

# **Announcement of the scientific discovery**

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The author has created own theory of a universe (of the basis of the nature). It is the “Theory of the nature”. Within the limits of this theory it was possible to solve some questions and problems of a universe. In the present article the list of these problems and questions is presented. This theory includes the natural science, the dialectical materialism, physics and cosmology. Dialectical materialism equips us with a dialectical materialist world outlook in the understanding of the nature and the material world around us and gives us the dialectical materialist method of the studying of the reality. According to the author, the natural science should give us the real and concrete picture of the existence (being) and a universe. Proceeding from this concrete picture of life, the theory of dialectic materialism develops the generalized picture of a universe. The author has developed and describes in this article the understanding of a universe in the form of universe model. This model of the universe includes both the microcosm and the macrocosm in their natural indissoluble unity. Researching the foundations of the nature and the universe by the method of dialectical materialism has led the author to the truly fundamental discoveries.

Keywords: nature, matter, dialectical materialism, physical quantity, model of the universe, atom of the matter, the Universe, the Singularity.

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## **Introduction**

The author within 2011-2012 conducted own scientific researches. The results of these researches are stated in the author’s article “Theory of the nature” [1,2,3]. The list of the solved problems of a universe (of a world building) is presented in the present article. The statements (items) of this list are short and are accompanied by necessary explanations. The scientific theory of dialectic materialism was a starting-point of researches for the author. This theory has developed and offers to the researchers of the nature the dialectic materialistic method of the

researches of the nature. This method is not an invention of the idle (leisure) mind. It is the working tool of materialists in the knowledge and in the solution of the secrets of the nature. The persons learning secrets of the nature the naturalists and the scientists consciously or unconsciously use this method. This method is borrowed from the natural sciences. This method is borrowed from the natural sciences. Dialectical materialism just summarized it. Dialectical materialism theorized this method of the knowledge of the nature. “Theory of the nature” or “Materialistic physics and cosmology” is represented in a number of articles of the author, placed in the format “preprint” on a number of sites on the Internet. This are sites vixra.org and sciteclibrary.ru. Here is a link to the complete list of the author of articles on the site vixra.org: [http://vixra.org/author/robert\\_yusupov](http://vixra.org/author/robert_yusupov). Here is a link to a list of the author's articles posted on the site sciteclibrary.ru: <http://www.sciteclibrary.ru/rus/avtors/ju.html>. Here, after clicking on the link you must select an author's page with a list of his articles. The present article describes the author's natural-scientific picture of the world as a model of a universe. This model serves as the basis for determining the three basic physical quantities that form the foundation of the materialistic physics (Theory of the nature). The matter is introduced into the bosom (lap) of the physics as the basic physical quantity. The time is determined in the close connection with the matter. The mass is the physical quantity derivative of the matter. The materialistic physics built on the basis of the materialistic understanding the essence of nature is axiomatically strict and harmonious and logically consistent theory. This theory is confirmed by the practice, experiments. Its conclusions are in the full compliance with the experimentally computed values of the basic fundamental physical quantities for the modern age of the universe.

### **The natural-scientific picture of a universe (descriptive part)**

In this part the author presented the arguments and his understanding on the issue of how the nature should be reflected in the natural science. The theory of reflection in Marxist philosophy is understood as the basis of dialectical materialist theory of knowledge. The theory of reflection reveals the most common features and properties of all levels and all forms of reflection. The natural science studies of the author presents to us a model of the universe, which is a two-level model. The first level is the macro level being represented by a model of the Universe. The second level is the micro-level being represented by a model of the particle of matter. Natural science gives us essentially the ontology of being. According to the author, the Universe represents the material cosmology object having the center. The Universe is in the constant dilating. In the center of the Universe is located core, which will be called the Singularity. The Singularity is the matter's body consisting of the primary pure matter or of the

