New Scientific Paradigm and Breakthrough Technologies

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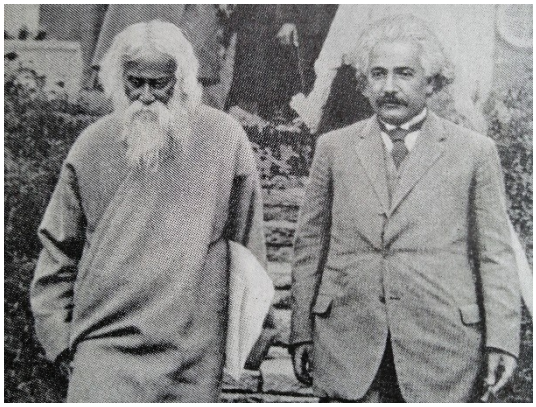
Introduction



In 1930, two great men, Rabindranath Tagore and Albert Einstein, met in Germany. The main question they discussed was, does God exist? Rabindranath Tagore claimed that God exists (he called him the Universal Man), and Albert Einstein, being a spontaneous materialist by virtue of his profession, denied the existence of God. After this meeting, A. Einstein published an article "Religion and Science" [1], in which he expressed a remarkable idea. He said that if God exists, we must abandon the classical principle of causality. From the point of view of modern science, the rejection of the classical principle of causality (cause precedes effect) means that we recognize the existence of signals whose speed exceeds the speed of light, and even such signals that move from the present to the past. In 1930, science was based on the assumption that the speed of light is the limiting speed of propagation of signals, and A. Einstein himself used this assumption when creating a Special [2] and General [3] theory of relativity. But since then, a lot of time has passed and experiments have appeared in science that show that there are signals in Nature that are faster than the speed of light. For example, three independent astronomical observatories in Russia [4-6] recorded superluminal signals coming from stars, and these results were published in Reports of the USSR Academy of Sciences [5]. Another authoritative scientific journal [7] reported on the observed superluminal relative motion of the diverging components of the galaxy NGC 1275, occurring at a speed of ~5*c*. 5 years after his meeting with Rabindranath Tagore, A. Einstein published a paper in 1935 [8], in which he concluded that in quantum mechanics there is a confusion of wave functions, which generates a "terrible long-range effect" (the expression of A. Einstein) that exceeds the speed of light. A. Einstein would be surprised if he knew that in the early 21st century, his guesses about superluminal interactions due to the confusion of vol-new functions would receive experimental confirmation [9-14]. Physics is an experimental science, and the final word in physics belongs to the experiment, not to our

theoretical constructions. Therefore, following A. Einstein, the results of superluminal experiments can be considered as the first indirect proof of the existence of God.

Of course, this conclusion takes us beyond the existing materialistic paradigm, in which the speed of light is the limit. From the extended theory of relativity, which allows for superluminal velocities, it follows that in Nature there must be imaginary and negative masses and, accordingly, imaginary and negative energies [14,15]. This is what a new scientific paradigm predicts - the theory of Physical Vacuum [16], whose equations allow for superluminal and instantaneous signals moving at infinite speed.

1. The solution of first Einstein's problem

The theory of Physical Vacuum appeared as a result of the development of Einstein's ideas related to the search for equations of the Unified Field Theory [17-19]. Einstein's program involves solving two fundamental problems of physics: 1) geometrization of electrodynamic equations (Einstein's first problem [20,21]); 2) geometrization of quantum fields (Einstein's second problem [22-24]).

The principal solution to the first Einstein problem was given in [21], using the book by W. Pauli [25], the work of P. Dirac [26], the article by A. Einstein-M. Grossman [3] and the book by A. Fock [27]. The main conclusion made by W. Pauli and P. Dirac is that the applicability of the electrodynamic equations (quantum and classic) is limited by the condition of the weak electromagnetic field [28]

$$\left|\frac{e^3}{m^2c^4}F^{ik}u_k\right| \approx \left|\frac{e^3}{m^2c^4}\frac{F}{\left|\sqrt{1-v^2/c^2}\right|}\right| \ll 1, i,k=0,1,2,3. \quad (1)$$

Here e, m is the charge and mass of the particle, c is the speed of light, F^{ik} is the electromagnetic field tensor, and $u_k = dx_k/ds, u_k u^k = 1$ -4D velocity vector. For a non-relativistic velocity of an electron, for example, the inequality implies the value of the fields $E, H \ll 10^{16} units\, SGSE$, for which the electrodynamic equations are performed with great accuracy. For strong electromagnetic fields $E, H \geq 10^{16} units\, SGSE$ the electrodynamic equations are not applicable and should be replaced by equations that describe the electrodynamics of strong fields [26]. Condition (1) is violated in weak fields due to $\sqrt{1-v^2/c^2}$ standing in the denominator if the velocities of charged particles become ultrarelativistic. Theorists make a strategic mistake when they claim that the four-dimensional record of the Maxwell-Lorentz equations and the quantum Maxwell-Dirac equations has relativistic invariance. Any physical theory formulated within the framework of special relativity cannot be relativistically invariant in principle, since there are no inertial reference systems in Nature. All observed physical reference systems associated with real physical objects are accelerated and can only be considered inertial with a certain degree of approximation. Therefore, in physics, it became necessary to find general relativistic equations of the electromagnetic field.

In [3], A. Einstein showed that the vector potential formed by the components $g_{00}a$ nd $g_{\alpha 0}$, can be distinguished from the tensor potential of the gravitational field g_{ik} , while the three-dimensional part of the geodesic equations in the non-relativistic approximation takes the form of the "gravitational" Lorentz force. On the other hand, in the weak field approximation, A. Fock in the book [27] obtains linear equations similar to Maxwell's equations for the components g_{00} and $g_{\alpha 0}$. Einstein believed that the linearity of Maxwell's equations indicates their approximate nature and that for strong fields, the electrodynamic equations must differ from Maxwell's equations. Guided by these ideas, the author in 1972 published an article "General Relativistic nonlinear electrodynamics with tensor potential," whose equations describe strong electromagnetic fields and have a form similar to Einstein's equations [21]

$$R_{ik}-\frac{1}{2}g_{ik}R=\frac{8\pi k}{c^4}T_{ik},(2)$$

where the Ricci tensor R_{ik} is defined from the Riemann tensor $R^{i}_{jkm}=-2\frac{e}{mc^2}\partial_{\lambda}\begin{Bmatrix}k\\ \lambda\\ j\vee m\end{Bmatrix}E^{i}_{\lambda}+\begin{Bmatrix}k\\ \lambda\\ j\vee m\end{Bmatrix}\begin{Bmatrix}\lambda\\ i\\ k\end{Bmatrix}$ parametric Riemann geometry with the metric tensor $g_{ik}(x^i,k)=\eta_{ik}+k\,a_{ik},\eta_{ik}=\eta^{ik}=diag(1-1-1-1)$, depending on the proper charge $k=e/m$ of the particle. In equations (2), the intensity of a strong electromagnetic field $E^{i}_{jk}=\frac{-c^2}{2}g^{\Im}(a_{jm,k}+a_{km,j}-a_{jk,m}),_k=\partial_k$ is determined by the tensor potential $a_{ik}=a_{ki}$ from which the vector potential of the Maxwell-Lorentz electrodynamics is constructed

$$A_0=\frac{c^2}{2}a_{00},A_{\alpha}=a_{\alpha 0}c^2,\alpha,\beta=1,2,3.$$

In the energy-momentum tensor $T_{ik}=\rho c^2u_iu_k$ the density of ρ for a point charged particle is $\rho=Ze\delta(x_i),Z=1,2,3\ldots$. The equations of motion of the field source follow from the field equations (2) after using the Bianchi identity and, in general, are written as $\nabla_i T^{ik}{}_{\square}=0$. If the field is weak, we have

$$\left|k\,a_{ik}\frac{dx^i}{ds}\frac{dx^k}{ds}\right|\ll 1.(3)$$

This condition is equivalent to condition (1), the field equations (2) pass into Maxwell's equations when the condition (3) is met. In strong electromagnetic fields $E, H \geq 10^{16} units\, SGSE$ which begin to strongly influenceon distances of the order r $< 10^{16} sm$ i.e. where strong and weak interactions were detected. Using solutions of equations (2), the author and his colleagues showed [29,30] that the *nuclear interactions of charged and neutral particles are described by solutions of equations (2) in a fundamental way, without introducing phenomenological nuclear potentials.*

