TWO APPROACHES IN UNIFIED FIELD THEORY. COMPARISON BETWEEN THEORY OF PHYSICAL VACUUM AND STRING THEORY

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Introduction

Unified Field Theory in the past was perceived by the theorists merely as an academic challenge, at present the majority of the scientists view it as a tool to research the elementary particles' structures. In search for the solutions for the grandiose challenge of the modern theoretical physics we can highlight two fundamental approaches:

1) A. Einstein's program on geometrization of physical fields;

2) String theory offering the description of all kinds of interactions of the elementary particles observable in experiments.

Although both of these approaches pursue the same target, their methods as well as their initial ideological preconditions, which is an important issue, are totally different.

1. A. Einstein's program

The philosophical platform of the Einstein's program originates from ancient oriental doctrines that described surrounding material world as a "cheerful game of space and time ". Almost half a century before A. Einstein's General Relativity Theory an English mathematician W. Clifford in his philosophical article said straightforwardly: "In the physical world occurs nothing but variations of the curvature of space, that meets (perhaps) the law of continuity". A. Einstein's scientific program guides us to implementation of the following:

a) Program minimum, assuming geometrization of the equations of classical electrodynamics;

b) Program maximum, directed to geometrization of all physical fields, including their quantum generalization.

A. Einstein supposed that the Quantum theory cannot be a base for Unified Field Theory development, considering the fundamentals of quantum theory as phenomenological, which cannot comply with the General Relativity principle. In A. Einstein's opinion the principles and the equations of the perfect quantum theory should be found on a way to the further generalization of a relativity principle, so that physics will not be divided into quantum and classical one any more, so that modern physics would harmoniously represent a limiting case with essentially new interpretation of wave function. Similarly to E. Schrödinger A. Einstein assumed, that wave function of a perfect quantum theory should be connected with some classical field - material field of "unknown nature at the moment", which would describe all physical fields and interactions. Based upon his experience of creating

geometrized gravitational field theory, A.Einsrein gave a supporting role to an experiment, considering that complex theory should be build by deductive method (from general to individual), based upon the physical principles of most general character.

2. String theory

String theory has appeared as consistent generalization of Standard model of elementary particles.

Standard model includes the theory of electroweak interactions (quantum electrodynamics + processes with participation of neutrino), unified with Quantum Chromo Dynamics (QCD), which actually represents the theory of strong interactions. All interactions in Standard model are described by Young -Mills gauge non-Abelian fields.

Standard model is considered to be verified by multiple experiments at accelerators of elementary particles up to the distances of 10^{-18} cm. Quantum electrodynamics equations have been confirmed up to seventh digit after point, and electroweak and strong fields - up to the fifth and second digit correspondingly. In the equations of Standard model the material particles - electrons, protons, neutrons, quarks, etc. - are viewed as point (dot) particles. However A. Einstein remarked earlier, that a point particle cannot be included into field theory.

String theory has deviated from representation of a particle as a dimensionless point and considers it to be a string (one-dimensional object) or as a membrane (two-dimensional object), or as D-brane (D-dimensional object, where $D \geq 3$). It uses sufficient general mathematical tools allowing not only to formally unify the Standard model with quantum gravitation, which at greater distances can be reduced to Einstein's theory, but also to show (in opinion of its creators) the consistency of quantum mechanics as well as general relativity theory.

The Standard model has appeared as compilation of the theories describing different types of interactions. For many years it was constantly specified, based on the experimental data, therefore String theory itself as well as its generalization represent the inductive approach (from the particular to the general) in creation of the Unified Field Theory.

1 Common features of the theory of physical vacuum and string theory

History of science says that every fundamental step in development of physics was accompanied by change of our concepts about structure of space and time.

1.1 Increase in dimensions of space-time

String theory

In order to overcome the difficulties which have arisen in the initial String

theory (for example, in order to get rid of negative probabilities) String theory, additionally to the ordinary space-time coordinates x, y, z, ct, added six new coordinates. These coordinates form six dimensional manifolds in every space-time point, called Calabi-Yau. It has appeared that the geometry of additional measurements defines such fundamental physical properties of matter as mass, charges, spin, etc, observable in our ordinary space.

Discovery of duality of strong and weak interactions in the String theory and development in M-theory ("mother of all the theories ") required the generalization of space dimensions in String theory from 10 up to 11-dimensions. It occurred, that duality of strong and weak interactions allowed conducting calculations for the case, when the constant of interaction was more than 1. It is possible to assume, that the solution of other important challengers of the String theory may lead to the further increase in special manifolds, therefore the question about the finalizing the spatial dimensions in the String theory remains open.