pra-matter. The Singularity radiates the matter outwards into the vacuum surrounding the Singularity. The surrounding space and our Universe are forming of this matter. Matter of Singularity is emitted in the form of a minimum of material entities, grains of matter. We'll call them the atoms of matter. The Singularity emits the atoms of matter in the rhythm of nature. It is quite pertinently to imagine the Singularity as the generator of the atoms of matter. It is appropriate to think of the Singularity as a natural, material, harmonic oscillator. To this oscillator and generator started to work, was necessary the "initial shove" or the "first impulse". This "initial shove" has the material basis. The "initial shove" is based on the matter, on the pra-matter of the Singularity and the laws of its movement unknown to the modern science. No supernatural forces here. "Initial shove" is not associated with the absolute idea or the spirit world, or with the universal will. For the "first impulse" is not worth a divine providence, nor satanic plan and no idealistic fabrications. The matter, one only matter and nothing except the matter and the laws of its motion behind of the "first impulse" is not worth. "Initial shove" is the same material, like everything else in the nature. With the start of operation of the oscillator (and the generator) and with the "first impulse" are associated the beginning of the evolutionary development of the Universe and the origin of the Universe. The "initial shove" is connected and associated with the beginning of universal time. The "initial shove" "pressed" the button "start" of the universal time. The countdown of our usual time was started. Before the emergence of the Universe universal time did not exist. This means that the Universe has a beginning of the time and the universal time is absolute. The age of the universe directly linked with the universal time. The time, the universal time and the age of the Universe is measured in the step of the rhythm of the nature. It is an even, the rhythmic, the dimensionless and the absolute time. We will consider absolute universal (from Universe) time and absolute age of the Universe as the identical or the synonymous concepts. With each step of the rhythm of the nature into the Universe goes only one atom of the matter. Each atom of the matter contains the same amount of the matter. This is minimal amount of the matter in the nature. We call this amount the basic unit of matter (EUM). There is a one-to-one correspondence between the step of the rhythm of nature and the amount of matter in the atom of the matter. So, the time duration of one step of the rhythm of the nature, which we call the elementary duration of the time in the nature or the elementary unit of the time (EUT), you can measure the amount of matter contained in the atom of the matter. This means that there is a law of nature: **time**  $\equiv$  **matter** or **EUT** $\equiv$ **EUM**. The atom of the matter is spherical. In the atom of the matter the concepts of form and content together merge. The matter of the atom of the matter forms the shape of the atom of the matter. The atom of the matter represents the indestructible unity of the form and the content in the nature at micro level. For the atoms of the matter has, so to

speak, identity: **form**  $\equiv$  **content**. This identity expresses a law of the nature, the law of the life at the micro level. For the atoms of the matter there is also a law of nature of the indestructibility of the atom of the matter (and the pra-matter) during the total time of the evolutionary process of the Universe. As a matter ball, the atom of the matter has two main characteristics. The first characteristic is the amount of matter, the elementary unit of the matter EUM, forming an atom of the matter. The second characteristic is the diameter of the atom of the matter, which defines a minimum length in the nature. We call this length of the elementary unit of length in the nature EUL. All other characteristics of the atom of the matter are the derived characteristics. First of all it is the mass of an atom of the matter (MAM), which is defined as the ratio of the elementary unit of matter (EUM) to the elementary unit of length (EUL):  $MAM \equiv EUM/EUL$ . Let's remind that it is the diameter of the atom of the matter. An important assumption of the atom of the matter is that the diameter of the atom of the matter changes with the time, with the age of the Universe. The algorithm of the change the diameter of the atom of the matter or the elementary unit of the length in the nature (EUL), depending on the age (A) of the Universe is defined by the following formula:  $EUL \equiv A^{-0.125} \cdot EUM^{0.75} \equiv A^{-0.125} \cdot UCN^{-0.75} \mu^3$ . This formula uses the following notation:  $UCN \equiv 1.21034 +44$  and is the constant of the nature,  $\mu^4$  is the unique unit of the nature, A is the age of the Universe (the absolute universal time) in the natural steps of the rhythm of the nature NUT.

