — but when you are actually working on it, you tend to hole up in the garage and put the entire world on "ignore" until you have finished with whatever it is that you are doing. Marcus really started to get publicity in late November 2002, and it built up over a few week period of time. By mid-December, he had a healthy following in the Antigravity newsgroup and people in the 5 or 10 other AG newsgroups were developing more than just a passing interest. Great stuff for Marcus – he had thought that he was the only person doing this research, and it turned out that lots of people shared this common interest with him. We had lots of really valuable and productive exchanges.

Marcus bided his time working on the projects – he had initially stated that he could lift around 200 pounds of weight with his November version (prototype #161, if I remember correctly). He did not have a digital camera, and he did not want to publish photos until he had a better prototype anyways. That was OK with me – I am used to work with a variety of inventors and came to realize a long time ago that everybody has their own style. I was content to wait until Marcus had additional data, and the only thing that I insisted upon was that sooner or later he ante-up and provide some photographic evidence.

Despite lacking photos or video evidence, Marcus did have documentation. In fact, he wrote more documentation about his device than I had ever hoped to receive. He cranked out about the equivalent of 30pages of "real" documentation in a very detailed form within 1-month, and had the email equivalent of many more pages in postings about how the device worked online. Marcus had already been publishing details online for about 2.5 months.

Despite the incredible amount of published data that Marcus was able to complete, in some ways it made things worse for him than not having anything at all. The reason was the nature of his research. My work, currently focused on Lifters, was in a technology that is easy to explain – the device is built like this, it works like that, and it can be described in a manner similar to some other thing ....basic, easy to explain, and easy to compare.

After all, Lifters have been accused by science of being ion-wind devices. If nothing else, rebutting this claim gives us someplace to start – something to compare against to provide people with an idea about how the device works. Additionally, we had tons of video and photographic evidence to back up our claims. In Marcus case, the documentation that he provided made things worse because his technology is so utterly different. It is not ion-wind, nor the Biefeld-Brown effect, nor apparently the Searle effect. In fact, the more than you tried to pin down exactly what it was, the harder it became to describe it.

Also, its not like he could simply fall back onto describing the construction of the device – reason being that it contained a series of interrelated coils with a unique configuration that were intrinsically tied to the operation of the device. Every time he wrote a detailed summary of the construction of the device, we had come away with more questions than we had started out with. After a time I gave up trying to understand how it was constructed, because I only had bits and pieces.

Marcus was using an arrangement of 6-coils, and what are described as "bifilar windings". Essentially, this means that you wind two wires together around a coil and then tie one of the ends to another, making the two wires essentially one long wire wound "against itself" down the length of the armature its on. There are 6 of these armatures on the device, mounted around a central RP (or reference point).

Marcus created all of the terminology for these parts this lends additional credibility to the idea that he had had 7 years of experience with it. These are ideas that you just do not "make up" for publicity. For instance, the bifilar windings on the armature-coils are selfcancelling fields, and even a basic-electronics education will tell you that. However, the interesting thing is that once you really start to get into the advanced "postscientific" research on magnetic fields you start to see self-cancelling magnetic coils all over the place. The reason is apparently that while the "B-field" (Editor: i.e. magnetic field) of the coils cancels, the "A-field" (Editor: i.e. vector potential) that Tom Bearden keeps talking about does not, which means that you can isolate the really interesting effects from the coil without having to deal with the high field-intensity effects from normal electromagnetism.

Marcus had described these six ar matures as being activated in a series, or order, to obtain results. Each of the coils was spun by an electric motor mounted on the armature, and when the coil was spun up to a certain speed and "stubs" mounted a periodic intervals on the side of the armature were fired in sequence the antigravity effect was created.

Marcus Antigravity effect was a directional force that was applied in a unique manner depending on which

coils were activated. This means that by activating (for instance) coils 1 and 3, he could create an antigravity effect and move the device left – or something to that effect. Turning on and off each set of coils gave him movement on one axis of thrust, which corresponded to X, Y, or Z in a standard 3-D geometric graph. Since you can move in either direction down any given axis of thrust, this means that you have 6 axis of movement height (up and down), width (left or right), and depth (forward or backward). His device provided movement on any axis by either one coil or an arrangement of coils.

For a while Marcus did not want to talk about side effects, but I pressured him into it. The reason was that I have seen side-effects that were pretty darned strange in a number of different experiments, and I was willing to bet that if I pressured him a bit he would talk about what he had seen but did not want to reveal (for fear that people would not take him seriously). It turns out that I was right.....