Theory of physical vacuum

Theory of physical vacuum represents the geometry of space of events as 10-dimensional fiber bundle of the manifold of the oriented material points (4 orthogonal unit vectors are connected with a point), where four space-time coordinates x, y, z and ct are forming the base and six angular coordinates $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3$ are forming a fiber. Out of six angular coordinates three spatial angles $\varphi_1, \varphi_2, \varphi_3$ define spatial orientation and three spatial-time angles $\theta_1, \theta_2, \theta_3$ set their space-time orientation. In 10 dimensional manifold of oriented points there are two metrics were set: Riemann's metrics ds^2 (infinitesimal translation), acting in manifolds of the translational coordinates x,y,z,ct, and rotational metric $d\tau^2$ (infinitesimal rotation), acting in manifolds of the rotational coordinates $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3$.

It is a known fact that coordinates $\varphi_1, \varphi_2, \varphi_3, \theta_1, \theta_2, \theta_3$ are anholonomic and could be viewed as "supercoordinates" of six dimensional fiber bundle, and theory of physical vacuum - as a suppersymmetrical theory. 10 coordinates in the theory of physical vacuum are sufficient to describe the particles, created from vacuum, although in case, if we are going to investigate the creation of the particles from vacuum as well as processes of the particles' transformations , then 10 coordinates will not be sufficient. In such a case we have to approach 15-dimensional space of events. Additional 5 coordinates represent conform coordinates. Coordinate x_{11} describes conform dilatations (stretcher), the remaining 4 coordinates $x_{12}, x_{13}, x_{14}, x_{15}$ are special conform coordinates, assuming the presence of spatial elasticity properties (specific spatial contractions and stretching). Thus the space of events, describing the interactive transformations of the particles and particles' birth from vacuum, became 15 dimensional.

1.2 Basic symmetries of contemporary physics

String theory

Well-known expert in String theory Brian Greene in his book "Elegant Universe. Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory "remarks that all the basic principles of the contemporary physics such as General

Relativity Principle, Gauge Field Principle, Superstring symmetry, etc, appear from String theory.

Theory of physical vacuum

The fundamental principle of theory of physical vacuum is that of Universal Relativity Principle, that expect the relativity of all physical fields. Vacuum equations could be presented as an extended fully geometrized system of Einstein-Young-Mills equations

$$\nabla_{[k}e^{a}{}_{m]} - e^{b}_{[k}T^{a}{}_{|b|m]} = 0, \qquad (A)$$

$$R^{a}{}_{m} - \frac{1}{2}g^{a}{}_{m}R = \nu T^{a}{}_{m}, \qquad (B.1)$$

$$C^{a}{}_{bjkm} + 2\nabla_{[k}T^{a}{}_{|b|m]} + 2T^{a}{}_{s[k}T^{s}{}_{|b|m]} = -\nu J^{a}{}_{bkm}, \qquad (B.2)$$

$$i,j,k... = 0,1,2,3, \qquad a,b,c... = 0,1,2,3$$

with geometrized energy -momentum tensor

$$T^{a}{}_{m} = g^{aj}T_{jm} = -\frac{2g^{aj}}{\nu}\{(\nabla_{[i}T^{i}{}_{|j|m]} + T^{i}{}_{s[i}T^{s}{}_{|j|m]}) - \frac{1}{2}g_{jm}g^{pn}(\nabla_{[i}T^{i}{}_{|p|n]} + T^{i}{}_{s[i}T^{s}{}_{|p|n]})\},$$

appearing in fully geometrized Einstein's equations (B.1) and with geometrized current

$$J^{a}{}_{bkm} = 2g_{[k}{}^{(a}T\,{}_{b)m]} - \frac{1}{3}Tg^{a}{}_{[m}g_{k]b}$$

in fully geometrized Young-Mills Equations (B.2).

