

Latent Energy of the Universe

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Abstract: The article presents an unconventional look at the physics of extracting the latent energy of the galactic and intergalactic quantum environment. Active influence on the system from the outside occurs when the dominant processes in the system are irreversible. The validity of this assertion is confirmed in the microcosm and in the macrocosm, and even in the cosmology of the universe. The article deals with the physical principles of the microwave Roger Shawyer's engine EmDrive, Baurov's engine and Leonov's anti-gravity quantum engine, the Andrea Rossi's reactor E-cat, the Paul Bauman's generator "Testatik machine M/L Converter", Leo Sapogin's New Source of Energy, G.Shipov's torsion transmitting, the Nicola Tesla's Systems to wirelessly transmit Energy. Explain the principle of operation of these devices from the point of view of modern quantum-relativistic theory, based on the model of the physical vacuum, it is not possible. The laws of conservation of energy and momentum for these devices are only valid in the case of recognition of the existence of the quantum environment with positive density (dark matter), which the participates in all interactions in nature.

Keywords: physical vacuum; quantum environment; dark matter; electron-positron plasma; dipole; oscillator; microwave radiation; resonator; reactor; generator.

1. INTRODUCTION

Latent energy of the Universe becomes apparent in the course of the perturbation of the galactic and intergalactic quantum environment, in moments the birth of matter, in moments accelerate its movement. The recognition of the existence inhomogeneous quantum space environment with positive density, opens to mankind an inexhaustible source of conceptual innovation in all areas of activity. Instantaneous transmission of the information and energy to anywhere in the Solar System, gravity control, generating unlimited amounts of electrical energy at subatomic level, fundamentally new electric motors - all these do not make a complete list of innovations implemented using of the quantum space environment. Modern physics, in which the relativism dogmas of Einstein's SRT and GRT dominate and the prohibitions of the laws of thermodynamics on of the perpetuum mobile, had not recognised new physical devices; nevertheless, many of those projects have been already in a stage of their technological implementation. It should be noted that the principle of operation of those devices not inconsistent the physical laws of conservation of energy, momentum and not inconsistent the laws of thermodynamics, even if their efficiency exceeds 100%, because the system open for energy exchange with the cosmic medium. Below is a description of some devices created at different times in laboratories of different countries, working contrary to the laws of modern physics and having been tested experimentally under real operating conditions.

2. EXPERIMENTS

2.1. Roger Shawyer's Microwave Engine EmDrive

The author of the idea of a thrust directed by microwave radiation is considered to be a British engineer Roger Schauer, which is more than 10 years ago, designed a number of demonstration units (first - in 2003.) In 2006, he introduced the electromagnetic motor EmDrive [1]. His device is quite simple: the magnetron generates a microwaves, and energy is stored in a copper resonator. The resonator is in the form of a container having a truncated cone shape and the open side of space. Microwave generator directs radiation into the cavity, where it is repeatedly reflected from the walls of the hollow vessel, and due to the effect of radiation pressure creates a greater thrust from the cone base. With this motor does not require a traditional propellants. Microwave radiation is generated

solely by the electrical energy that will fuel the engine EmDrive by solar panels. To operate the engine does not require any fuel or the working masses, it will work as long as the elements of its design are not physically go out of order. However, the scientific community, convinced in violation of the law of conservation of momentum device and is in no hurry to recognize the results, calling them "unscientific." The most recent information message on the comprehensive testing engine EmDrive «Measurement of Impulsive Thrust from a Closed Radio-Frequency Cavity in Vacuum» was published in Journal of Propulsion and Power in 2016 [2]. The authors of Harold White, Paul March, James Lawrence, Jerry Vera, Andre Sylvester, David Brady and Paul Bailey (NASA Johnson Space Center, Houston, Texas 77058) concluded: " the quantum vacuum a dynamic medium and could potentially be modeled at the microscopic level as an the electron-positron plasma. If the vacuum is indeed mutable and degradable as was explored, then it might be possible to do / extract work on / from the vacuum, and thereby be possible to push off of the quantum vacuum and preserve the laws of conservation of energy and conservation of momentum... The 1.2 mN / kW performance parameter EmDrive is over two orders of magnitude higher than other forms of "zero-propellant" propulsion, such as light sails, laser propulsion, and photon rockets."

We need to establish the nature of the interaction of the Shawyer's engine c surrounding space environment. A striking feature of this interaction is that the microwave oscillation generated in the resonator themselves generate a support medium for the engine, with the acquisition of electron-positron pairs real mass.

Additional mass is created by the object in the cosmic medium (dark matter) due to inertial properties of the core of the vortex dipole [3]. The value added to the mass Δm , is associated with the precession frequency of the spins of the microparticles in the core of the vortex dipole, or, equivalently, with the frequency of the wave function ω s Schrödinger equation:

$$\Delta m = \hbar \omega s / c^2 , \tag{1}$$

Where c - velocity of light

A macroscopic approach, the hydrodynamic behavior (job Stokes) of the added weight of spherical bodies of any nature (including those of charged clusters) in superfluid $^3\text{He-B}$ (analogue of dark matter) is the primary source [4]. It is a complex force $F(\omega)$, exerted by the fluid on the sphere of radius R , performs periodic oscillations with a frequency ω . Within the low Reynolds numbers we have:

$$F(\omega) = 6\pi\eta R [1 + R/\delta(\omega)]V(\omega) + 3\pi R^2 \sqrt{2}\eta\rho/\omega [1 + 2R/9\delta(\omega)] i\omega V(\omega), \quad \delta(\omega) = (2\eta/\rho\omega)^{1/2} \tag{2}$$

Where ρ - fluid density, η - the viscosity, V - velocity amplitude sphere, $\delta(\omega)$ - the so-called viscous penetration depth, which increases with an increase in viscosity and a decrease of the oscillation frequency.