Marcus had talked about the RP, or "Reference Point" upon several occassions. This is a multi-layered device that acts somewhat like a capactive element. It sits in the direct center of the Marcus device, and it is the reference-point for the entire device. The RP is manufactured from cast-iron, and Marcus says that he has a local company build them for a few bucks each by pouring iron into a mold based on one of his designs.

You can active the RP at the same time that you activate the coils. You have coils rotating around the RP, with "stubs" on the coils firing periodically at points corresponding to spots on the surface of the RP. Meanwhile, you also have an electrical charge on the RP itself, which means that there are a lot of elements interacting at once to create a very complex dynamic.

One of the interesting side effects was a darkening and "blurring" effect of the RP, as if light was being reflected off it. Another was a Star-Trek like "force shield" around the RP. These only occurred when all of the coils were activated at once. Also note that since the coils are opposing in nature (one for each direction on each axis), that when you are creating the force field effect the device cannot be levitating. However, the device is operational, and you have a force-field that you can apparently bounce a heavy hammer off without being able to penetrate it (Marcus description).

Another interesting note is that the force-field effect can be modified to create a vacuum. I am not sure how Marcus noticed this, but he had said that it appeared to create a vacuum inside of the field's boundaries during operation. Interestingly, it also ran very cold – apparently down to a hundred degrees below zero, but only within the localized boundaries of the field.

I am not a professional physicist, but this is something that has been reported with the Searl effect and several other experiments, and the reason that I believe it occurs is because you are taking the kinetic energy of the device as well as some of the kinetic energy of its molecules (i.e.:heat energy), and injecting it into another dimension. After all, anytime we directly modify a gravitational field we are creating a dimensional effect, but in normal life we do not notice it because the boundaries between gravitational fields are very gradual.

Well, in the Marcus device the boundary between gravitational fields is not a several thousand mile-long gradient like the Earth's field is – instead of you have a gradient perhaps 10-times

more intense focused within a 3 to 4 inch area. That means that you are creating essentially a rift in time and space (self-healing) that is kept open by the energy that you are pumping into the device.

To the best of my knowledge, this is the most accurate description that I have seen yet for why his device does this. Marcus himself could not explain why these effects occurred, and to be honest I scared him more than a little when I told him my theory.

In the hypothesis that I just put forth on the origin and functionality of the Marcus device effect, the interesting this is that there really is not a direct correlation between input energy and the effect itself. That is because you are not using the input energy to actually cause an effect – you are essentially using the input energy to translate the device into another dimension (although it is still partially within ours).

Einstein called these "frames of reference". The idea is that the energy input is used only in putting the device into another frame of reference, but that any interaction between us and our "normal" frame would have to be modified for any interactions with the "modified" frame.

Again, this takes place in normal physics – but usually it involves motion, and normally it takes place over a vastly

larger gradient of time/space/whatever. The difference between two frames is the difference between two locomotives moving at different speeds – the energy input goes into accelerating each locomotive up to that speed, but the actual work is performed if those two trains interact is solely a product of the frame of inertial reference (mass & velocity = energy).

Another excellent example is a helium-balloon. You put the energy into condensing the helium and pumping it into the balloon, but it is not the helium that creates lift - it is the surrounding atmosphere. In a very real sense a helium balloon gets its energy from the surrounding environment. The energy that you put into "maintaining flight" in a helium balloon is only the strain on the fabric used in holding the helium into the confines of the bag

that encloses it. With the Marcus device, I would bet money that it is not the input energy creating these effects – it is instead the difference in frames of

the energy input is used only in putting the device into another frame of reference, but that any interaction between us and our "normal" frame would have to be modified for any interactions with the "modified" frame.

> dimensional/inertial reference between "our" environment and the "device's" environment, whatever that difference may be.

You see, even though this sounds like a load of BS, magnetism is not real. This is not an idea that I am making up - in fact, it is an entire chapter in the physics 101 textbook kicking around downstairs in my house. Take two magnetic fields, and project them in the same direction at the same speed. Field A can not interact with Field B, because neither of the fields really exists they are merely ripples on a pond, and that pond is the background of the time-space continuum. People that believe in relativistic gravitational effects take for granted that things like this happen – after all, gravity is not a force per se in relativity - only a modification of the dimensions of time-space. Well, most people do not realize that Einstein based his theory of gravitational force on his study of magnetism. Magnetism is the same thing – it is a modification of the fabric of time-space.

Take two magnetic fields that did not interact from a moment ago, and now change the direction that one of them is traveling in. Suddenly, the two fields that could not even see each other a moment ago now create an incredible "torque" – this is the same thing that we see in bar-magnets and electric motors. This is the "torsion field" research.