Now let us consider the meaning of these new concepts. In the model of a universe of the author the essential moment is the assumption that the amount of matter in the initial (original) Singularity (before the “first impulse”) is a limited and finite quantity. To estimate the amount of the matter in the initial Singularity we must specify a unit of the matter and to calculate the amount of the matter with help of this unit. We call this unit of matter, the natural unit of matter (NUM). Let's assume that the amount of matter in the original Singularity in the units of the NUM is equal to the unique constant of the nature  $UCN \equiv 1.21034 +44$ . The numerical value of this quantity is equal to the numerical value of the physical quantity  $c^4 G^{-1}$  in the SI. The conclusions and the proof of this assumption we will not stop. They can be found in the author's article “Theory of the nature”. The natural unit of the matter (NUM) will be also a unique unit of measurement of all things and phenomena of nature or simply the unique measure of the nature. We call this unit of merilo (‘criterion’). As an acronym choose the designation  $\mu^4$ . You can write the following physical definition of the merilo:  **$1 \mu^4 \equiv 1 \text{ NUM}$** . One natural unit of the matter breaks up exactly on the UCN atoms of the matter. This can be written in this form:  $EUM \equiv NUM/UCN$  or  $NUM \equiv UCN \cdot EUM$ . Consequently, the natural unit of the matter (NUM) comes into the Universe of the UCN elementary successive steps of the rhythm of nature (ESN). The UCN elementary successive steps of the rhythm of nature (ESN)

we will call the natural step of the rhythm of the nature (NSN). The following identities will take place:  $NSN \equiv UCN \cdot ESN$  or  $ESN \equiv NSN/UCN$ . Let's designate time duration corresponding to one ESN through EUT (elementary unit of time). Let's designate time duration corresponding to one NSN through NUT (natural unit of time). The following identities will take place:  $NUT \equiv UCN \cdot EUT$  or  $EUT \equiv NUT/UCN$ . So, for the time of 1 NUT the matter in the amount of the 1 NUM or  $1 \mu^4$  will arrive into the Universe. Similarly, as for the elementary unit of the time and the matter for the natural unit of the time and the matter have the identity:  $NUT \equiv NUM$ . This identity can be represented as the physical identities:  $NUM \equiv 1 \mu^4$  and  $NUT \equiv 1 \mu^4$ . It is clear that we have the equalities (identities):  $EUM \equiv NUM/UCN \equiv UCN^{-1} \mu^4$ ,  $EUT \equiv NUT/UCN \equiv UCN^{-1} \mu^4$ . It is clear that the assumption of the finiteness of matter in the initial Singularity is equivalent to the assumption of the finiteness of matter in the Universe. It is also clear that the "radiation" of the finite amount of the matter requires the finite time. This means the finiteness of the time existence and evolution of the Universe. After the exhaustion of stores of the matter in the Singularity the Universe evolution is completed. Another assumption of the "Theory of the nature" is to determine the correspondence between the second and the natural unit of the time (NUT). This correspondence is defined as follows:  $1 NUT \equiv \alpha s$  or  $1 s \equiv \alpha^{-1} NUT$ , here  $\alpha$  is the fine structure constant.

### **The position of the dialectical materialism and the natural science**

The position of the dialectical materialism of the matter is expressed quite clearly and precisely is stated in the Lenin's work "Materialism and empirio-criticism. Critical comments on a reactionary philosophy". V. I. Lenin wrote: "Matter is a philosophical category denoting the objective reality which is given to man by his sensations, and which is copied, photographed and reflected by our sensations, while existing independently of them" [4, p.130]. The definition of the matter in the modern natural science coincides with the definition given above as the dialectical materialism in its theory use the data of the natural science. These ideas about the matter are absolutely true and correct, but the general and abstract representations. Specific ideas about the matter the modern natural science and the physics do not give. In the physics of matter generally determined, so to speak, the words: "Matter is a substance or a field". It is clear that there are no specific. The modern science does not give the specific answers to the questions: "What is the matter?", "How the matter concretely manifests itself in nature?", "What is the basic carrier of matter in nature?" The modern science specifies only the indirect mediated forms of existence of the matter. The direct indication how specifically and directly the matter is presented in the nature the modern science and modern science do not

have and do not present to us. From the answer to a direct question on the concrete representation of the matter in the nature the modern science leaves.