Analyzing the equations (A) and (B) one can note that the Universal Relativity Principle unifies the General Relativity Principle with Rotational Relativity Principle as well as Gauge Field Principle. If we will write the equations (A) and (B) in spinor basis (relatively arbitrary Penrose's spinor reference frame) then they could be presented as geometrized Heisenberg-Einstein-Young-Mills equations

$$\nabla_{\beta\dot{\chi}}o_{\alpha} = \gamma o_{\alpha}o_{\beta}\bar{o}_{\dot{\chi}} - \alpha o_{\alpha}o_{\beta}\bar{\iota}_{\dot{\chi}} - \beta o_{\alpha}\iota_{\beta}\bar{o}_{\dot{\chi}} + \varepsilon o_{\alpha}\iota_{\beta}\bar{\iota}_{\dot{\chi}} - \tau\iota_{\alpha}o_{\beta}\bar{o}_{\dot{\chi}} +$$

$$+\rho\iota_{\alpha}o_{\beta}\bar{\iota}_{\dot{\chi}} + \sigma\iota_{\alpha}\iota_{\beta}\bar{o}_{\dot{\chi}} - \kappa\iota_{\alpha}\iota_{\beta}\bar{\iota}_{\dot{\chi}}, \qquad (\overset{+}{A}{}^{s^{+}}.1)$$

$$\nabla_{\beta\dot{\chi}}\iota_{\alpha} = \nu o_{\alpha}o_{\beta}\bar{o}_{\dot{\chi}} - \lambda o_{\alpha}o_{\beta}\bar{\iota}_{\dot{\chi}} - \mu o_{\alpha}\iota_{\beta}\bar{o}_{\dot{\chi}} + \pi o_{\alpha}\iota_{\beta}\bar{\iota}_{\dot{\chi}} - \gamma\iota_{\alpha}o_{\beta}\bar{o}_{\dot{\chi}} +$$

$$+\alpha\iota_{\alpha}o_{\beta}\bar{\iota}_{\dot{\chi}} + \beta\iota_{\alpha}\iota_{\beta}\bar{o}_{\dot{\chi}} - \varepsilon\iota_{\alpha}\iota_{\beta}\bar{\iota}_{\dot{\chi}}, \qquad (\overset{+}{A}{}^{s^{+}}.2)$$

$$2\Phi_{AB\dot{C}\dot{D}} + \Lambda\varepsilon_{AB}\varepsilon_{\dot{C}\dot{D}} = \nu T_{A\dot{C}B\dot{D}}; \qquad (\overset{+}{B}{}^{s^{+}}.1)$$

$$C_{A\dot{B}C\dot{D}} - \partial_{C\dot{D}}T_{A\dot{B}} + \partial_{A\dot{B}}T_{C\dot{D}} + (T_{C\dot{D}})_{A}{}^{F}T_{F\dot{B}} + (T^{+}{}_{\dot{D}C})^{\dot{F}}{}_{\dot{B}}T_{A\dot{F}} -$$

$$-(T_{A\dot{B}})_{C}{}^{F}T_{F\dot{D}} - (T^{+}{}_{\dot{B}A})^{\dot{F}}{}_{\dot{D}}T_{C\dot{F}} - [T_{A\dot{B}}\,, T_{C\dot{D}}] = -\nu J_{A\dot{B}C\dot{D}}, \qquad (\overset{+}{B}{}^{s^{+}}.2)$$

$$\alpha,\beta... = 0,1, \qquad \dot{\chi},\dot{\mu}... = \dot{0},\dot{1}; \qquad A,C... = 0,1, \qquad \dot{B},\dot{D}... = \dot{0},\dot{1}.$$

The analysis of those equations demonstrates that the Universal Relativity Principle contains Quantum Principles as well as Supersymmetry Principles.

1.3 Elementary particles and black holes

String theory

While investigating flop-restructuring of space with a large gap (conefold transitions) in String theory, it was discovered that during contractions, for example, of Schwarzschild's spheres to a point the massive black hole transforms itself into a massless elementary particle and allows to assert that String theory establishes direct, precise undisputable quantitative connection between black holes and elementary particles.

Theory of physical vacuum

Within certain limitations vacuum equations (A) and (B) lead to vacuum electrogravidynamics. The solutions of its equations, describing electron with mass m, charge e and spin s, demonstrate that particles may be views as black holes. Moreover with masses and charges going to zero in this solution the gravitational $r_g = 2mG/c^2$ and electromagnetic $r_e = 2e^2/mc^2$ radiuses transform to zero (both Schwarzschild's sphere and the sphere, defined by radius r_e , go to zero). There remains a massless particle (massless black hole), carrying spin only. This result correlates with the corresponding conclusion in String theory. At present there are found the solutions of vacuum equations (A) and (B), containing six independent constants, included into super-potential solution with clear physical interpretation, such as:

1) r_g - gravitational radius (gravitational interaction);

2) r_e - electromagnetic radius (electromagnetic interaction);

3) r_s - spinor radius (supposed to be responsible for weak interactions);

4) r_N - nuclear radius (supposed to be responsible for the strong interactions);

5) r_μ - monopole radius (supposed to be responsible for the electrotorsion interactions);

6) r_q - quark radius (supposed to be responsible for the quark interactions of the elementary particles, where the potentials of interactions could be found from equations (A) and (B).