The real part of the expression (2) is a known Stokes force derived from the movement of fluid in the sphere. Imaginary component (coefficient of $i\omega V$) is naturally identified with the effective mass of the cluster added:

$$M_{\text{eff}}(\omega R) = 2\pi\rho R^3/3 [1 + 9/2 \delta(\omega)/R] \tag{3}$$

Origin of the added (attached) mass $M_{\text{eff}}(\omega R)$, depending on the frequency ω and the radius R of the sphere of the cluster associated with the excitation of the field around a moving cluster of hydrodynamic velocity $v_i(r)$ and the appearance in connection with this additional kinetic energy. In superfluid additional mass has two components: superfluid and normal [5].

When approaching the values of the excitation frequency of the microwave oscillation $\omega_B = \frac{mv^2}{\hbar}$ to the frequency of natural oscillations of electron-positron pairs, or, equivalently, to the Schrodinger wave function $\omega_S = \frac{mc^2}{\hbar}$, resonance occurs, causing an increase in the oscillation amplitude and an additional mass of the electron - positron pairs space environment. Thus it follows from the theory of waves, that the energy of any wave (including acoustic and electromagnetic) can be determined by the vibrating medium density ρ , the amplitude A_k wave and its frequency ν [6]:

$$W_k = \rho A_k^2 \nu^2 / 2 \quad (\text{Дж/М}^3), \tag{4}$$

Professor V.A.Etkin proposes to determine the strength of interaction the microwave engine Shawyer with space environment (F_k) as the derivative of the energy system in the space coordinate (radius vector r) [7]:

$$F_k = - (dW_k/dr) \quad (5)$$

Thus, the pair of opposing forces, whose magnitude is proportional to the frequency of the radiation waves, this ensures that the law of conservation of momentum is performed:

$$P_d + P_k = \text{const}, \quad (6)$$

Where P_d - impulse EmDrive mass m ,

P_k - excitation pulse among the mass M .

Dr. Chen Yue, Director of Commercial Satellite Technology for the China Academy of Space Technology (CAST) announced on December 10, 2016 that not only has China successfully tested EmDrives technology in its laboratories, but that a on the Tiangong 2 space station. In the EmDrive, first proposed by Roger Shawyer, the microwave cavity is an asymmetric resonator, such as a truncated cone, with one end much larger than the other. At the narrower end, a source of electromagnetic energy (such as a magnetron) bombards the cavity with microwaves. These waves are contained and bounce off the cavity's walls, creating electromagnetic resonance. September 12, 2017 Chinese scientists on the state television channel CCTV-2 announced the creation of a working version of the microwave engine EmDrive with a thrust of 100 Newtons per kW. In the near future, China is going to put into orbit a new powerful version of the EmDrive engine. For comparison, a rocket engine (RD) generates thrust of a maximum of 1 Newton per kW.

2.2. Fifth Fundamental Interaction and Anti-gravity Quantum Engine

To describe the irreversible processes of particle production in the XXI century, new theories have been created. Ones of them is the professor Baurov's "theory of the byuon" (TB) [8] and the hypothesis of a group of American physicists under the guidance of Professor Jonathan Feng. The report, published in the pages of the journal Physical Review Letters, talks about the discovery of a hypothetical dark matter particle of the "protophobic X-boson", which, according to the authors of the study, reacts only with electrons and neutrons. The X-boson of dark matter makes it possible to explain a number of experiments in which the anomalous magnetic moment of the muon is observed and is associated with the fifth interaction. According to the head of the group Jonathan Feng, if in the future experiments the fifth force is confirmed, this will completely change our view of the universe. While American scientists open the fifth force, the Russian physicist Yu.A.Baurov has already created on the basis of this force an engine that allows him to fly to Mars [9]. Four fundamental interactions are known: weak, strong, electromagnetic and gravitational. Yu.A.Baurov discovered the fifth interaction and found practical application for it, creating new space engines with an efficiency of more than 100% , because the system open to communicate with the dark matter. [8].

A further step in the improvement of Roger Shawyer's engine EmDrive was the V.S. Leonov's anti-gravity quantum engine. With a mass of about 50 kg, the vertical thrust impulse makes 500-700 kg force (more than 5000 Newtons), creating a starting vertical acceleration of more than 10g. At the same time, it should be noted that quantum engine operates on electrical energy, not consuming chemical fuel. The energy of the chemical fuel during combustion, in general, gives off heat and goes to unnecessary heating of the atmosphere and the cosmos. The quantum engine does not emit thermal combustion products, and the electric power consumption goes only to the creation of tractive power, providing for its higher efficiency in comparison with the taxiway. This is a revolution in space engine building. In addition, the distribution of loads for the device with the quantum engine in comparison with rocket engines has undeniable advantages. So, the device with quantum engine carries 90% of the payload at 10% of the mass of the engine and the power source. The launch vehicle carries 5% of the payload when it is put into orbit, and the rest is made up of chemical fuel and the rocket engine itself [10,11]

2.3. Andrea Rossi's Reactor E-Cat

Currently, the entire world excited Andrea Rossi's reactor E-Cat. The reactor is a ceramic pipe, in which nickel powder is placed under pressure with hydrogen. When there is an electrical current system heats up and emits in 3-50 times more heat than it consumes. We are talking about a