2. The solution of second Einstein's problem

A. Einstein believed that the general principle of relativity is the only way to avoid such an "unreal thing" as an inertial frame of reference. Therefore, from the very beginning, the equations of physics must be formulated in accelerated reference systems. For example, the equations of mass motion m of Newton's mechanics in accelerated reference systems look like [31]

$$m\frac{d\vec{v}}{dt} = \frac{-\partial U}{\partial \vec{r}} - m\vec{W} - m[\vec{\omega}[\vec{\omega}\vec{r}']] - 2m[\vec{\omega}\vec{v}'] - m[\frac{d\vec{\omega}}{dt}\vec{r}'], (4)$$

where $\vec{F} = -\partial U / \partial \vec{r}$ - the external Newtonian force and $-m\vec{W} - m[\vec{\omega}[\vec{\omega}\vec{r}']] - 2m[\vec{\omega}\vec{v}'] - m[\frac{d\vec{\omega}}{dt}\vec{r}']$ - the four forces of inertia. The (quasi)inertial reference system is such a system in which the forces of inertia can be neglected. In 1659, Christian Huygens first wrote an analytical expression for the force $-m\omega^2 r$ and introduced the term "centrifugal force", and Newton was the first to raise the question of what is the source of inertia forces? Since then, three and a half centuries have passed, but there is still no clear answer to this question in the scientific literature, which indicates its extreme importance for theoretical physics. In fact, each of us constantly in everyday life feels (often unconsciously) the action of those fundamental forces: gravitational, electromagnetic, and inertial forces. All these forces have a field nature, determined by gravitational, electromagnetic fields and the field of inertia. According to the equations of Einstein's theory of gravity and the equations of general relativistic electrodynamics (2), strong gravitational and electro-magnetic fields change the geometry of the event space and, as it turned out, the field of inertia changes the geometry of the event space, generating torsion and curvature [16]. Experimentally

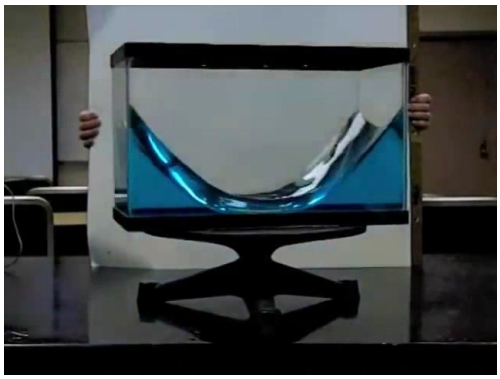


Fig. 1. Curvature of the water surface when the vessel rotates

this can be demonstrated by rotating the liquid in the vessel as shown in Fig. 1. We see that the surface of the water is curved and the line lying on the surface of the water is a parabola (before the rotation, the line was straight). Analytical calculations that give a parabolic view of the surface are not possible without taking into account the centrifugal force of inertia. But the force of inertia is generated by the field of inertia, so the unambiguous answer to Newton's question is: the source of the curvature of the water surface in a rotating vessel is the field of inertia, which generates the forces of inertia. The term field of inertia was first used by A. Einstein formulated a strong equivalence principle, which reads as follows: the action on the mass of a uniform field of inertia is locally equivalent to the action of a uniform gravitational field. The strong equivalence principle is experimentally performed in a free-falling A. Einstein Elevator and the equations of motion (4) in this case have the form

$$m\frac{d\vec{v}}{dt}=m\vec{g}-m\vec{W}=0,(5)$$

where $\vec{g}$ is the acceleration of free fall. It really follows from (5) that locally (in a free-falling Elevator) the uniform gravitational field $\vec{g}$ is equivalent to the uniform field of inertia $\vec{W}$. Turning to equations (4), we see that three forces are generated by rotation in the spatial angles $\varphi_1,\varphi_2,\varphi_3$ in the three-dimensional space of coordinates $x,y,z,$ and the fourth force $-m\vec{W}$ is generated by rotation in the space-time angles $\theta_1,\theta_2,\theta_3$ [16]. This raises a theoretical question if the forces and fields of inertia are generated by rotational motion in nonholonomic, dimensionless coordinates $\varphi_1,\varphi_2,\varphi_3,\theta_1,\theta_2,\theta_3$ and the experiment shows a change in the internal geometry of the rotating fluid (Fig.1) what is the geometry of the rotating material medium? And here's what the famous mathematician Eli Cartan thinks about it: "The rotation of matter generates torsion of space [32]", while E. Cartan's student, the talented mathematician J. Schouten associates the nonholonomic coordinates $\varphi_1,\varphi_2,\varphi_3,\theta_1,\theta_2,\theta_3$ with the nonholonomic object [33]

$$\Omega^{\cdot\cdot i}{}_{jk}=e^{i}{}_{a}e^{a}{}_{[k,j]}=\frac{-1}{2}e^{i}{}_{a}\left(e^{a}{}_{j,k}-e^{a}{}_{k,j}\right)\neq 0,,_k=\frac{\partial}{\partial x^k},(6)$$
$$i,j,k...=0,1,2,3,a,b,c...=0,1,2,3,$$

where $e^{a}{}_{k}$ is a nonholonomic tetrad that satisfies orthogonality conditions

$$e^{a}{}_{i}e^{j}{}_{a}=\delta^{j}{}_{i},e^{a}{}_{i}e^{i}{}_{b}=\delta^{a}{}_{b}.(7)$$

The four vectors $e^{a}{}_{k}$ form the basis of a relativistic frame of reference when it is associated with a physical object. Such a basis has 10 degrees of freedom, described by the four holonomic translational coordinates x,y,z,ct and the six nonholonomic rotational coordinates $\varphi_1,\varphi_2,\varphi_3,\theta_1,\theta_2,\theta_3.$ The simplest 10-dimensional geometry with characteristics

(6,7) that generalizes Riemann's geometry is the geometry of absolute parallelism $A_4(6)$, whose connection is written as [16]

$$\Delta^i_{jk}=\Gamma^i_{jk}+T^i_{jk}=e^i_a e^a_{j,k}=-e^a_j e^i_{a,k},(8)$$

where $\Gamma^i_{jk}=g^{\Im}(g_{jm,k}+g_{km,j}-g_{jk,m})/2$ are the Cristoffel symbols and

$$T^i_{jk}=-\Omega^{\cdot\cdot i}_{jk}+g^{\Im}(g_{js}\Omega^{\cdot\cdot s}_{mk}+g_{ks}\Omega^{\cdot\cdot s}_{mj})=e^i_a\nabla_k e^a_j=-e^a_j\nabla_k e^i_a,(9)$$

- Ricci rotation coefficients. Here, ∇_k denotes the covariant derivative with respect to Γ^i_{jk}.

Using the angles $\varphi_1,\varphi_2,\varphi_3,\theta_1,\theta_2,\theta_3$ as space elements leads to a generalization of the Lagrange equations [17]

$$\frac{d}{dt}\left(\frac{\partial L}{\partial \dot{x}^i}\right)-\frac{\partial L}{\partial x^i}=-2\dot{x}^k\frac{\partial L}{\partial \dot{x}^j}\Omega^j_{ki},\dot{x}^k=dx^k/dt,(10)$$

where $\{\Omega^j_{ki}$ is a nonholonomic object (6). Using (10), we obtain the following relation

$$\frac{du^k}{ds}+\Gamma^k_{ij}u^iu^j+T^k_{ij}u^iu^j=0,u^k=\frac{dx^k}{ds},(11)$$

instead of the equations of motion of Einstein's theory of gravity. As the calculations show, the addition of the force $mT^k_{ij}u^iu^j$ to the equations of Einstein's theory of gravity $mdu^k/ds+m\Gamma^k_{ij}u^iu^j=0$ in equations (11) describes the force of inertia, and the field T^k_{ij}, respectively, is the field of inertia. Indeed, in the non-relativistic approximation, the three-dimensional part of equations (11) passes into equations (5), where $W^\alpha=T^\alpha_{00}$.