Author's position in the natural science presented in the previous section in the form of a general discussion about the model of a universe. His position, the author considers the position of the new, updated natural science. This item includes the following items: The position of the author should be considered as a position of the new, updated natural science. This position includes the following moments and items:

1. The concept of the Universe: The Universe is expanding cosmological material object with a central nucleus (the Singularity) radiating the matter.
2. The concept of an atom of the matter: An atom of the matter is the minimum material education in the nature, which is the flesh of the Universe. An atom of the matter also is the material carrier of the two main characteristics of the nature. These are such characteristics as the minimum amount of matter in the nature, which is the elementary (minimum) unit of the matter (EUM), and the diameter of an atom of the matter which is the elementary (minimum) length (EUL) in the nature. Moreover, the diameter of the atom of the matter is the diminishing quantity (value) with the time and with the age of the Universe.
3. The concept of the time: First, the time is the steps of the rhythm of nature, such time is the dimensionless time and this time is absolute. The Universe (Universal) time and the Universe age are the synonyms. Second, the time as duration, can be compared only with quantity (value) of the matter arriving into the Universe. The time as duration in this case can be measured only by the quantity of the matter and its dimension will coincide with the matter's dimension. In this case take place the earlier reviewed next relation (identity):

$$\left\{ \begin{array}{l} \text{NSN} \equiv \text{UCN} \cdot \text{ESN} \\ \text{NUM} \equiv \text{UCN} \cdot \text{EUM} \\ \text{NUT} \equiv \text{UCN} \cdot \text{EUT} \\ \text{NUT} \equiv \text{NUM} \equiv 1 \mu^4 \\ \text{EUT} \equiv \text{EUM} \equiv \text{UCN}^{-1} \mu^4 \\ 1 \text{ NUT} \equiv \alpha s, 1 s \equiv \alpha^{-1} \text{ NUT} \end{array} \right. .$$

The position of the author stated above we will accept, as the position of natural science for the sake of the simplicity of the further discussions.

### **Approach to the construction of a new materialistic physics**

The new materialistic physics will be built on the basis of modern physics. Therefore the theory of modern physics (TMP) should accept as the basis, the stated above model of a universe. Furthermore in this case the TMP should agree with some changes, concerning the

physics bases. It is bound with the introduction into a bosom (lap) of physics of concept and a physical quantity the matter. The matter is a substance of the nature. These are following changes:

1. The matter, as NUM, should become the main (the first basic) physical quantity. Thus,
  - a. the matter (NUM) gets the status of unique unit of the measure of physical quantities, the own name 'merilo' (criterion) and the abbreviation (reduction name)  $\mu^4$ :  $\mu^4 \equiv 1 \text{ NUM}$ ,
  - b. owing to the previous item the equality will take place:  $1 \text{ NUM} \equiv 1 \mu^4$ ,
  - c. the matter (NUM) as the basic physical quantity the symbol of dimension  $\mu^4$  is attributed:  $\text{NUM} \leftrightarrow \mu^4$ .

These assignments we actually announce that the concepts of the unit of physical quantity and its dimension are the synonyms.

2. The unique constant of the nature ( $\text{UCN} \equiv 1.21034 +44$ ) should become the main (the second basic) dimensionless physical quantity.
3. The diameter of the atom of the matter as the elementary unit of the length in the nature (EUL) should become of the derivative (the third basic) physical quantity. The defining formula will be the following one:  $\text{EUL} \equiv A^{-0.125} \cdot \text{EUM}^{0.75} \equiv A^{-0.125} \cdot \text{UCN}^{-0.75} \mu^3$ . In this formula and in the following ones the age (A) of the Universe indicated at the natural units of the time (NUT). This equality (identity) shows that the elementary unit of the length in the nature is the decreasing physical quantity with the age of the Universe.
4. The mass of an atom of the matter (MAM) is a derivative physical quantity. Let's name this mass the elementary unit of the mass in nature. The defining formula for this mass is the following formula:  $\text{MAM} \equiv \text{EUM}/\text{EUL} \equiv A^{0.125} \cdot \text{UCN}^{-0.25} \mu$ . This equality (identity) shows that the elementary unit of the mass in the nature is the increasing physical quantity with the age of the Universe.
5. The mass of the elementary particles (MFP) is determined similarly manner. If the DFP is the diameter of the elementary particles, then the mass determined so  $\text{MFP} \equiv \text{EUM}/\text{DFP}$ . The mass of the elementary particle (MFP) is determined in similar manner. If the DFP is the diameter of the elementary particle, then the mass is determined so  $\text{MFP} \equiv \text{EUM}/\text{DFP}$

The introduction of the above three basic physical quantities (NUM, UCN, EUL) into the bosom (lap) of physics and the determination of the masses of an atom of the matter and the fundamental particles convert the modern physics in a materialistic physics. Here are below the formula for determining the three basic fundamental physical quantities, given the identity of time and matter  $\text{EUT} \equiv \text{EUM}$ :

6.  $MVN \equiv EUL/EUT \equiv A^{-0.125} \cdot UCN^{0.25} \mu^{-1}$  – the maximum speed at the nature (speed of light in the vacuum for TMP). This equality (identity) shows that the maximum speed at the nature is the decreasing physical quantity with the age of the Universe.