MegaWatt. Official scientific commissions have come to the conclusion that nuclear reactions cannot produce so much heat, although the isotopic composition of the nickel and changes, and self heat generation is quite mysterious, but it does not preclude the use of such facilities. Professor Lev Sapogin offers an explanation of the thermal effect from the standpoint of its Unitary Quantum Theory (UQT). The UQT equation with the oscillating charge is essentially Newton's equation for the motion of a charge in an external potential, but the amount of the charge depends on the time, speed and location. [12] In solving the problem of the harmonic oscillator, in addition to conventional fixed-making there are two new solutions (Figure 1), which were named L.Sapoginym “Crematorium” and “Maternity Home”. In the first decision of the particle oscillates in a potential well with an exponential decrease of energy, and second decision, its energy increases.

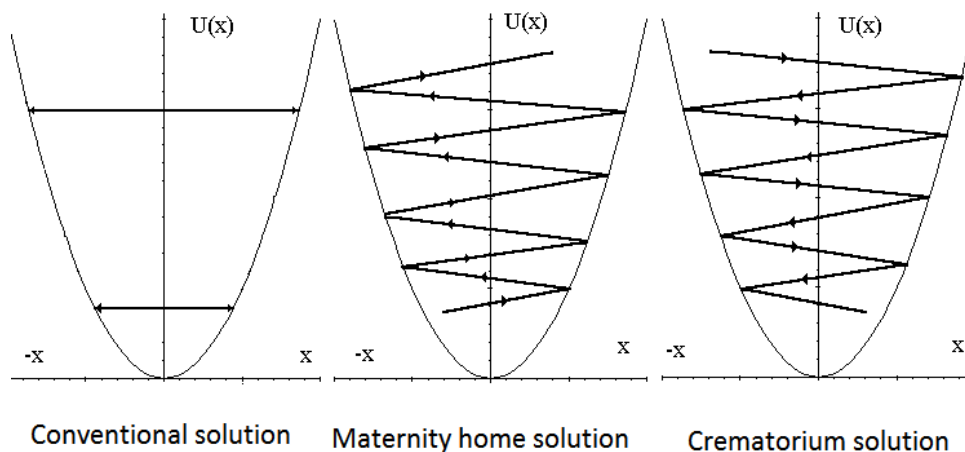


Figure1. *The solution of the harmonic oscillator problem*

The grains of powder nickel E-Cat exist cavern the size of tens of Angstroms (they play the role of potential holes) which can hit a proton with an appropriate phase and the implementation of solutions due to punches Maternity Home on the wall of the cavity of the nickel occurs heat. Scenario of these processes depends on the phase of the wave function of the cavity geometry, time, location and speed of a proton. Under the influence of the protons in the cavity strikes the small grains of nickel transformed into tiny powder. This is a completely new physical effect that has long existed, but to not found an adequate explanation.

The astonishing experimental results of A.Samgin and A.Baraboshkin should be added (Russia) [13] and of T.Mizuno (Japan) [14]. They have used, apparently independently one from each other, some special proton-conductive ceramics that is able to generate the thermal energy thousands time more than energy electrical current runs through it. In some experiments of T.Mizuno that value exceeded 70000.

There are amazing data catalytic decomposition $H_2S = H_2\uparrow + S\uparrow$ with exothermic catalytic reaction and $H_2 + S = H_2S$ also generate heat [15]. Both of these reactions do not require energy.

Assessing the thermodynamics processes L.Sapogin the above states: “But this is a direct violation of the Law of Conservation of Energy in terms of thermodynamics! A catalyst for the modern definition, does not introduce additional energy into the process which it catalyzes. However, practice shows - the catalyst brings extra energy! The only reasonable explanation for this, new solutions for a quantum oscillator in UQT.” [12]. But whether all so simple?

L.Sapogin’s Unitary Quantum Theory describes elementary particles as clots (wave packets) of a real-world. The presence or non-presence of the cosmic medium as a physical substance proper is here irrelevant. Of course, the UQT admits of energy exchange with the cosmic medium comprising an agglomeration of random oscillations, but not as a prerequisite for energy generation. L.Sapogin explains abnormal energy release by unrestricted energy growth in particles oscillating in a potential well, according to UQT differential equations for an oscillating charge, describing single micro-particles in motion. “The UQT suggests that conservation laws are only applicable over the averaged ensemble of particles and never to single ones. On the other hand, energy generation is governed by

the nature of particle motion equations, whether oscillating in vacuum or in medium.”[12]. L.Sapogin draws parallel between Schrodinger equation and equation with oscillating charges. It is known that in the case of charged particle movement in plane condenser with the constant tension to be applied classical uniformly accelerated motion $x = \alpha t^2$ appears. For the equation with oscillating charge such analytical solution exists. Let show that Schroedinger equation has physically similar solution also. Viz., let potential in Schroedinger equation be equal $U(x) = rx$. Then complete Schroedinger equation is as follows:

$$\frac{\hbar^2}{2m} \frac{d^2\Psi(x,t)}{dx^2} - rx\Psi(x,t) + i\hbar \frac{d\Psi(x,t)}{dt} = 0 \quad (7)$$

We will seek the solution in rather unusual form:

$$\Psi(x,t) = b \exp\left(i\left(\frac{m\alpha^2 t^3}{2\hbar} - i \frac{m\alpha t x}{\hbar}\right)\right) \quad (8)$$

Bu substituting (8) in (7) we get (after reducing):

$$-2m\alpha^2 t^2 + (m\alpha - r)x = 0 \quad (9)$$

This relation will be fulfilled if

$$x = \frac{2m\alpha^2}{m\alpha - r} t^2 \quad (10)$$

If in (10) impose the requirement $r \rightarrow 0$ (potential vanishes), then absolutely strange particular solution appears where the particle is able to move with constant acceleration and to generate energy no of an unknowns where origin (!!!). That effect remains valid even if we put $r \rightarrow 0$ directly in equation (7).