In the works of the author [22-24], it was shown that using the definition of the curvature tensor of the space of absolute parallelism $A_4(6)$, we find completely geometrized Einstein equations

$$R_{ik}-\frac{1}{2}g_{ik}R=\nu T_{ik},(12)$$

in which the energy-momentum tensor of matter T_{ik} is generated by the inertia field T^k_{ij} and is defined as

$$
\begin{array}{l}
i \\
¿ \\
|j|m \\
T_{¿} \\
¿ \\
j \\
¿ \\
|i|m \\
¿ i T_{¿} \\
i \\
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¿ .(13) \\
\nabla_{¿} \\
¿ \\
\nabla_{¿} \\
¿ \\
T_{jm}=\dfrac{-2}{v} ¿
\end{array}
$$

Thus, the relations (12) and (13) of the $A_4(6)$ geometry fundamentally solve Einstein's second problem of geometrization of the energy-momentum tensor.

3. The Universal principle of Relativity and the theory of Physical Vacuum

Note that modern relativity theories (Special and General) use translational relativity established on the manifold of four translational holonomic coordinates x, y, z, ct . Since in geometry $A_4(6)$ the nonholonomic rotational coordinates $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3$ are elements of an event space, then all physical quantities in such a space must be functions of angles $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3,$ and all physics equations in such an event space must be invariants with respect to transformations on the manifold of rotational coordinates. Therefore, two metrics are set in the $A_4(6)$ space:

1) a translation metric is given on the manifold of holonomic translational coordinates x, y, z, ct

$$ds^2 = g_{ik} dx^i dx^k, g_{jk} = \eta_{ab} e^a{}_j e^b{}_k, \eta_{ab} = \eta^{ab} = diag(1-1-1-1); (14)$$

2) on the manifold of nonholonomic rotational coordinates $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3$ a rotational metric is set

$$d\tau^2 = d\chi^a{}_b \, d\chi^b{}_a = T^a{}_{bk} T^b{}_{an} dx^k dx^n. \quad (15)$$

Combining translational relativity (14) with rotational relativity (15) provides Universal relativity for physics equations. The simplest equations that follow the principle of Universal relativity are the equations of Physical Vacuum. Written in a vector basis, these equations look like an extended system of Einstein-Yang-Mills equations [16]

$$\begin{matrix} k \\ ¿ \\ j \\ e_¿ \\ ¿ \\ \nabla_¿ \end{matrix} \quad R_{ik} - \frac{1}{2} g_{ik} R = v T_{ik}, \quad (B.1)$$

$$\begin{matrix} k \\ ¿ \\ |j|m \\ T_¿ \\ ¿ \\ k \\ ¿ \\ |j|m \\ ¿ i T_¿ \\ ¿ \\ C^i_{jkm} + 2\nabla_¿ \end{matrix}$$

for which the gauge group is the local Poincare group. In the equations (*B.1*), the energy-momentum tensor has the form (13), while in the Yang-Mills equations (*B.1*), the current tensor in the right part is defined by the energy-momentum tensor (13) [16]. Equations (*A*) are a definition of the torsion (6) of the space of absolute parallelism. The system of equations (*A*), (*B.1*), and (*B.2*) are structural Cartan equations of absolute parallelism geometry. As is proper, they do not include any physical constants. The physical constants appear in the solution (integration) of the equations of Physical Vacuum and compare the obtained solutions with the known fundamental equations. Acting in this way, we get the equations of Einstein's theory of gravity and the field equations (2) of general relativistic electrodynamics. Thus, the equations of Physical Vacuum are the potential state of three types of fundamental fields: gravitational, electromagnetic, and inertial fields. Most likely, the remaining numerous constructive fields introduced to describe anomalous interactions mimic the strong gravitational, electromagnetic, and strong fields of inertia found through experiment.

The problem of the motion of matter in the equations of Physical Vacuum is reduced to the study of the motion of two objects: 1) a "rotating point" (an oriented point) associated with a nonholonomic tetrad $e^b{}_k$; 2) density of matter ρ

$$\begin{matrix} i \\ ¿ \\ |j|m \\ T_{¿} \\ ¿ \\ j \\ ¿ \\ |i|m \\ ¿iT_{¿} \\ ¿ \\ \nabla_{¿} \end{matrix}$$

$$\rho=\frac{T}{c^2}=\frac{g^{jm}T_{jm}}{c^2}=\frac{2g^{jm}}{vc^2}¿$$

forming the energy-momentum tensor of matter (13). The equations of motion of the oriented point follow from the equations (*A*)

$$\nabla_k e_j^a+T_{kj}^i e_i^a=0.(17)$$

If you specialize the tetrad e_j^a so that $e_j^0=u_j, u_j u^j=1$, then from (17) we get the equations of motion of the origin *O* of the orientable point that coincide with the translational equations (11) and the rotational equations of motion of the orientable point

$$\nabla_k e_j^\beta+T_{kj}^i e_i^\beta=0,\alpha,\beta,\gamma...=1,2,3.(18)$$

Thus, the equations (17) combine the translational equations (11) with the rotational equations (18) and reduce all movements in the mechanics of the orientable point to rotation. That is why this mechanics was called Descartes' mechanics by the author [34]. In a certain sense, equations (17) can be considered as a relativistic generalization of Euler's equations describing the accelerated translational and rotational motion of an absolutely solid body of small dimensions.

The equations of motion the density of matter (16) follow from the equations $(B.1)$ after the Bianchi identity in the space $A_4(6)$ is applied to them. As a result, we have:

1) generalized continuity equation

$$\nabla^{¿}_i(\rho u^i)=\partial_i(\rho u^i)+\rho u^n \Gamma^j_{nj}+\rho u^n T^j_{nj}=0;(19)$$

2) generalized Euler equations

$$\rho\frac{du^k}{ds}+\rho\Gamma^k_{mn}u^m u^n+\rho T^k_{mn}u^m u^n=0;(20)$$

3) equation for an incompressible "liquid"

$$\nabla^{¿}_i\rho_\mu=\partial_i\rho_\mu=0,(21)$$

where $\nabla^{¿}_i$ is the covariant derivative with respect to connection (8). The continuity equation (19) is a conservation law for a variable mass or charge in the theory of Physical Vacuum having density (16). The geometrized Euler equations describe the motion of density (16) in an accelerated frame of reference. In the (quasi) inertial frame of reference, the density (16) is simplified and takes the form $\rho=-T^{ji}_{\ s}T_{ji}^{\ s}/vc^2[16]$. In the case of general relativistic electrodynamics, following from the equations of Physical Vacuum (*A*), (*B. 1*), and (*B. 2*), the density ρ can be represented via a complex scalar field $\psi(x^i)$, normalized by unit

$$\rho=Ze\psi*\psi=Ze\delta(\vec{r}),\psi(x^i)=¿$$

$$(¿\,i\,\varphi),\int\psi*\psi dV=1,r_e=2Ze^2/mc^2.(22)$$

$$¿\sqrt{\left|\frac{1}{4\pi r_e}\right|}\varphi(x^i)\exp¿$$

If we assume that the field $\psi(x^i)$ coincides with the de Broglie wave, i.e. $\varphi=S/\hbar$, where S is the action, we then apply it to the continuity equation (19), reversing the procedure of E. Madelung [35], obtained from (19) (in the approximation of the constant charge) of the Schrödinger equation for normalized field (22). The simplest way to indicate the connection of the physical field of inertia with the wave function of quantum mechanics is given here, but the complexification of the Physical Vacuum equations (*A*), (*B.1*) and (*B.2*) allows us to prove this connection more convincingly. Since the field of inertia that determines the density of matter (22) is associated with the wave function of quantum mechanics, the entanglement of wave functions (EPR effect [8]) causes entanglements of the densities of interacting objects. This property of subquantum physics generates super-causality, which means that there is a connection between each pair of interacting objects, no matter how far away they are.