Bar magnets are different than pure fields because they are composed of the discrete fields of thousands of tiny magnetic "domains". That is why the fields from bar-magnets are never "invisible" to each other – it is because that the fields in bar magnets are too jumbled to ever really "line up" to the point of being invisible. Pure fields can do this, however, reinforcing the supremacy of Einstein's relativistic effects with relation to electromagnetism.

Anyhow, that is about it for now -I will try to come up with a more detailed picture for you on this if you like, but I expect that you will probably have more questions about Marcus theory and device in near future. It is a very complex idea underlying his research, but the basis of it is the idea of "rotating magnetic fields".

If you want to do additional research on your own into related fields of study, I would definitely look up "relativity and magnetism" – it provides an excellent example of how to visualize relativity theory in the study of magnetic field interactions. This is something that electronics engineers are not taught, which is why you have never heard of this in an engineering sense before. However, in physics is a well-known concept, although most physicists prefer to work with quantum mechanics rather than relativity these days.

In terms of rotating magnetic fields, you can look up "torsion fields" – again, the Russians have the best understanding of advanced torsion field physics, although their best material probably has not been translated yet. Additionally, rotating magnetic fields are the basis for the Searle Effect and the Hamel device.

Marcus was intrigued by Searle's claims, because they appear to have matched many of his own results. Interestingly, Marcus had developed his work within an "intellectual vacuum" and had never heard of Searle before I told him about the similarities. Nevertheless, force-fields, ice-cold operating temperatures, and antigravity seem to be a pervasive similarity between all manners of experiments that have been reported using rotating magnetic fields. I had assumed that Searle's claims were bunk, but after hearing about similar effects from Marcus research it led to reconsider some of the criticism surrounding Searle lately.

One a final note – one group that may lend additional credibility to this research is Godin and Roshchin in Russia. They obviously benefit from the years of knowledge that the Russians accrued in magnetic field systems theory, and they attempted a replication of the Searle effect device some years back (and claimed to get some results). I hear that they have been working on a revised version of their experimental setup recently and hope to have even better results in the very near future.



Magnetic flow for a bifilar-wound toroid that is split at four points on the toroid. This configuration occurs when the coils in the nubs are charged to match the charge on the toroidal coil. The configuration is a quadra pole with a minimum magnetic field at the center

minimum magnetic field at the center



Fig. 2

Marcus recommends the Kikusui 6000L and 18000L multipurpose AC power-supplies



Fig.3

A scale-model mockup of the ring-arrangement within the Marcus device, showing the interlinking coils



# **History pages**

## Systems of conversion of thermal energy to mechanical one

Review prepared by correspondent Alla Pashova, Russia

There is a wide class of closed-cycle heat engines using differential temperature of water and ambient air. This kind of systems enables thermal energy to be directly converted to mechanical one so as to perform a useful work. We publish patent specifications of two analogous devices of this kind.



In 1980, **Y.S. Grigoriev** developed his forerunner's idea by improving the system described above. The inventor aspired to enhance the effectiveness of this method of conversion of heat energy to mechanical one. He suggested fixing the volume of chambers filled with a heat-sensitive actuating medium at its minimal magnitude before immersing of those chambers into warm water. In water the actuating medium heats and partially evaporates. At a maximum depth of submersion, the chambers are released from fixation to be expanded during emersion. Thus one may avoid expansion of the chambers during their submersion. Futhermore, there is a possibility to activate the device and get the useful work without preliminary spinup from an external drive.

In 1928 **P.I. Dobrokhotov** proposed a design of such an engine. It represents an endless chain thrown over a pair of blocks and partly immersed into water. The chain consists of coiled pipes filled with a volatile liquid (such as sulfurous anhydride or ammonia). One end of each coil is fastened to a frame, while another end is fastened to a cylinder piston mounted on the same frame. When overwater elements are heated by means of ambient air, the liquid inside the coil evaporate. Vapor put pressure upon the pistons which being in motion compress air in the cylinder, and thereby reduce volume of each element. When submerging, the element gradually cools down, thereupon causing a decrease in pressure of vapor of the liquid, which is enclosed within coils. The pistons move in backward direction, and the volume of air available inside the

c y l i n d e r i n c r e a s e s. Increase of volume results in increase of water buoyancy force that sets the device in motion.





## Iliya R. Prigozhin (25 January, 1917 – 28 May, 2003)

Iliya R. Prigozhin, aged 86, Nobel Prize Winner, Belgian scientist of the Russian origin, died on 28 May in Brussels Prigozhin made a number of prominent discoveries in the field of ther modynamics and statistical mechanics of nonequilibrium processes. In particular, he developed a concept of irreversibility as applied to thermodynamics. Prigozhin was studying time as a physical phenomenon. In 1977, he was awarded the Nobel Prize for chemistry "for works on thermodynamics of nonequilibrium processes".