Common sense and the laws of conservation suggest that unlimited growth of energy of the particles in their oscillations in the potential well (maternity home) or complete loss of energy of a particle in a potential well (crematory) are possible only in the interaction of the particles with an inhomogeneous polarized cosmic environment, which has electric and magnetic perception (analogue superfluid $^3\text{He-B}$).

2.4. Paul Baumann’s Electric Generator “Testatik Machine M/L Converter”

Now we come to a project in which engineering thought made it possible to obtain “free” electric energy in installations that contradict the laws of energy conservation in electrodynamics. Non-invariance equations of electrodynamics is due not so much the existence of scalar magnetic fields, as the reality of the assumption electro and magneto receptive medium (neo-ether). Full invariance of the equations of electrodynamics is valid only in a completely empty Einstein's SRT. I should note that in the world successfully work already a lot of devices

with an efficiency of $> 100\%$. The most famous and long-lived project is a DC generator, which has been successfully operating for about 30 years as a perpetuum mobile, i.e. it produces energy from the vacuum. In Switzerland, the device is called *Testatik Machine M/L Converter* of the *Methernitha religions group*. Swiss physicist Paul Baumann is an inventor of this "gratuitous" energy source. Externally, the device looks like an electrostatic machine with Leyden jars. It has two acrylic disks with 36 narrow sectors, made of thin aluminium. The machine is manually driven by rotating disks in different directions. A rotation speed is 50 to 70 rp/m. Having been firstly driven, disks spontaneously rotate. At that, we achieve DC voltage of about 300 to 350 V with the 30A current. The installation was made in four variants with a power of 0.1, 0.3, 3 and 10 kW. Mechanical energy spent to rotate disks is only about 100 mW, hundreds of thousand times less than generated electric energy is. The largest installation for 10 kW has a diameter of plastic disks of more than 2 m, while the smallest - 0.2 m. The machine with 3kW has a weigh of about 20 kg. Such a system is noiseless, compact and clean in an environment safety aspect. The installation with 10 kW operates today in a town of Linden near Bern and belongs to a religious commune. A principle of machine operation has not been still entirely clear even to the inventor himself. To clarify this, the commune gave as a present a 100 W power installation to Stefan Marinov. In 1989, Professor S. Marinov published his book *The Thorny Path of Truth* that is a documentary evidence for broken conservation laws. Later, getting familiar with papers by G. Nikolaev, S. Marinov suggested that in his invention Paul Baumann had implemented theoretical objectives of new electrodynamics. A generator operates on a principle of separated charges between two metal spheres insulated from the earth and each other. At the same time, rotation

of disks after the first push and separation of charges in the inter-disk space, occur under an influence of the same longitudinal forces that rotate a rotor of the engine. Stefan Marinov announced his interest in Nikolaev's papers. He reproduced some G. Nikolaev experiments and built his paradoxical electromotor, functioning against laws of electrodynamics. Stefan Marinov also published a monograph, a main theme of which was new theory electrodynamics by G. Nikolaev and a principle of operation for the electromotor that he called *SIBERIAN COLIA*. A physical nature of rotation of engine axis, fixed on two bearings, with current (AC or DC) flowing through external bearing rings (see Figure 2), G. Nikolaev explained as follows. In this experiment, with a constant angular velocity of rotating axis on bearings, dimensions of a circuit and hence its L inductance do not change and a dependence for the circuit energy

$$WL = \frac{Lj^2}{2} \tag{11}$$

From which we can find the force influencing the axis

$$F = \frac{dWL}{dx} = -\frac{j^2}{2} \frac{dL}{dx} \tag{12}$$

Turns out to be essentially unacceptable (L=const., dL/dx=0, F=0).

An analysis of functioning for devices of such type shows that driving forces in them are not potential transverse Lorentz forces applied to radial rotation currents of an anchor, but longitudinal reaction forces applied to currents in supplying rails. [16].

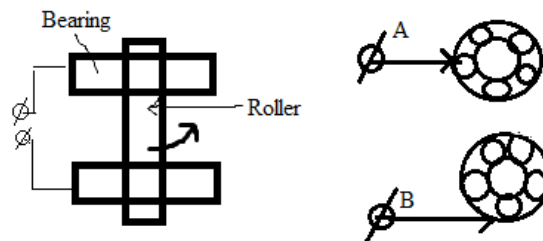


Figure2. Nikolaev's motor («SIBERIAN COLIA»)

It should be clarified that in case of symmetric current input (Figure 2.A), an engine axis starts spinning in any direction after the first push. In case of asymmetric current input (Figure 2.B), the axis starts spinning without the prior push. A motor and a generator in the device *Testatik Machine M/L Converter* are combined together.

A generator operates on a principle of separated charges between two metal spheres insulated from the earth and each other. The circulation theorem, under which efforts to replace charges would be equal to the energy released when the electric current flows through, after charges have been separated, is not true for single electric charges. Professor L. Sapogin proved this in the Unitarian Quantum Theory [12].