7.  $GQU \equiv EUL^3/(MAM \cdot EUT^2) \equiv A^{-0.5}$  – the gravitational quantity of the Universe (Newtonian constant of gravitation for TMP). From this equality (identity) it is seen that the gravitational quantity of the Universe is directly related to the age of the Universe and also is the decreasing physical quantity with the age of the Universe. From this formula the formula for the determination of the age of the Universe in units of NSN follows  $A \equiv GQU^{-2}$ . The age of the Universe in seconds will be calculated under the formula  $A \equiv \alpha \cdot GQU^{-2}$ , here  $\alpha$  is a fine structure constant.

8. The author's fundamental view about the elementary electric charge (ECN) in the nature is expressed by the following equality:  $ECN^2 \equiv \alpha \cdot EUM$ , here  $\alpha$  is a fine structure constant. From this formula, we get a determining formula for the elementary electric charge of the nature:  $ECN \equiv \sqrt{\alpha \cdot EUM}$ . The elementary electric charge of the nature is a constant quantity.

All the above-mentioned three concepts and eight items quite clearly define the basis for a new materialistic physics.

Note 1: Time has arisen together with Universe emergence. The time as such before appearance of the Universe did not exist. Before the 'first impulse' the natural universal clock did not work, then it was not simple. The steps of the Universe time correspond to the cycles of a rhythm of a connatural oscillator, the Singularity. The emergence of the Universe has launched the mechanism of the Universe time. Further, we will speak the universal (from the Universe) time. The time is the objective reality existing in the nature. The Universe time is absolute. The Universe time and age of the Universe are measured in the cycles of a rhythm of the nature. This is the dimensionless time. The Universe time is not infinite, it is the finite time. The finite quantity of the matter in the pristine Singularity defines the finitude of the total time of the evolution of the Universe. Between the universal (from the Universe) time and the matter emitted by the Singularity, there exists a one-to-one correspondence. The Universe time is measured by the amount of the matter received into the Universe from the Singularity. This will be the dimensional time. We have the following law of nature: **time**  $\equiv$  **matter**. "Arrow of the time" finds its explanation in this understanding of the Universe time.

Note 2: With the fine structure constant is due, according to the author, "splitting" the elementary unit of the time (EUT) into two phases: the phase of "atom of the matter" and the phase of the "fundamental particle". Each phase corresponds to the time of their fundamental interactions: the phase of an "atom of the matter" corresponds to the gravitational interaction

and the phase of the “fundamental particle” corresponds to the Coulomb interaction. In this sense we can speak of the “splitting” the fundamental interactions of gravitational and Coulomb at the Planck scale.

Note 3: The major consequence of author's researches is the possibility and the ability of axiomatically strictly, logically not contradictorily, physically faultlessly and harmoniously to construct the building of the theory of the modern materialistic physics and cosmology.

The building of the theory of the modern materialistic physics and cosmology it is possible to construct on the basis of three main basic physical quantities NUM, UCN and EUL. For this purpose we should take following steps. First, we need to define a unique and universal unit of measure in the nature (and nature) it will be the measure of all things in nature. This measure (unit of the measure) will be been the natural unit of matter (NUM). We will call this measure a ‘merilo’. Let  $\mu^4$  will be its reduced short name. Second, we must understanding the sense of the nature time and its definition ( $NUT \equiv NUM$ ,  $EUT \equiv EUM$ ). Third, we must determine the mass of an atom of the matter ( $MAM \equiv EUM/EUL$ ) and the mass of the fundamental particle ( $MFP \equiv EUM/DFP$ ). Additionally, we must determine the three fundamental physical quantities which take place in the nature. These are the maximum speed in the nature  $MVN \equiv EUL/EUT$  (speed of light in vacuum is the similar analogue in the TMP) the gravitational quantity of the Universe  $GQU \equiv EUL^3/(MAM \cdot EUT^2)$  (Newtonian constant of gravitation is the similar analogue in the TMP) and the elementary charge in the nature  $ECN \equiv \sqrt{\alpha \cdot EUM}$ , here  $\alpha$  is a fine structure constant. Let us now examine the list of the solved problems of a universe, dialectical materialism, the Universe, science, physics and cosmology in the framework of materialistic physics (Theory of the nature).