This encouraging result indicates an opportunity to create on the basis of the vacuum equations (A), (B) a fundamental (instead of phenomenological) theory of elementary particles, where the potentials of interaction are found from the solutions of the equations (A), (B).

2 Differences between theory of physical vacuum and string theory

The main difference between string theory and theory of physical vacuum is not only that the first one is being constructed by the inductive way and the second one by the deductive one. They are based on different scientific paradigms.

2.1 Scientific paradigms of Newton and Descartes

String Theory

All of quantum field theories, string theory are based on the scientific Newtonian paradigm. This paradigm states that there are two types of motion exist in nature: translational and rotational. Newtonian paradigm cannot do without concept of inertial frame, which was applied to describe the basic quantum field equations. As a result of these two suppositions in Newtonian's paradigm the physical fields are of absolute value, which means that they cannot go to zero by any type of physical coordinates transformations (even locally). Thus Lagrangians and, consequently, Quantum fields theory equations as well as String theory equations are absolute (or invariant) relatively the allowed coordinates transformations. Nevertheless the recent String theory researches, connected with leaps of space, indicate the local violations of invariance in the equations, connected, for example, with changes of spatial dimensions or while the transformation of the equation for a particle with mass into massless equation.

Theory of physical vacuum

Universal Relativity Principle agrees with Rene Descartes' paradigm, who asserted that any motion in nature is a rotation. This statement is equivalent to the refusal from such an unrealistic (according to the Einstein's opinion) thing as inertial reference frame, so that in Descartesian paradigm the translational motion is always accelerated, representing spatial-time rotations in the local Lorentz group. Universal Relativity Principle requires the search for such a space of events as well as corresponding coordinates, where the coordinates transformation allows the physical field to go to zero (at least locally). In this case any physical equation could be transformed to the equality 0=0 as well as we can achieve maximum relativity in physics. In material world is nothing absolute. Everything is nothing, nothing is everything. This basic philosophical concept of the Theory of Physical Vacuum has been reflected in the Universal Relativity Principle and in the physical vacuum equations, analytically implementing Descartesian Paradigm.

2.2 Torsion physics

String theory

Torsion fields in contemporary physics are created by the spatial rotation. This geometrical object is defined via antisymmetric, in lower indexes, part of the linear spatial connection. In 1922 the French mathematician E. Cartan expressed his supposition, that the space around the rotating matter is not only curved, but also twisted (has got rotation). In particular the majority of elementary particles and black holes have got their own non zero rotation (spin) as well as they " twist" space around themselves. It looks, that such an idea should to be reflected in String theory. However at present torsion fields have not been widely applied in that theory.

The reason, why the serious interest towards torsion fields in String theory is absent, is connected mainly with the fact that there are several versions of

geometry, connection of which has got torsion. The physicists have been mainly attracted by the Riemann-Cartan torsion. As it is demonstrated by the multiple theoretical researches, the torsion effects, connected with torsion of Riemann-Cartan geometry are extremely small, and at present they are beyond the experimental observations. This conclusion indicates the uselessness of the theoretical developments of torsion field theory in the String theory.

Theory of physical vacuum

E. Cartan in his article of 1922 adduced an example of space with zero curvature, but with torsion which is not equaled to zero. Such space was named as a space of absolute parallelism. A. Einstein used that space as one of the variants of the Unified Field Theory (13 works altogether) and in the process of research of Geometry of absolute parallelism (geometry A_4) maintained extensive correspondence with E. Cartan. Unlike Riemann-Cartan torsion, the torsion of the geometry of absolute parallelism (Ricci torsion) forms rotational metric of the space $d\tau^2$ setting the infinitesimal rotation of a local reper. These circumstances specifically allow to connect Ricci torsion (not Cartan torsion of Riemann-Cartan geometry) with rotation of material objects and use it as an analytical foundation of Descartesian paradigm. Indeed, if any motion of matter is a rotation and a material rotation creates spatial torsion, then in this case torsion fields in physics establish the foundation of Descartesian paradigm.