4. Complex representation of Physical Vacuum equations

The rotational relativity of physics equations and the observed quantum phenomena are closely related. It can be argued that the nature of quantization is the rotation of matter. The simple formula $\varphi=S/\hbar$, where S is an action, takes on a more general form, namely

$$S=\hbar\int d\tau=\hbar\int\sqrt{T^{a}{}_{bk}T^{b}{}_{an}dx^{k}dx^{n}}=\hbar\int\sqrt{\Omega^{a}{}_{b}\Omega^{b}{}_{an}}ds(23)$$

where $d\tau$ is an infinitesimal rotation defined from the rotational metric(15). In (23) $\Omega^{a}{}_{b}=T^{a}{}_{bk}dx^{k}/ds$ -angular velocity matrix of rotation [16]

$$\Omega_{ij}=-\Omega_{ji}=\frac{1}{c^{2}}\begin{pmatrix}0 & -W_{1} & -W_{2} & -W_{3}\\ W_{1} & 0 & -c\omega_{3} & c\omega_{2}\\ W_{2} & c\omega_{3} & 0 & -c\omega_{1}\\ W_{3} & -c\omega_{2} & c\omega_{1} & 0\end{pmatrix}.(24)$$

Here $\vec{\omega}=(\omega_{1},\omega_{2},\omega_{3})$ is a pseudo-vector of spatial rotation (rotation in Euler angles $\varphi_{1},\varphi_{2},\varphi_{3}$¿ , $\vec{W}=(W_{1},W_{2},W_{3})$ is a pseudo-vector of space-time rotation (rotation in space-time angles $\theta_{1},\theta_{2},\theta_{3}$¿ and c is the speed of light.

The simplest rotation of a material point along a circle of radius r is described on the complex plane by the complex number $z=x+iy$, which can be represented in the following forms

$$z=x+iy=r(cos\varphi+i\,sin\varphi)=r\exp(\text{¿}i\varphi).(25)$$

Here $|z|=r=\sqrt{x^{2}+y^{2}}$ and $\varphi=Arg\,z$ the angle of rotation of radius r . In general, the radius and argument of a complex number can be functions of the arc length of the motion of a physical system. Then, assuming in (24) $\varphi=S/\hbar$, where S is the action of a physical system, we find an analogy (25) with the de Broglie wave. Given (23), it makes sense to introduce a generalized (vacuum) de Broglie wave of the following form

$$\psi=\psi_{0}\exp\frac{i}{\hbar}S=\psi_{0}\exp\frac{i}{\hbar}\left(\hbar\int\sqrt{\Omega^{a}{}_{b}\Omega^{b}{}_{an}}ds\right).(26)$$

This wave function shows that the basis of deterministic quantum physics is conditioned by rotation and the field of inertia $T^{a}{}_{bk}$.

John Wheeler, a student of A. Einstein, noted that to combine quantum theory and relativity, it is necessary to use a complex space in the spinor representation [36]. This work was done by R. Penrose, whose peak was the Newman-Penrose method of spin coefficients, known among theorists [37], which allowed us to obtain a number of new solutions to Einstein's equations. Using the Carmel spinor matrices [38-40], the author proved the equivalent of the Newman-Penrose spinor formalism and the Physical Vacuum equations written in the spinor

frame of reference [16]. In general, the equations of Physical Vacuum are represented as a system of nonlinear spinor equations, which includes the equations of Matter of the Right-handed World:

1) *geometrized nonlinear Heisenberg spinor equations with nonlinearity* Ψ^3

$$\nabla_{\beta\dot{\chi}}\iota_\alpha=\nu\, o_\alpha o_\beta\bar{o}_{\dot{\chi}}-\lambda\, o_\alpha o_\beta\bar{\iota}_{\dot{\chi}}-\mu\, o_\alpha\iota_\beta\bar{o}_{\dot{\chi}}+\pi\, o_\alpha\iota_\beta\bar{\iota}_{\dot{\chi}}-\overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.1}_{A_{\dot{\iota}}}\,\dot{\iota}\,-\gamma\,\iota_\alpha o_\beta\bar{o}_{\dot{\chi}}+\alpha\,\iota_\alpha o_\beta\bar{\iota}_{\dot{\chi}}+\beta\,\iota_\alpha\iota_\beta\bar{o}_{\dot{\chi}}-\varepsilon\,\iota_\alpha\iota_\beta\bar{\iota}_{\dot{\chi}},\dot{\iota}$$

$$\nabla_{\beta\dot{\chi}}o_\alpha=\gamma\, o_\alpha o_\beta\bar{o}_{\dot{\chi}}-\alpha\, o_\alpha o_\beta\bar{\iota}_{\dot{\chi}}-\beta\, o_\alpha\iota_\beta\bar{o}_{\dot{\chi}}+\varepsilon\, o_\alpha\iota_\beta\bar{\iota}_{\dot{\chi}}-\overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.2}_{A_{\dot{\iota}}}\,\dot{\iota}\,-\tau\,\iota_\alpha o_\beta\bar{o}_{\dot{\chi}}+\rho\,\iota_\alpha o_\beta\bar{\iota}_{\dot{\chi}}+\sigma\,\iota_\alpha\iota_\beta\bar{o}_{\dot{\chi}}-\kappa\,\iota_\alpha\iota_\beta\bar{\iota}_{\dot{\chi}},\dot{\iota}$$

$$\alpha,\beta\ldots=0,1,\dot{\chi},\dot{\gamma}\ldots=\dot{0},\dot{1},$$

2) geometrized spinor Einstein equations

$$2\Phi_{AB\dot{C}\dot{D}}+\Lambda\varepsilon_{AB}\varepsilon_{\dot{C}\dot{D}}=\nu T_{A\dot{C}B\dot{D}},\dot{\iota}\qquad \overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.1}_{B_{\dot{\iota}}}\,\dot{\iota}$$

3) geometrized spinor Yang-Mills equations with a gauge group *SL(2.C)*

$$C_{A\dot{B}C\dot{D}}-\partial_{C\dot{D}}T_{A\dot{B}}+\partial_{A\dot{B}}T_{C\dot{D}}+\left(T_{C\dot{D}}\right)_A{}^F T_{F\dot{B}}+\dot{\iota}\qquad -\left(T_{A\dot{B}}\right)_C{}^F T_{F\dot{D}}-\dot{\iota}$$

$$A,B\ldots=0,1,\dot{B},\dot{D}\ldots=\dot{0},\dot{1}$$

$$T^{+\dot{\iota}}_{\dot{D}C}\,\dot{\iota}\,\dot{\iota}\,\dot{\iota}_{\dot{B}}\,\dot{\iota}\,\dot{\iota}\qquad T^{+\dot{\iota}}_{\dot{B}A}\,\dot{\iota}\,\dot{\iota}\,\dot{\iota}_{\dot{D}}\,\dot{\iota}\;\overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.2}_{B_{\dot{\iota}}}\,\dot{\iota}\,\dot{\iota}$$

To these equations we must add the complex conjugate equations and equations of the Left-handed World. Two-component spinors ι_α, o_α in generalized Heisenberg equations $\overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.1}_{A_{\dot{\iota}}}\,\dot{\iota}$ and $\overset{+\dot{\iota}}{\underset{+\dot{\iota}}{s}}{}^{.2}_{B_{\dot{\iota}}}\,\dot{\iota}$ form a 4-component Dirac spinor in ordinary quantum theory. They are converted by the $D_+(½,½)$ irreducible representation of the group *SL(2.C)*. Spinor recording of Einstein's equations contains the geometrized energy-momentum tensor $T_{A\dot{C}B\dot{D}}$ of matter in the right part. In turn, the tensor $T_{A\dot{C}B\dot{D}}$ is defined via the spin tensor of the contorsion $T_{F\dot{B}}$ (via Carmel matrices) of the geometry $A_4(6)$. Spinor representation of the Yang-Mills equations with the *SL(2.C)* gauge group (2.C) contains in the right

part the current tensor $J_{A\dot{C}B\dot{D}}$ which is defined through the energy-momentum tensor $T_{A\dot{C}B\dot{D}}$. According to the equations $A_{\dot{C}}$ - $B_{\dot{C}}$ we can consider a Physical Vacuum as a continuous medium with elastic properties. Any perturbation of such a medium is described by a set of nonlinear spinor Heisenberg-Einstein-Yang-Mills equations. These equations describe three fundamental fields: gravitational, electromagnetic, and inertia fields. In general, any vacuum excitation - an "elementary particle" - is described by all these equations simultaneously. If the Riemannian curvature of the Physical Vacuum is zero, then only the equations remain for such objects $A_{\dot{C}}$ and $A_{\dot{C}}$, which describe "Primary fields of inertia" that do not have energy, but carry information [16].