### **List of the solved problems and questions**

In their studies of the foundations of nature, presented in the article “Theory of the nature”, the author was able to solve a number of these fundamental problems of natural science, dialectical materialism, physics and cosmology:

1. The problem of the matter. A concrete representatives of a matter in the nature are found, it is the Singularity and an atom of the matter,
2. The problem of a universe (world construction). The materialistic model of a universe (YRA-model) is constructed. This is two levels model. This model includes two levels. First level of the universe is the micro-level, the level of the Planck scale, which is based on the model of an atom of the matter. Second level of the universe is the macro level, the level of the

cosmological scale, which is based on the model of the Universe. The microcosm and macrocosm are a single whole.

3. The problem of the Universe. Within the limits of a universe (world construction) model is constructed materialistic model of the Universe. The algorithm of its evolutionary development is positioned and presented. The Universe represents cosmological, material, extending object (body) with the central material core (the Singularity). The Singularity emits the matter at the form of an atom of the matter.
4. The problem of the Singularity. The Singularity is the central core of the Universe emitting matter. The Singularity is the natural unique material harmonic oscillator. The Singularity is also generator of the atoms of the matter.
5. The problem of the rhythm of the nature. The steps (cycles) of the rhythm of the nature are the cycles of the work of the Singularity which is the natural oscillator and generator.
6. The problem of an atom of the matter. An atom of the matter is unique minimum material carrier of the minimum quantity of the matter in the nature within our Universe.
7. The problem of the form of an atom of the matter. An atom of the matter has form of the 4-dimensional formation of the matter. It is matter's 4-ball.
8. The problem of the unity of the form and the content for an atom of the matter. For an atom of the matter the following sameness (identity) takes place '**form≡content≡matter**'.
9. The problem of the unique constant of the nature:  $UCN \equiv \{c^4 \cdot G^{-1}\}$ ,  $UCN = 1.21034 + 44$ .
10. The problem of the origin of the Universe. The Universe was formed from the initial Singularity as a result of a "first impulse" or an "initial shove". An "initial shove" has a material nature, but unknown to the modern science.
11. The problem of limitation, finitude and discreteness of the nature and the Universe. The Universe is the cosmological object, tandem of the "Singularity – Universe" limited and finite in all its forms, in all its characteristics. The total amount of matter in the Universe (in the tandem of the "Singularity – Universe") is limited and finite value. The total time evolution of the Universe is limited and finite value. The diameter of the Universe is limited and finite value during the entire time evolution of the Universe. The Universe consists of the discrete atoms of the matter, received an initial boost and impulse from the Singularity. The problem of the finitude and the limitation of the Universe closely, directly related to the amount of matter in the initial Singularity. This amount of matter is equal to the value UCN NUM.
12. The problem of infinitude of the nature and the Universe. There is no infinitude in the nature and in the Universe. No infinitude exists in the nature and in the Universe.
13. The problem of the finitude time existence or evolution of the Universe. The total time of the evolution of the Universe is UCN NUT or  $2.799 + 34$  years.