Developing A. Einstein ideas, I proposed to use the structural Cartan equations (A), (B) of geometry A_4 as the equations of Unified Field Theory, which has been simultaneously interpreted as equations of physical vacuum. It occurred that Ricci torsion fields T^a_{bk} played the major role in vacuum equations. They form geometrized sources (energy-momentum tensor and current tensor) in fully geometrized Einstein's equations (B.1) and Young-Mills equations (B.2).

Applying the spherically symmetric solution for the equations (A),(B) creating the potential of interactions of Coulomb-Newtonian type, we can demonstrate that the density of matter $\rho = g_{ak}T^{ak}/c^2$ in the accelerated quasi-inertial systems (these systems substitute inertial system of Newtonian paradigm) is analogical to quantum mechanical relation $\rho = q\delta(x^i - x^{i'}) = q\psi^*\psi$, where the wave function ψ (with the precision up to constant factor) appears to be *torsion field*. Applying the correspondence principle of motion equations of the oriented material point in Descartesian mechanics (mechanics of accelerated motion of material system of reference) with the equations of mechanics of accelerated motion of the point particle, we managed to define that the weak fields of inertia satisfy wave equations similar to the equations of quantum mechanics. In other words, quantum mechanics in Descartesian paradigm describes the motion of matter via dynamics of inertial fields connected with this matter. Since the inertial fields are created by all types of matter (inertia is a more general phenomena than gravitation), then the inertial field, seemingly, is that "unified field of unknown nature", which (according to Einstein) connects all the physical fields at a deep level.

3 "Anomalous" macroscopic experiments

The phrase "anomalous experiments", which sounds as derogatory for experimenters, must has been invented by the theoreticians, who tried to save their unsuccessful theories. The experiments, which could be reproduced in the same environments, should be considered as a fact. One can interpret it wrong and thus call it "anomalous" or completely ignore it, because it rejects the existing theory, supported by multiple experiments.

The physical experiment includes passive observations, passive experiments as well as active experiments. During passive observations of the phenomena we use our organs of senses and equipment, which expands our essential perception, without reproduction, and without control over that phenomenon itself. For the passive observation, as a rule, there is no theoretical description and there are only hypotheses.

In active experiments the phenomenon is planned, its results are forecasted by the existing theory; meanwhile the experimentator reproduces the phenomenon and controls a part of its parameters.

Passive experiments in physics play a specific role. Sometimes they permit to control the events, partially without any theoretical explanation within the frame of the conventional theory. With professional honesty in science we have to refer to a passive experiment as to a discovery. It stimulates the development of physics, as soon as it initiates the creation of a new theory, which generalizes the principles and equations of former science. However without sufficient courage, professionalism and intellectual initiative, some scientists, who are responsible for the development of science, may get a disease, which I define as intellectual paralysis. Creating a public opinion these scientists completely ignore a part of macro-experiments which lead the development of the contemporary physics, assuming by a mistake that in macro physics "we know everything".

String theory

String theory is oriented to the experiments and observations in mega-world area (space physics and astrophysics) and micro world (elementary particles) as well as it almost completely ignores the passive ("anomalous") macroscopic experiments observed "on the table".

Such experiments include:

a) In mechanics: the phenomena with participation of fields and forces of inertia, demonstrating reactionless motion of mechanical systems;

b) In electrodynamics: the Tesla-like experiments (singlewire and wireless power transmission), electro-torsion experiments (change of material structure, technical telekinesis, levitation, etc).

Some of those experiments lead us to a creation of novel technologies, which are efficiently used in Russia and other countries.

Theory of physical vacuum

Differing from Riemann-Cartan torsion the theory of physical vacuum describes the rotation of space of events by Ricci torsion, which in mechanics and other sections of physics creates fields and forces of inertia. That is why the effects of

torsion in theory of physical vacuum are comparable in their magnitude with action of forces and fields of inertia. That allows to provide comprehensive explanation to the reactionless motion of mechanical systems within Descartesian paradigm. Of course from the point of view of Newtonian paradigm the reactionless motion looks artificial as well as the existing theoretical explanation of this phenomena, based on the Newtonian mechanics, is wrong.

Similarly the number of "classical" electrodynamic experiments do not have their comprehensive explanations within the frames of Maxwell-Lorenz electrodynamics. Vacuum electrodynamics is void of this defect considering that the space torsion is created by spin of electrons. Vacuum electrodynamics allows to provide theoretical foundation for electrotorsional radiation, observed in the experiments. The source of this radiation is "spin" of electron (its own mechanical rotation) , which plays the role of a bridge between classical and quantum physics.