2.5. Generation of Electric Power at a Subatomic Level

An authors of the project is a group of enthusiasts headed by professor L. Sapogin and astronaut pilot V. Dzhaniybekov.

In his interview in 2012, professor L. Sapogin said: “The issue is a fundamentally new way to produce electrical power. Since Faraday time people have been generating electric current the moving a conductor within a magnetic field. Our system does not include the magnetic field at all. We have almost completed building of a new installation. It is based on implemented quantum solutions the Unitary Quantum Theory (UQT). Within UQT, both appearing and disappearing substance (energy) is possible, and we can apply it. We need to select processes that release excess energy, while standard quantum mechanics cannot tell us how to do it. At the same time, UQT has such potential. We are perhaps achieving the time when a scientific theory, followed by engineering thought, would make it possible to obtain power on installations based on features of the subatomic level in substance structure.” [12].

2.6. System to Wirelessly Transmit Energy

The most well-known among them is “The Global System to Transmit Energy” wirelessly project in part implemented by N. Tesla in 1908 in his laboratory on Long Island near New York. In 1927, in

paper "The World System" N. Tesla wrote, "A fundamental distinction between now applied translational system and the system, which I would introduce, is that currently a transmitter emits energy in all directions, whereas within the system drafted by me to any place on the earth it only transmits the force field, while energy as such travels following a certain predetermined route. A striking fact is that energy mainly travels along a curve, i.e. follows the shortest way between two dots on the earth's surface and reaches a receiver without of the any dispersion. A wireless transmitter generates longitudinal waves in the near-Earth electric environment. Its behaviour looks like that of sound waves in the air, except for the fact that huge elasticity and extremely low density of the medium (ether) makes their speed greater than that of the light. Average surface speed is about 471,200 km/sec. At that, distribution of currents along the earth's surface more looks like the moon's shadow gliding across the globe"[17]

The project of the wireless transmission of energy Nikola Tesla, includes the following inventions and discoveries:

1. Transformer Tesla. This device played a revolutionary role in the creation of electrical oscillations and made it possible to generate currents many times greater than those that have ever been received in the usual way.
2. Transmitter with amplifying action. This is Tesla's best invention - a resonant transducer that is precisely designed to resonate with the globe and thanks to its electrical constants and properties, and the design becomes extremely efficient in wireless power transmission. The distance in this case is absolutely irrelevant, it is even possible to increase the intensity of transmitted pulses as you move away from the installation.
3. Wireless Tesla system. This system is the only known way of economical transmission of electric energy over long distances without wires. It allows you to transfer energy in any desired amount right through the globe, with a loss not exceeding a few percent.
4. The invention of Tesla allows individual adjustment. It makes possible the transmission of signals or messages in top secret and exclusively in both active and passive modes.
5. "Earth's constant waves". This remarkable discovery means that the Earth reacts to electrical vibrations of a certain range of waves just like a tuning fork of a certain wave. The nature of these waves is close to the phenomenon of the formation of standing electric waves in the space of the Earth-ionosphere, dubbed "Schumann resonance" named after the professor of the Munich University, VO Shuman, who described him in 1952.

One can capture the law on energy transmitted wirelessly from a picture by N. Tesla (figure 3). In an explaining text, N. Tesla wrote, "When a transmitter is working, two effects may be achieved, i.e. electromagnetic waves pass through the air, while current passes through the Earth. The former are distributed with the speed of light and a loss of their energy is irreparable. The latter keeps flowing with a changing speed depending on the cosecant of an angle, which makes a radius drawn from any arbitrary point on the axis of wave symmetry. At the beginning, the speed is infinitely high, but it has been gradually decreasing until passes through a quarter circle and become equals to the light speed. From that moment, it is increasing again to become infinitely high at the opposite side. Instead of transmitting sound vibrations to a remote wall, I sent electrical oscillations deeply into the earth, and instead of the wall, I got an answer from the Earth. Instead of echo, I got a standing electric wave reflected from the far depths."[17].

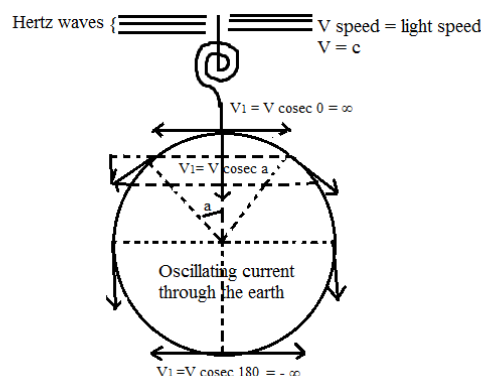


Figure3. System to wirelessly transmit Energy

N. Tesla draws up a patent concerning the wireless transmission of energy [18,19].

Today Prof. Dr.-Ing. Konstantin Mail realized the N.Tesla's project of wireless energy transfer by with modern equipment and theoretical justification [20].

2.7. Torsion Transmitting Devices

History of another project for wireless data transmission to any point of The Solar System began in the 60-ies of the 20th century and referred to names of N. Kozyrev, G. Shipov and A. Akimov. Professor from the Pulkovo Observatory N.A. Kozyrev in time of his astronomical observations of the star Procyon using a telescope, equipped with a special signalling sensor, found unknown radiation. Herewith the telescope was not focused on a place, which was seemingly emitting visible light, but the place where the star was actually located at that time, taking into account the light speed and a direction and speed of the star motion.