In the Right-handed World, where all modern field theories are built, the arrow of time is directed from the present to the future, so the classical principle of causality is fulfilled for the equations of the Right-handed World. In the Left-handed World, the arrow of time is directed from the present to the past, so in the Left-handed World there are negative energies and the effect precedes the cause. Thus, the equations of Physical Vacuum cover all areas of space, and their solutions are triplet-like (Fig.2). For example, we have the solution Right-handed World equations $A_{\dot{C}}$, $A_{\dot{C}}$, $B_{\dot{C}}$, $B_{\dot{C}}$ with the translation metric,

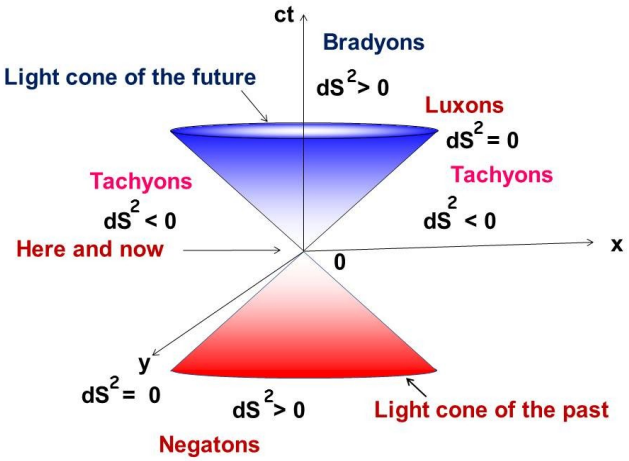

Fig.2. Solutions of Physical Vacuum equations cover all areas of space

Schwarzschild describes a triplet consisting of a bradyon (pre-light travel speeds), a luxon (light travel speeds), and a tachyon (superluminal travel speeds). Solutions to the Left-handed World equations describe bradyons, luxons with negative mass or energy, and tachyons moving backwards in time – from the future to the past.

5. Superluminal experiments

Analysis of the Physical Vacuum equations shows that they make it possible to distinguish seven main levels of Reality: solid, liquid, gas, plasma (or elementary particles), Physical Vacuum, Primary torsion field (Primary field of Inertia), and Absolute Nothing. All these levels correspond to a certain type of equation, and only the highest level – Absolute Nothing corresponds to the meaningless (from the point of view of traditional science) identity $0 \equiv 0$. But it is at this level that the development of meaningful physics begins, when a Primary field of Inertia appears out of Absolute Nothing (absolute Vacuum), described by the equations of Physical Vacuum A_{i}^{s+i1}, A_{i}^{s+i2}, B_{i}^{s+i1}, B_{i}^{s+i2}, in which the matter-energy-momentum tensor T_{AiBD} in the equations B_{i}^{s+i1} and the current tensor J_{AiBD} in the equations B_{i}^{s+i2} equal zero. Here, for the first time, we encounter a physical object that does not have traditional energies, but carries information that can affect the material World. In addition, solutions of the Physical Vacuum equations predict the existence of superluminal signals and signals that move backwards in time. For Fig. 3 the scheme of registration of superluminal signals detected for the first time by the famous astronomer Professor N. Kozyrev at Pulkovo Observatory (St. Petersburg, Russia) [4] is presented. Knowing the distance D to the star observed in the optical range (the optical position of the star) and knowing its speed of movement *v*, it is possible to determine the position of the star on the celestial sphere at the present time (the real position of the star Fig.3). N. Kozyrev pointed the telescope at the place where the star should have been located at the time of observation, while the entrance aperture of the telescope was covered with black paper opaque to light (shown at the bottom right in Fig.3). A Winston bridge was used as a recording system. As soon as the telescope's aperture was directed to the true position of the star, superluminal radiation (tachyons) passed through the

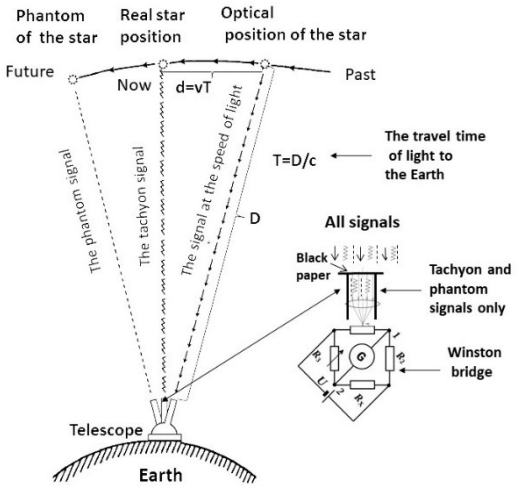

Fig. 3. Observation of superluminal and phantom signals emanating from stars

black paper and caused the current to unbalance in the Winston bridge. Kozyrev's experiments were repeated in two other observatories in Russia: at Novosibirsk Observatory

under the guidance of RAS academician M. Lavrentiev [5] and at Crimea Observatory by A. Akimov and others [6]. Measurements of the phantom (future) position of a star were completely unexpected for traditional science (Fig.3), when the signal from the star was registered in the place where the star will be located at time T in the future. This signal is not emitted by the star itself, but by its phantom (Fig.3), which for an observer on Earth is in the future. Here we clearly observe a violation of the classical principle of causality.

Again, returning to the work of A. Einstein "Religion and science" [1], we recall that the violation of the classical principle of causality is an indirect indication of the existence of God. In this regard, in 1998, the popular magazine *Ogonyok* published my interview titled "God exists. Now this has been proved by physicists" [41], and a year later in St. Petersburg, physicists V. Tikhoplav and T. Tikhoplav published several popular books called *The Physics of Faith*. Most professionally, the connection of torsion fields with the latest technologies is described in Bozhidar Paliushev's book *Physics of God* (2003).

6. Experiments and technologies

Starting from the middle of the 20th century, devices began to appear in Russia that affected various objects in an incomprehensible way [5]. Over time, they became known as *torsion generators*, since their action was based, in most cases, on rotational motion. To study these phenomena, the Committee on Science and Technology of the USSR in 1986 established the Scientific and Technical Center for Venture and Nontraditional Technologies (ISTC VENT) under the leadership of A.E. Akimov. As a result of this organization's work, the foundations of nine technologies were laid between 1986 and 1991, some of which are now being developed into commercial products (Fig. 4)

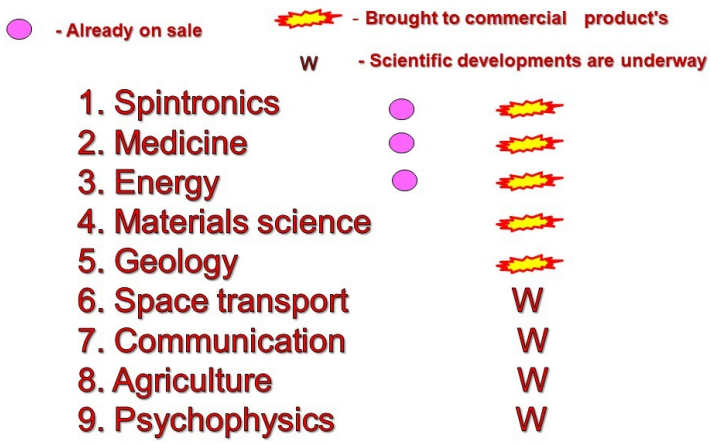

Fig.4. An overview of torsion technologies

6.1 Torsion transport

One of the criteria for the fundamental nature of the new scientific paradigm is a new mechanics that allows you to create a fundamentally different means of transportation. In our case, it follows from the density of matter (16) that the mass of an object is defined as a measure of the field of inertia

$$i$$
$$¿$$
$$¿\, j \vee m$$
$$T_{¿}$$
$$¿$$
$$i$$
$$¿$$
$$¿\, j \vee m$$
$$\nabla_{¿}\, dV(27)$$
$$g^{jm}¿$$
$$-g¿^{1/2}¿$$
$$¿$$
$$m(\Omega^{i}_{j}) = \frac{2}{v c^{2}} \int ¿$$

and depends on the angular velocity $\Omega^{i}_{j} = T^{i}_{jk}\, dx^{k}/ds$ of the elements composing it. By controlling the angular velocity of rotation within the system, you can change the speed of its center of mass in accordance with the equation [34]

$$\frac{d}{dt}\left(m(t)v(t)\right) = m(t)\frac{d}{dt}\left(v(t)\right) + v(t)\frac{d}{dt}\left(m(t)\right) = 0.$$