4 Psychophysical experiments

Psychophysics is a new developing chapter in science which studies the influence of human consciousness on physical objects. Since 1979 in the United States and Russia the scientists carried out psychophysical experiments using modern scientific equipment. It was discovered, for example, that the operator can produce stable distant psychophysical effect upon the generator of random numbers, on thermal and magnetic sensors, on laser radiation, etc. They have registered such psychophysical phenomenon as telekinesis (contactless motion of small objects), biogravitation (attraction by an operator's body of the objects up to 3 metal plates of total weight = 160 kg), levitation (change of operator's own weight on scales), etc. As a result of the analysis of a large number of psychophysical experiments the scientists came to the conclusion that the physical fields and interactions, which are known in traditional science, cannot explain the observable psychophysical phenomena.

String theory

The existing string theory does not include the problems of psychophysics and ignores psychophysical experiments. Moreover, the scientists, who tried to lay the bridge between physics and consciousness are ridiculed (for example Roger Penrose), in spite of their obvious scientific achievements. It is clear that string theory cannot claim to become the Unified Field Theory until it will include the concept of consciousness as part of its reality.

Theory of physical vacuum

From the analysis of psychophysical observations and experiments it was concluded that there is a connection in those phenomenon between human consciousness and physical objects in the form of mediator possessing the following physical properties:

1) High penetrating capacity;
2) Super-light velocity;
3) Transmission of information without transmission of energy;
4) Holographic structure of a signal;

5) Addressed transmission and reception of a signal.

In the theory of physical vacuum, such properties belong to primary torsion field T^a_{bk}, the equations of which follow from vacuum equations (A) and (B), if we suppose that Riemann tensor $R^a_{bkm} = 0$. In this case the energy-momentum tensor $T_{ak} = 0$, that indicates the absence of energy in primary torsion fields. Such objects are not spread in space from point to point, but they instantly cover all the space. In traditional physics the primary torsion fields corresponds with Goldstone's field, which as its known to be responsible for spontaneous violation of vacuum symmetry.

Such unusual properties of primary torsion fields raise them to the rank of pra materia preceding the appearance of materia from vacuum. We suppose that torsion fields appear to be not only the carrier of human thought, but also they are responsible for the multiple psychophysical phenomena mentioned above. Such conclusion was founded based upon the experiments demonstrating, for example, identical effects of torsion generator as well as the operator upon the metal alloys.

Conclusion

Even after such a brief comparison of theory of physical vacuum and string theory we can find that it is not in favor of the latter. The principle advantage of the theory of physical vacuum in solitary confinement in its equations based upon the Universal Relativity Principle. These equations not only implement Einstein's program for Universal Field Theory, but also demonstrate the deep connection between consciousness and physical materia, raising doubts to the primordial materia in our world.

Unfortunately, the theory of physical vacuum is not as widely known in the scientific world as a string theory. That could be explained by the fact that the string theory is being developed by more than thousands of qualified scientists working at the most prestigious universities in the United States and Europe. Theory of physical vacuum is episodically developed by only few people. The major part of these scientists lives in Russia and is constantly attacked in non-professional ways by the Russian Academy of Sciences. Without bothering to analyze the achievements and results of theory of physical vacuum the scientific personnel from the Russian Academy of Sciences tries to redirect the choices of the fundamental researches and to create public opinion. However, even Descartes remarked that if the matter concerns a very complicated issue than the majority is wrong. The reasons of wrong opinions of the majority of leading contemporary theorists are connected with their arrogant attitudes to the opinion of Einstein and Dirac about quantum mechanics and quantum electrodynamics.

Most of them forgot (or either don't know) the declaration of Dirac, the creator of Quantum mechanics:-"The basic equations of quantum electrodynamics are wrong and they have to be significantly changed; minor changes would give nothing". It was declared in spite of fantastic precision of theoretical forecasts of the theory. P. Dirac based his conclusion after analysis of the contradictions in the equations of Quantum electrodynamics, concerned with the problem of divergence and doesn't agree with the opinion of the majority concerning the methods to remove them. Over thirty years has elapsed but the theorists continue to manually

exclude unlimitedly large magnitudes from the corresponding calculations. Moreover the physicists began to avoid uncomfortable experiments which transform our habitual concepts about reality. Such experiments exist, but they are observed not in Astrophysics or accelerators of elementary particles but in classical electrodynamics and psychophysics. Finally we have to get courage for a broad and open discussion.