A propagation velocity of unknown radiation was significantly higher than the light speed (a signal reaches the earth almost instantly). N. Kozyrev recognised the "time" as a radiation source, as in math aspect he concluded that in the star all the forces were balanced to [21].

However, in the late 60-ies, young scientists A. Akimov and G. Shipov reproducing N. Kozyrev's experiments concluded that it was not the time as a source of mysterious radiation, but massless inertia vortices, which they called torsion radiation. A nature of inertia vortices formation has been still unclear, but having accepted the hypothesis of dark matter, we can assume that a reason for vortices formation is outrage of the space environment. In his paper G. Shipov writes. "Torsion radiation looks like massless vortices of inertia, which as their only physical feature have a spin." [22].

A direction of vortex rotation determines its charge. Herewith having the same charges rotation attract each other, while charges unlike repel. Based on theoretical constructs by member of Academy of Science G. Shipov, and professor A. Akimov in the 90-ies of the 20th century developed torsion transmitting devices that presented fantastic opportunities in communications. Receiving and transmitting equipment was ready to get patents; including producing a prototype, but a lack of funding prevented the project completion. [23]

3. EXAMPLES, WHEN THE LATENT ENERGY OF THE UNIVERSE BECOMES OBVIOUS

N. Kozyrev, professor at the Pulkovo Observatory, devoted forty years of his activities to solve an issue of stellar systems evolution. In his well-known work *The Causal Mechanics*, he wrote, "It is amazing that even such a specific question as why the Sun and the Stars shine, i.e. why they are in a thermal equilibrium with the surrounding space, cannot be solved within of the known physical laws. This conclusion follows an analysis of astronomical data. Degraded conditions of systems would have to prevail, whereas they almost never occur. A challenge is to understand why certain systems and celestial bodies themselves keep existing despite their short relaxation time?" [21]. This statement by the astronomer N. Kozyrev was confirmed in the new research of Professor F. Shakirzyanov, head of the department at the National Research University "MPEI". Local thermonuclear reactions in stars occur at a relatively low temperature of the latter, thanks to the additional energy of the galactic and intergalactic medium [24]. A further research led N. Kozyrev to a conclusion that a cause for the evolution of space systems is an energy, inflowing "from the outside." He found that active properties on the part of the surrounding space environment were only represented in time of system reconfiguration, when, within the system, irreversible, non-integrable processes were prevailing, differences between the past and the future appeared. [21]

The second example of the manifestation of the hidden energy of the cosmic environment on the scale of the universe can be the motion of planets according to Kepler's laws, that is, according to inertial trajectories. I. Kepler formulated his laws on the basis of analysis of long-standing astronomical observations of Tiho de Braga in 1609-1619 and Newton fifty years later received Kepler's third law, introducing into the spatial model of the universe the forces of gravity and inertia. This was a brilliant confirmation of the correctness of Newton's theory of gravitation.

$$K = GM \frac{m_{gr.}}{m_{in.}} = \frac{R^3}{T^2} \quad (13)$$

Where

m_{gr} is the planet gravitational mass, interacting with the Sun, the M mass, produces a centripetal force of gravity;

m_{in} is the inertial mass of the planet. It is rotating around a circle of R radius and producing a centrifugal force of repulsion,

R is a distance from the centre of the planet to the centre of the Sun,

T is a period of the planet rotation around the Sun,

G is the gravitational constant, K is

Kepler's constant.

It should be noted that the Newton equation and the Kepler law are identical only if there is a stationary inertial motion of the systems. To describe non-inertial trajectories, when the planet passes into a nonequilibrium state, Kepler's laws are not used correctly. In this case, the principle of the equivalence of masses is violated and Newton's equation can be used. This is easy to prove by comparing the value of the Kepler constant for Mercury and the planets of the Earth group (Venus, Earth, Mars). Kepler calculated the value of the constant K for 8 planets:

$$K = (3.33 - 3.35) 10^{24} \text{ km}^3 \cdot \text{year}^{-2}$$

Note the difference in the meaning of the Kepler constant. For planets of the terrestrial group, rotating along stable, slightly perturbed orbits, $K = 3.35$, and for Mercury, whose orbit is subject to strong perturbations because of its proximity to the Sun, the value $K = 3.33$, that is, 1% less. According to formula (13) this is equivalent to an increase in the inertial mass of Mercury relative to the gravitational mass by 1%. Perhaps the reason for the growth of the inertial mass is the perturbation of the cosmic medium caused by the nonequilibrium state of Mercury, when moving along the orbit, when the velocity vector of the planet constantly changes, forming vortices in the medium. The pressure in the vortex region formed behind the planet will become lower, which in turn will cause an increase in frontal resistance and, as a result, an additional inertia field. The ratio between the frictional resistance and the pressure resistance depends on the Reynolds number (Re). The more Re is, the more a role of frontal resistance is. Ilya Prigozhin called this effect "an active influence on the system from the outside, with the transition of the system in a nonequilibrium state." [25].

Professor I. Prigogine, winner of the Nobel Prize wondered: "Is the Universe a closed system in terms of thermodynamics?" Answering to this question, I. Prigogine came to the conclusion that in a steady condition, an active influence from the outside on the system is negligible, but it can become of major importance when the system goes into a non-equilibrium condition. Herewith, the system becomes non-integrable. [25]. Active contribution of cosmic medium appears in cosmology in the maintenance of constant energy thickness under the accelerated extension of the Universe. V. Rubakov, a member of the Russian Academy of Sciences, writes: "There is no law of conservation of energy in cosmology. The universe expands, but energy thickness is constant. Volume increases and the energy in that volume increases, too. Where does it come from? Nowhere, no law of conservation of energy"[26].