The theoretical basis of this method of motion is the equations of the theory of Physical Vacuum, in particular equations (11), which describe the movement of the center of mass of an object under the action of fields of inertia and inertia forces. A simple model of such a device is a 4D gyroscope [42] that rotates both in the spatial angles $\varphi_1, \varphi_2, \varphi_3,$ and in the space-time angles $\theta_1, \theta_2, \theta_3$. By controlling the fields of inertia, you can change the curvature of the local space in accordance with the Raychaudhuri equation [43,44]

$$R_{ab} u^{a} ub_{❑} = \omega_{ab}\omega^{ab} - \sigma_{ab}\sigma^{ab} + \theta^{2}/3 - d\theta/ds\,. (28)$$

This equation is a consequence of the equations of Physical Vacuum (*B.1*). The curvature of R_{ab} space changes if you change the inertia field $T^{c}_{ab} = -A_a u_b u^{c} + \omega_{ab} u^{c} + \sigma_{ab} u^{c} + \theta h_{ab} u^{c}/3$, i.e. the parameters ω_{ab} , σ_{ab} and θ , which are irreducible parts of the inertia field T^{c}_{ab} . Using equation (28), the English physicist M. Alcubierre proposed a space vehicle that moves in space using an engine, managing the expansion θof space [45]. The work of Russian researchers [42, 46-49] showed that the use of the rotation parameter ω_{ab} is more promising, since there is a relationship between the acceleration parameter A_a and the rotation parameter

$\omega_{ab} as \nabla_a \omega^a - A_a \omega^a = 0, \omega^a = \varepsilon^{abc} \omega_{bc}/2$ [44]. This equation shows that the uneven rotation of the ω^a engine elements inside the spacecraft hull generates acceleration A_a of its center of mass. The movement of non-relativistic engine models using equation (28) of the form $R_{ab} u^a ub_{\square} = \omega_{ab} \omega^{ab}$ can be seen in movies https://www.youtube.com/watch?v=8BwR_qi4mYs and https://www.youtube.com/watch?v=oQ8ic-kB7Dk.

6.2 The Torsion energy

In traditional quantum theory, it is well known that a Physical Vacuum has the energy of vacuum fluctuations, and theoretically this energy is infinite. This energy is not only a conclusion of the theory, but a phenomenon that is detected in experiments. In 1947, V. Lamb experimentally discovered an energy shift between the levels of $2S^{1/2}$ and $2P^{1/2}$ of the hydrogen atom, the value of which corresponds to the frequency ¿1075 MHz. Later, in 1958, the Russian physicist D. Blokhintsev made theoretical calculations of this phenomenon. Accordingly, any atom of the substances surrounding us experiences a similar effect from the Physical Vacuum. Since hydrogen is part of the water molecule and a person is 80% water, you can imagine how important is the interaction of the Physical Vacuum with the physical body of a person in everyday life. It seems that the interaction of the Physical vacuum with matter occurs only at the micro level, but the well-known Casimir effect shows that the Physical Vacuum is able to interact with macro objects (Fig.5). The Casimir effect was predicted in 1948; its essence is that two parallel metal plates placed in a Physical Vacuum are attracted with a force $F = \pi hcS/480d^4$, where S is the

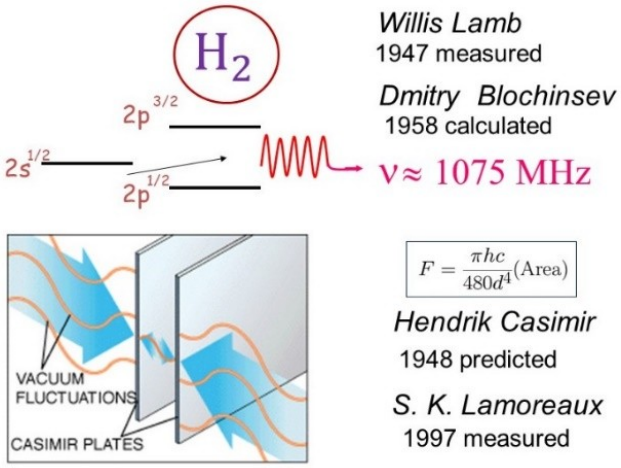

Fig. 5. Lamb shift and the Casimir effect

area of the plates and d is the distance between them. Note that the energy of this force is negative. This is very important, since negative energies allow for the existence of a second-

order perpetual motion machine [15]. Indeed, the Physical Vacuum "permeates" all the objects of the World, and due to this fact, in the theory of Physical Vacuum, there are no closed systems in both the macro and micro worlds, so all systems constantly exchange energy with the Physical Vacuum. To describe this process, it is convenient to use the Physical Vacuum equations presented in the form of the Takabayashi equations [50-54]

$$m\frac{dv_\alpha}{dt}=\left\{e\vec{E}+\frac{e}{c}[\vec{v}\vec{H}]\right\}_\alpha+\frac{e}{mc}S_\beta\partial_\alpha H_\beta+\frac{1}{m\rho}\partial_\beta(\rho\partial_\alpha S_\gamma\cdot\partial_\beta S_\gamma)+\partial_\alpha\left(\frac{\hbar^2}{2m}\frac{\Delta\sqrt{\rho}}{\sqrt{\rho}}\right),(29)$$

$$\frac{d\vec{S}}{dt}=\frac{e}{mc}[\vec{S}\vec{H}]+\frac{1}{m}[\vec{S}\times\Delta\vec{S}]+\frac{1}{m\rho}\partial_\alpha\rho\partial^\alpha\vec{S},\rho=\psi^{\dagger}\psi.(30)$$

These macroquantum equations describe the motion of a non-relativistic quantum particle of mass m, charge e, spin $s=\hbar/2$ and density $\rho=\psi^{\dagger}\psi$ in a weak electromagnetic field and follow from the Dirac equation [50-54] using the E. Madelung procedure [55]. In (29) includes the Lorentz force, the Stern-Gerlach force, which takes into account the interaction of the spin vector $\vec{S}$ with the inhomogeneous magnetic field $\vec{H}$, and two vacuum forces that are independent of the charge and generated by the fields ψ and $\vec{S}$. Equations (30) include the Larmor moment, which creates a precession of the spin vector $\vec{S}$ in the external magnetic field $\vec{H}$ and two moments formed by the spatial distribution of the fields ψ and $\vec{S}$. The equations distinguish the magnetic field $\vec{H}$ in ultra-weak electromagnetic fields, the Lorentz force, the Stern-Gerlach force, and the Larmor moment are vanishingly small and the particle motion at the macroscopic level is determined by the fields ψ and $\vec{S}$, i.e. *torsion fields*. It is particularly important to note that the forces and moments generated by the ψ and $\vec{S}$ fields are associated with zero

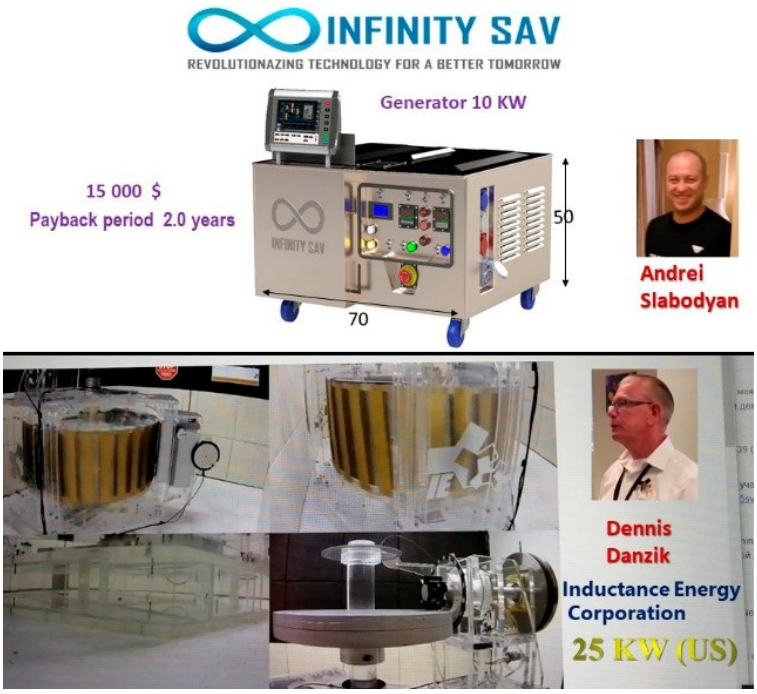

Fig. 6. Andrei Slobodyan's generator for 10 KW and D. Danzig's magnetic motor 25 KW

fluctuations in the Physical Vacuum, causing effects such as the Casimir effect in the macrocosm. These properties of equations (29), (30) make it possible to theoretically justify: a) the operation of torsion generators as generators of ψ and $\vec{S}$ fields; b) a number of anomalous torsion experiments involving the ψ and $\vec{S}$ fields. One of these experiments, brought to a commercial product, is the free energy generator of Andrey Slobodyan and the perpetual motion engine of the second kind of Dennis Danzig (Fig.6). These devices are based on a special kind of magnetic motor, in which, as experiments show, the stator and rotor magnets are located relative to each other so that their magnetic fields provide a constant rotation of the magnetic motor shaft. The D. Danzig magnetic engine was launched on May 15, 2019 and has been running non-stop since then, generating 25 KW of free energy 24 hours a day without consuming any fuel https://earthenginelive.com/. A. Slobodyan's generator uses a magnetic motor whose shaft is connected to an electric motor that generates 10 KW of electricity. After starting the Slobodyan's generator works without using any external energy source, and its working time is limited only by the wear of the parts it is made of https://infinitysav.com/.