The scientist formulated one of the major theorems of the theory of nonequilibrium processes. This theory was later named after him. According to Prigozhin's theorem, stationary state of the system corresponds to minimal entropy generation. The outstanding physicist was also an initiator of applying methods of theory of nonequilibrium processes in biology.

Thermodynamics principles were enunciated in the middle of the XIX century after the invention of a steam-engine, when interaction of heat, electrical, and mechanical work aroused a higher interest. In accordance with the first law of thermodynamics representing an energy conservation principle, energy neither disappears nor appears in any closed system, but transforms from one form to another.

The Prigozhin's theorem sounds as follows: stationary state of the system (under conditions impeding a trainment of equilibrium state) corresponds to the minimal generation of entropies. If there are no such impediments, then production of entropy reaches its bare minimum, i.e. zero. The theorem was proved by Prigozhin in 1947.

In thermodynamics the nonequilibrium specifically open systems were of most interest for Prigozhin. In such systems either or both (matter and energy) interchange in reactions with an environment. At that, quantity of matter and/or energy increases or decreases in the course of time.

It is obvious that human society as well as the biological environment is an example of dissipative and nondissipative structures. In the 60s and 70s, Prigozhin developed his theory of dissipative structures and described the formation and development of embryos. Critical points of bifurcation in his mathematical model are correlated with a point, where a biological system becomes consecutive and stabilized.

For his scientific career time, the physicist was awarded over 40 scientific rewards and admitted as an honorary member into national academies of many countries all over the world.



## Russian Academy of Sciences Russian Physical Society Nuclear Society of Russia Mendeleev Chemical Society of Russia Moscow Lomonosov State University Russian People's Friendship State University

The 11<sup>th</sup> Russian Conference on Cold Nuclear Transmutation of Chemical Elements and Ball-Lightning (RCCNT&BL-11) is to be held during September 28- October 5, 2003. The place of the Conference is in Dagomys near the city of Sochi.

The program of the Conference includes the following subjects:

- · Experimental research in cold nuclear transmutation (fusion) and ball lightning;
- Theoretical models with respect to cold nuclear transmutation (fusion) and ball-lightning effects;
- · Applied to these problems technologies and devices.

The Organizing Committee of the Conference is pleased to invite you to attend the Conference. The terms of your participation are as follows:

The full cast is \$900, which will include the registration fee, hotel reservation and living, three daily buffet meals, conference proceedings, transportation from the Sochi airport and back, social dinner and special excursion or entertainment.

The languages of the Conference are Russian and English.

The total cost can be reduced to \$800 if transferred before August 10 to the account of the Organizing Committee, which is to be announced on having received from you a confirmation about your decision to attend the Conference.

If you make a decision to take part in the Conference, please, let us know before July 1 about the title and abstract of your report.

Contact telephone: (7) (095) 196-9476 (ask Mr. Igor Goryachev), Fax: (7) (095) 196-6108 Email: gnedenko@kiae.ru; Bazhutov@erzion.madi.ru; bazhutov@izmiran.rssi.ru; bychvl@orc.ru Address: I. Goryachev, Russia, 123182 Moscow, 1 Kurchatov Sq., Research Institute of High Technologies at RC "Kurchatov Institute"



Thank you for publication of my article. Your magazine becomes more and more popular.

My special thanks to Editor-in-Chief Alexander V. Frolov. Whatever they say or write in the press, he has done a great work and it is not only my own opinion. He has managed to do that everybody had been waiting for a long time. My colleagues (not only from Rostov-on-Don State University but also from other Rostov Institutes of higher education) ask me personally send the best regards to the editorial staff of your magazine.

## Sergey A. Gerasimov

## Free energy?

The scientific community says that it cannot exist. Where did we hear that before? Academician Valery Sobolev from the Academy of Sciences, the head of the research group working on the experiment says: "This is not some new physics, but just experiments that have been performed very seriously. Make surge of electrons from the environment, remove them, deplete the fused electrolyte with basic typical metals; what you derive from it is what cannot be produced by chemical methods. This is a new state of substance." As the researchers say, first they discovered a particular electrochemical process where high-temperature materials in a new state are the product. This in its turn allowed to discover a new state of substance, new class of materials, a new source of energy, a new method of cold plasma generation, a new superconductor. See whole article at: http://english.pravda.ru/science/19/94/379/9675\_energy.html

## Josef Hasslberger

Personal home page on physics, energy technology, social and economic issues: http://www.hasslberger.com