A group of engineers headed by Dr. Y.I. Volod'ko in the Lavochkin NPO established effect of increasing the velocity of the gas after exiting the narrow slit [27]. It follows from numerous experiments that the kinetic energy of the flowing out gas exceeds by twice and more the energy spent for air compression. In other words, the gas molecular speed at the nozzle output exceeds the input molecular speed at the beginning of the nozzle by 2-4 times. This incomprehensible effect contrary the modern gas dynamics and leads to a considerable growth of excess pressure. On this basis, it is possible to create a completely new type of aircraft flying. About 80% of the thrust in such a device is due to the expense of excess static pressure at the nozzle section, and the remaining 20% will be due to the reactive action. Dr. Y.I. Volod'ko believe that the resultant additional energy is taken from the environment[27]. L. Sapogin totally disagree with it and give another explanation to these experiments: "As was mentioned in the UQT, the absence of translation invariance of movement equations with an oscillating charge imply there are no energy and impulse conservation laws for them. In this case a particle in a narrow slot will periodically bump into the walls while

moving. As a result of many bumps can accumulate extra energy. With certain geometry of the slot, the processes of particle energy reduction after many bumps can be suppressed. It slightly resembles the “maternity home” solution for the processes happening in a harmonic oscillator” [12].

3.5 In Usherenko’s engineering technologies, anomalous energy release mode ultradeep penetration of particles of 100 microns in diameter target at a speed of 1 km/s, exceeds the kinetic energy of the particles is 100 or more times. By choosing different materials for both the drummer-particles, as well as for target-barriers S.M.Usherenko developed the technology to create new composite materials [28].

In 1969-1971, being a post-graduate student of the Russian State Pedagogical University, St. Petersburg, Department of Physical Electronics I dealt with the phenomenon of secondary electron emission. During the work I paid attention discovered the effect of unexplained energy growth of clusters of secondary electrons. The composition of my vacuum installation for the investigation of secondary electron emission included:

1. The spherical condenser was a glass flask 0.4 m in diameter with a metal layer applied to the flask wall connected to electrodes soldered to the walls of the flask. Inside the flask, a deep vacuum was created with the aid of vacuum pumps;
2. A metal target placed in the center of the sphere;
3. An electron gun capable of generating primary electrons by heating a spiral, focusing them into a narrow beam and directing it to a target, giving them a predetermined energy (relativistic velocity).

Secondary electrons were generated by impact and deceleration of primary electrons in the target and recorded on the inner walls of a spherical capacitor. Between the target and the metal layer on the walls of the spherical capacitor, a predetermined potential difference was established. The Studies of secondary electron emission were carried out under conditions of deep vacuum. In the case of secondary emission, the electrons emitted from the target have are approximately evenly distributed initial phase, since secondary current caused by electrons having a kinetic energy larger than the height of the potential barrier (output work). The existence of a large number of electrons with the same phase facilitates the formation of clusters. It should be noted that the emergence of excess energy clusters and their discovery due to the fact that in contrast to the increase in the energy of a single electron, clusters of electrons experimental easier to register growth of energy and reliably separate them from the primary electrons. These clusters acquire during acceleration an energy that in tens of times the calculated value of the energy of charge for a given potential difference.

A similar effect of excess energy generation during the acceleration of charged clusters, which appear on pointed cathodes with large currents of autoelectronic emission. The first research in this sphere was started by Kenneth Shoulders. In Russia, these studies were conducted by Academician G.A. Month in 1966. These researchers discovered two extremely interesting facts:

1. Electron current is generated by sufficiently stable electron clusters consisting of 10^{11} electrons with a size of the order of 20 microns.
2. These clusters acquire during acceleration an energy, which exceeds by 30 and more times the value possible when the charge passes the used potential difference.

These phenomena (especially the second one) are absolutely incomprehensible from the point of view of the ordinary physics.

4. CONCLUSION

The biggest mistake in the Einstein's relativistic theory is that it ignores the contribution of the space environment (dark matter) in the energy balance of the laws of conservation of energy and momentum. In the article “Experimental relativity violations of the principles of equivalence and conservation of energy,” the famous physicist Professor Stefan Marinov wrote: “Did you know that relativism (SRT and GRT) are not true science? - True science necessarily rests on causality and the laws of nature, given to us in physical phenomena (facts). In contrast to this SRT and GRT are constructed on axiomatic postulates, that is fundamentally unprovable dogma, in which followers must believe these teachings.” The nature of Casimir forces, longitudinal forces of magnetic interaction, effect Lamb - Rutherford shift of the spectral lines of the hydrogen atoms and the other

effects of the space environment in the dynamics of the microcosm and the macrocosm are a mystery to science. Analyzing the situation, we have to admit that the real reason for this is the expulsion of dark matter from theoretical physics and its replacement by the physical vacuum as a of the environment without mass. An important feature of an inhomogeneous space environment, which has electric and magnetic perception, is the formation of local structures that have mass and energy, under the influence of certain external influences. N.A. Kozyrev called this property of the space environment a "living principle", which is not in our science. Successful tests of Roger Shawyer's engine EmDrive without fuel, Baurov's engine and Leonov's anti-gravity quantum engine, introduction of Andrea Rossi's reactor E-Cat with an efficiency of over 100% and long-term work of Paul Baumann's electric generator "Testatik Machine M/L Converter" without energy consumption, successful tests of Nicola Tesla's of the System to wirelessly transmit Energy is a crushing blow to the modern scientific paradigm, which brought to a crisis of theoretical physics.