6.3. Torsion metallurgy

In Figs. 7.1 and 7.2 a laboratory installation of torsion technology for silumin smelting is presented. On the left in Fig.7.1 the Tamman melting furnace and samples of silumin melts (an alloy of aluminum and silicon) are visible. As a rule, for the impact of the Akimov torsion generator (Fig.7.2 on the right) several frequencies were used for the molten metal. In the experiments shown in Fig. 7.1, 7.2, four different torsion generator frequencies were used, each of which has its own cone antenna (see Fig.7.2 on the right).

Fig. 7. At the top in Figs. 1 and 2, A.E. Akimov's installation for torsion melting of silumin; below in Figs. 3 and 4 is pictured the installation of the V. F. Panov group for torsion smelting of high-quality steel.

Fig. 8 shows two samples of silumin, melted before (Fig. 8 on the left) and after (Fig. 8 right) torsion treatment. Fig. 8 the difference in the quality of the silumin samples obtained is visible. Without special additives, silumin turns out to be porous and is not suitable for manufacturing parts (Fig. 8 on the left), for example, pistons for car engines, aircraft, etc.

The sample on the right in Fig. 8 is homogeneous and quite suitable for industrial use, yet obtained without the use of expensive additives.

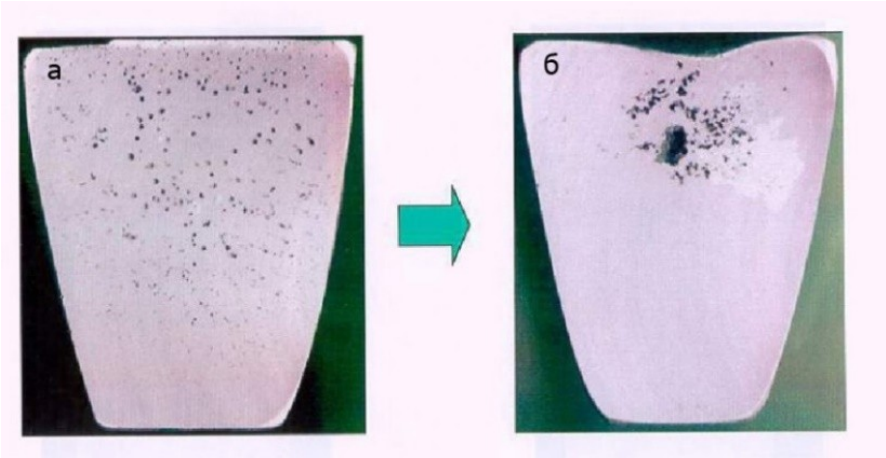

Fig.8. Molten silumin samples: left without torsion radiation; right under the action of torsion radiation

Fig. 7.3 at the bottom left shows a torsion bar that was used in commercial smelting by Professor V. F. Panov's group. In the works of V. F. Panov's group, a Kurapov torsion

generator was used, which consumed only 50 watts of electricity, while the amount of melted metal with new properties varied from 70 to 400 tons!

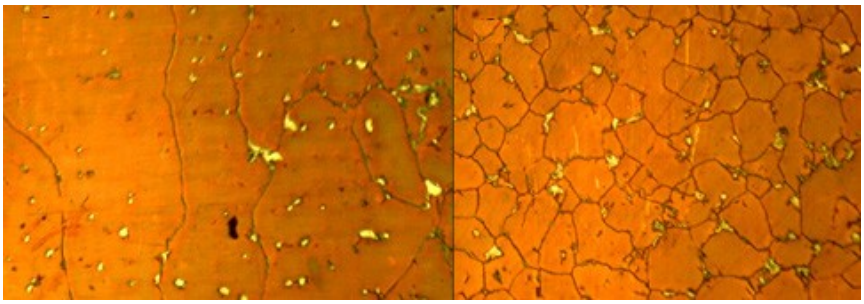

Fig. 9. Steel structure change: left structure without torsion radiation:
right structure change after exposure to torsion radiation

Fig. 9. shows two samples of molten steel before processing (left) and after processing (right) with a torsion generator [56]. The images show that the metal treated with torsion radiation has grain grinding, which leads to an increase in the PLA-resilience and hardness of the metal at the same time. Using torsion technology (during 2001-2009), 8500 tons of metal were smelted at metallurgical enterprises in Perm, Tula, Orsk, and others. The samples melted metal were investigated in the Physico-Technical Institute, Ural branch of the RAS (Izhevsk, Russia), the Institute of Engineering Science UB RAS (Ekaterinburg, Russia), FSUE "Center of Powder Materials Science" (Perm), etc. These studies demonstrate that the use of torsion technologies in metallurgy offers a number of benefits:

- avoids the cost of heat treatment and homogenization:
  * reduce melting time;
  * reduce the number of defects by improving the casting properties of steel;
- get a simple steel with characteristics of the doped alloy:
  * save energy and gas;
  * free up production space;
- in some cases, reduce the cost of production up to 2 times:
  * reduce the production process;
- to increase the competitiveness of the product.

6.4 Torsion Psychophysics

All 7 levels of Reality, which are analytically described by the equations of the Physical Vacuum, are connected to a person in one way or another. This principle applies to all objects in the Universe. We find confirmation of this in an ever-increasing amount of experimental data, especially in the new section of physics called Psychophysics. Psychophysics studies the influence of human consciousness on

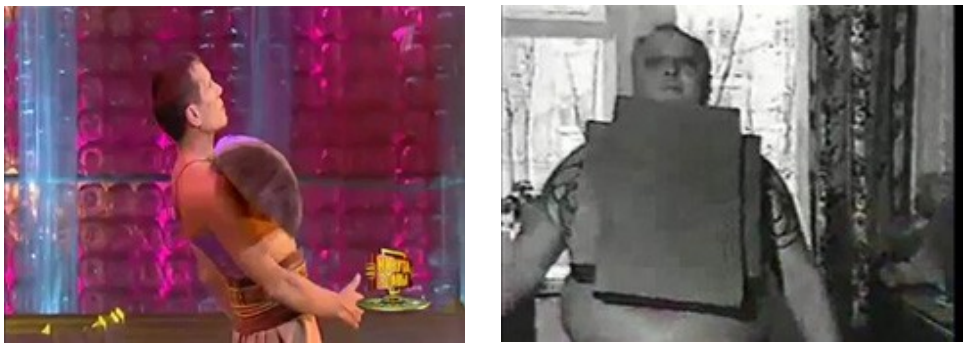

Fig.10. On the right, A. Antipov attracts three steel plates weighing 150 kg;
on the left, M. Vasiliev attracts a wooden log weighing 30 kg

objects of different nature. The most striking example of this effect is biogravity. This psychophysical phenomenon demonstrates the ability of the human body to attract (or repel) objects of different physical nature. In the 90's, I met Anatoly Antipov in Penza, who attracted three metal plates with a total weight of 150 kg with his body, which adhered to his body one after the other (Fig.10).

On the left in Fig. 10 Mikhail Vasiliev demonstrates the attraction with his body of a log weighing about 30 kg. All this happened on the program of the first channel "Minute of Glory" and his performance was seen by millions of viewers http://www.youtube.com/watch?v=_T8x9XWeOws.