REFERENCES

- [1] Shawyr R.C. The EmDrive Programme – Implications for the Future of the Aerospace In-dustry. SPR Ltd UK. CEAS 2009. Manchester . (2009)
- [2] Harold White, Paul March, James Lawrence, Jerry Vera, Andre Sylvester, David Brady and Paul Bailey. Measurement of Impulsive Thrust from a Closed Radio-Frequency Cavity in Vacuum, - NASA Johnson Space Center, Houston, Texas 77058, Journal of Propulsion and Power, (2016)
- [3] Konstantinov S.I. Cosmic Medium (Collection of articles) , – Lambert Academic Publishing, Deutschen Nationalbibliothek, Deutschland/Germany, (2016)
- [4] Boldyreva L.B. What does physics granting physical vacuum properties of superfluid $^3\text{He-B}$ -Moscow: URSS, (2011)
- [5] Shikin V. Low – frequency anomalies of effective mass of charged clusters in liquid helium, - Low Temperature Physics, Volume 39, No. 10. (2013)
- [6] Crawford F. Berkeley physics course. T.3: Waves. - M.: Mir, 529 p. (1965)
- [7] Etkin VA Energodinamika (fusion energy transfer and transformation theories) .-SPb.: "Science", 409 p. (2008)
- [8] Yu.A. Baurov, Yu.G. Sobolev, F. Meneguzzo, Fundamental experiments on the detection of the anisotropy of physical space and their possible interpretation, - M: Bulletin of the Russian Academy of Sciences: Physics ISSN, Vol.79, No.7, pp.1047-1052, (2015)
- [9] Baurov Yu, Lorenzo Albanese, Francesco Meneguzzo, Menshikov V.A., New spacecraft and protection of the planet from the asteroid hazard, - American Journal of Astronomy and Astrophysics; 2(2): 54-61, Published online November 10, pp.54-61, (2014)
- [10] Leonov V.S., Quantum Energetics: Theory of Superunification.- Viva Books, India, (2011)
- [11] Leonov V. S. Quantum Energetics. Volume 1. Theory of Superunification. Cambridge International Science Publishing, (2010), 745 pages
- [12] Leo G. Sapogin, Ryabov Yu.A., Boichenko V.A. The Unitary Quantum Theory and a New Sources of Energy. - Science Publishing Group, USA.(2015)
- [13] Samgin A., Baraboshkin A. et al. The influence of conductivity on neutron generation process in proton conducting solid electrolytes, - In: Proceedings of the 4th International Conference on Cold Fusion. Palo Alto, USA, v.3, p.51-57. (1994)
- [14] Mizuno T., Enio M., Akimoto T. and K.Azumi Anamalous heat evolution from SrCeO₃-type proton conductors during absorbtion/desorbtion of deuterium in alternate electric field, - Proceedings of the 4th International Conference on Cold Fusion, December 6 9, 1993, Hawaii, vol.2, p.14., EPRI, Palo Alto, USA. (1994)
- [15] A. N. Startsev, O. V. Kruglyakova, Yu. A. Chesalov, S. Ph. Ruzankin, E. A. Kravtsov, T. V. Larina, E. A. Paukshtis. Low Temperature Catalytic Decomposition of Hydrogen Sulfide into Hydrogen and Diatomic Gaseous Sulfur. - Top Catal 56:969–980 DOI 10.1007/s11244-013-0061-y (2013)
- [16] G.V.Nicolaev, Modern electrodynamics and reasons for its paradoxical nature. Prospects to make consistent electrodynamics. Theory, experiments, paradoxes. - Tomsk: Politechnical University. (2003)
- [17] Tesla N. Papers.- Moscow: Russian panorama, 2010
- [18] Nikola Tesla: Apparatus for transmission of electrical energy.US-Patent No. 645,576, N.Y. 20.3.1900.
- [19] Nikola Tesla: Art of transmitting electrical energy through the natural mediums, US Patent No. 787,412, N.Y. 18.4.1905.
- [20] Konstantin Meyl: Scalar Waves, INDEL-Verlag. (2017) (see: <http://www.k-meyl.de>).

- [21] Kozyrev N.A. Selected papers.- St.Petersburg.: LSU (1991).
- [22] Shipov G.I. The theory of the physical vacuum. Theory, Experiments and Technologies, - Moscow: Science. (1997)
- [23] Kyucharyants, V. Silent symphony of emptiness. - Science and Religion, N3. (2011)
- [24] P.A. Butyrit, F.N. Shakirzyanov On photonic domains - M. : Bulletin of the Russian Academy of Sciences: Physics, Vol.81, No.8, 2017
- [25] Prigogine, I., Stengers I. Time, Chaos, Quantum. –Moscow: Progress. (1994)
- [26] Rubakov V.A. Energy is a dark matter, Scientific American, No.4, (2014)
- [27] Volod'ko Y.I., The laminary flow of compressed air into the atmosphere and fuelless monothermic engine, - (in Russian), The Scientific Journal of JFRM, n 1-12, Moscow, Obshchestvennaya Pol'za publishers. (1998)
- [28] Usherenko S.M. The Ultra –Deep Penetration of Particles into the Walls, - Minsk: Research institute. (1998)

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