In 1989, while in Hungary, A. Akimov and I met the remarkable scientist George Egely. This man invented a device that demonstrates the phenomenon of telekinesis and is used to measure the life force of a person. The device is a light wheel with teeth made of thin foil (Fig. 11). The wheel rests on the needle and can rotate freely on the needle, which is built into the device body. When any person puts his hand (no matter whether it is right or left) near the wheel, it begins

Fig. 11. Egelywheel for measuring vitality

to rotate in the direction of the extended fingers, while the teeth of the wheel cross the light counter of revolutions and the value of the human life force is determined by its indications http://www.youtube.com/watch?v=K0Oiikyfs4Q. Different people have different telekinesis abilities. In the movie http://www.youtube.com/watch?v=K0Oiikyfs4Q telekinesis is shown at a distance of 1 to 1. 5 meters, while the paper figure that was affected was covered with a glass cap. Chinese psychic John Chang is able to move objects, even situated at a distance of 5-6 meters away: http://www.youtube.com/watch?v=gAJpKKCAib4.

In ancient manuscripts, it is said that around the physical body of a person there is an aura formed by six thin fields. Apparently, the sixth etheric body, separated from the physical body at a distance 0.5-2-5 centimeters, participates in the psychophysical phenomenon of telekinesis, causing the wheel of Egely to rotate. Most likely, this same body is involved in such impressive phenomena as biogravitation (Fig.10) and pyrokinesis (Fig. 14).

There are various methods for observing a person's aura, including photographic ones. For Fig.12 shows photos taken at 2-3-minute intervals during Sahaja yoga meditation in England. In the first photo we see the leader of the Sahaja yogis Sri Mataji. The photos were taken with an ordinary camera by an ordinary person. The first photo shows the beginning of meditation. Seated on the bench on the left we see Shri Mataji.

Fig. 12. Changing the collective aura during Sahaja yoga meditation

The photos were taken with an ordinary camera by an ordinary person. The first photo shows the beginning of meditation. Shri Mataji is seated on the bench to the left. About 2-3 minutes after the beginning of the meditation, small halos appear above the heads of the meditators (photo 2), which are perceived by the camera as the effect of blurring the image. It is clearly visible that the bench in the photo remains focused. In photos 3 and 4, we observe a gradual increase in the elongation of the auras up and merging the auras of individual people into a single collective aura, the center of which is determined by the aura of Sri Mataji.

Interesting results of measuring the aura of man and plants are presented in the work of A.A. Andreev et al. [57] (Fig. 13). The measurements were obtained using the IgA-1 torsion field sensor, invented and patented by Yuri Kravchenko in Rovno (Ukraine) for the study of the human aura was created a technique that allows us to http://www.iga1.ru/ugatu.html

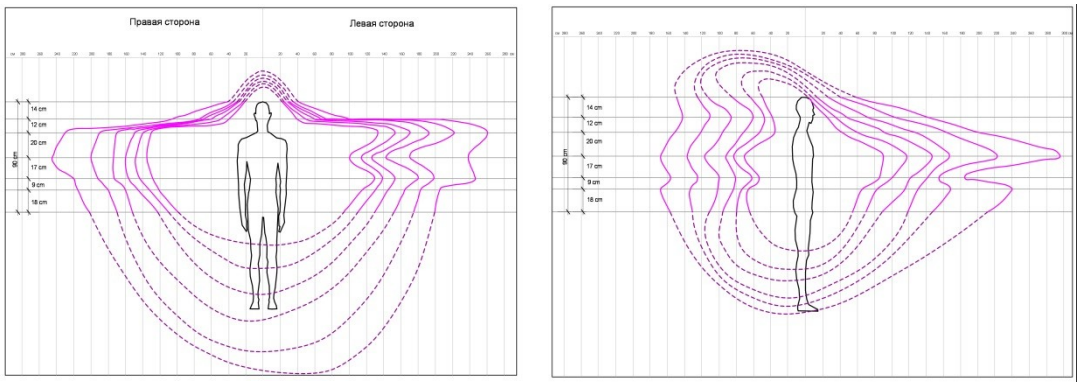

Fig. 13. Measuring a person's aura with the IGA-1 device an effective method has been developed

confidently measure up to 8 aura shells, though in reality there are more shells. The shells closest to the human body (less than 20 cm) were not measured. In all likelihood there are more shells at a radius over 7m, but they cannot yet be measured because of the limited

technical capabilities of the equipment. Interestingly, it was possible to measure the aura of the energy double (copy) of a person [58]. In esoteric literature this structure is described as an invisible copy of the human body with all the organs, energy channels, chakras, etc. However, in esoteric sources, the aural twin faces in the same direction as the physical body of the person, while from measurements it is visible that it is deployed in relation to the human body at 180° (looking backward). The same result was obtained when measuring the aura of plants. In [58] shows a graph of the aura of a houseplant with the aura of a double plant above it. The authors of [58] note that the nature of the aura graphs of living objects suggests that there is a whole chain of duplicates that extends both up and down from the physical body. Perhaps this is how the connection of the living with the Cosmos (Absolute "Nothing") is manifested. It is also clear that the physical body is only one of the many manifestations of man in the material world [58]. During the experiments, it was observed that each shell behaves individually, increasing or decreasing independently of the others. It seems that each cell is responsible for its own process, or (and) corresponds to its own body (physical, etheric, astral, etc.). The whole Person is a kind of "matryoshka" (nested Russian doll) of various field layers appended to the physical body.

We know that the temperature of a body depends on the kinetic energy of the particles that make it up. Some people have the ability to ignite flammable substances without touching them (pyrokinesis phenomenon). According to their stories, to do this, they mentally focused on the object, after which the selected object was ignited. In the film, shown on the TNT TV program, Mikhail Raduga tells and shows how it is donehttp://www.youtube.com/watch?v=2jyZVYUD_k0. Polish teenager David Wasilewski demonstrates this phenomenon by lighting a match http://www.youtube.com/watch?v=RIInh8NMudw.

Fig.14. Demonstration of pyrokinesis: on the left, Mikhail Raduga sets fire to a napkin rolled up on a stand; on the right, David Vasilevsky sets fire to a match

None of the accepted physical theories can explain the observed psychophysical phenomena. According to the theory of Physical Vacuum, in this case, as in other phenomena of Psychophysics, we observe the interaction of complex gyroscopic systems that make up all

objects, including humans. The simplest description of such systems is given by equations (29), (30).

Conclusion

Based on the results obtained in the theory of Physical vacuum, we can safely say that this theory solves the problem of a Unified Field Theory and is a new fundament theory that generalizes existing ones and significantly expands our understanding of the World around us. The main achievement of the Physical Vacuum theory developed by the author turns out to be the "lost field of view" of theorists - the field of Inertia, which is the third fundamental physical field, accessible to each of us in everyday sensations (the other two fields are gravitational and electromagnetic). Every day we feel the action of the field of inertia through the force of inertia, without realizing it. The practical use of the field of Inertia (mathematical term - torsion field) led to the development of nine torsion technologies: 1) spintronics; 2) energy; 3) materials science; 4) medicine; 5) transport; 6) communication; 7) Psychophysics; 8) agriculture; 9) mineral prospecting. Some of these technologies have been raised to the stature of a commercial product, while others are still under research pending commercial production. The difference between torsion technologies and existing ones is their exceptional efficiency at low material costs. Currently, torsion technologies are being developed not only in Russia, but also in other nations. For example, in South Korea, Dr. W.C. Lee has developed SorGen Technology, using torsion fields as information conduits.

The success of the new theory consists in the fact that it was not only the first to draw attention to the science of Psychophysics, but it also presented equations for describing these phenomena. Psychophysics is the youngest and most important (from the author's point of view) branch of physics, which asymptotically indicates the existence of a higher level of reality in Nature - "Absolute Nothing", which in the theory of Physical Vacuum is synonymous with God [59]. It can already be argued, based on experiments, that in order to study "divine physics" we will have to abandon the classical principle of causality and the speed of light c as the maximum speed.

I express my deep gratitude and appreciation to HJ Academy of Arts & Science, Dr. Douglas D.M. Joo, Dr. Jin Sung-Bae, Dr. Jin Choon Kim, Dr. Dinshaw Dadachanji, Dr. William Stoertz for the full support of my work and for the invitation to speak at the conference “God and Science.”

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