14. The problem of the modern age of the universe. The up-to-date age of the Universe is  $2.245 \times 10^{10}$  NUT or 51.917 billion years.
15. The problem of the time. The scientific explanation of the phenomenon of time consists that time is the steps of the rhythm of the nature. In this rhythm pulses the Singularity. The Singularity is the natural material oscillator and generator.
16. The problem of the Universe (universal) time as an absolute time. Our usual time directly is bound to a material oscillator which is the Singularity. The cycles of the oscillator are the time steps. The beginning of work of an oscillator has defined the beginning of the natural Universe (universal) time. The terminal of work of an oscillator will lead to the finish of the Universe (universal) time. This explanation of the time means that our Universe time is absolutely and finitely. This explanation of the time decides also the issue of the “arrow of the time”.
17. The problem of the relationship of matter and time. The time as duration is measured by the amount of matter received into the Universe from the Singularity. There is a simple formula of the time and the being (existence): **time  $\equiv$  matter**. The duration of the time is the dimensional quantity its dimension coincides with the dimension of the matter.
18. The problem of the “splitting” the elementary unit of the time (EUT) on two phases: the phase of the “atom of the matter” and the phase of the “fundamental particle”.
19. The problem of the form of the existence of the atoms of the matter. The atom of the matter exists in the form of interphase transition between the state of the phase the “atom of the matter” and the state of the phase the “fundamental particle”. We can literally say that an atom of the matter manifests itself in the nature, as the pulsating in the rhythm of the nature the tandem of the “atom of the matter – fundamental particle”. Moving between phases carries out at the form of the quantum surge of the matter. This phenomenon for the present is not known and not studied by the modern science.
20. The problem of the flesh of the Universe. The atoms of the matter pulsing in the rhythm of the nature form the flesh of the Universe. The quantum surge of the matter within the atom of the matter is accompanied by a decrease in the diameter of the atoms of matter. It occurs in the rhythm of the nature. It is the law of nature.
21. The problem of the fundamental particles (FP). The fundamental particle essentially is an atom of the matter, which is in the phase of the “fundamental particle”. Each type of the fundamental particles (electrons, protons, neutrons and et al.) has his permanent diameter. As a result of this the fundamental particle has a permanent own mass.

22. The problem of the fine structure constant (FSC). The fine structure constant is the ratio of the duration of the time of the phase the “fundamental particle” to the duration of the elementary unit of time (EUT).
23. The problem of the mass. The mass of an atom of the matter (fundamental particle) is the ratio of the amount of the matter contained in an atom of the matter (fundamental particle) to its diameter.
24. The problem of the elementary (electric) charge in the nature:  $ECN \equiv \sqrt{(\alpha \cdot EUM)}$ .
25. The problem of the elementary quantities of the nature. There are two the elementary quantities of the nature. These are characteristics of an atom of the matter. First, it is the amount of the matter in an atom of the matter  $EUM \equiv UCN^{-1} \mu^4$ . Second, it is the diameter of an atom of the matter EUL.
26. The problem of the diameter of an atom of the matter. The diameter of an atom of the matter EUL change (decrease) with the age of the Universe:  $EUL \equiv A^{-0.125} \cdot UCN^{-0.75} \mu^3$ . Here A is the age of the University in the natural steps (cycles) of the rhythm of the nature NSN.
27. The problem of the maximum speed in nature. The maximum speed in nature MVN (the speed of light in vacuum) change (decrease) with the age of the Universe according to the formula:  $MVN \equiv A^{-0.125} \cdot UCN^{0.25} \mu$ . Here A is the age of the University in the natural steps (cycles) of the rhythm of the nature NSN.
28. The problem of the gravitational quantity of the Universe. The gravitational quantity of the Universe GQU (Newtonian constant of gravitation) change (decrease) with the age of the Universe according to the formula:  $GQU \equiv A^{-0.5}$ . Here A is the age of the University in the natural steps (cycles) of the rhythm of the nature NSN.
29. The problem of the age of the Universe. The age of the Universe is defined and is calculated according to the following formula:  $A = GQU^{-2}$ . Here A is the age of the University in the natural steps (cycles) of the rhythm of the nature NSN. It is known that  $\{NUT\} = NSN$ , therefore A there is a numerical value of the age of the University in the units of the NUT. It is known that for the modern age of the Universe takes place numerical equality  $\{G\} = \{GQU\}$ . Here G is the Newtonian constant of gravitation. The value  $\alpha \cdot A = \alpha \cdot \{G\}^{-2}$  there is the age of the University in the seconds.
30. The problem of a uniform, unique measure (unit of the measure) in the nature and physics. Such unit of the measure is merilo:  $1 \mu^4 \equiv 1 \text{ NUM}$ .
31. The problem of a systemic crisis in the natural sciences and in physics. This crisis finds its resolution within the limits of the materialistic physics (Theory of the nature).

32. The problem of constructing a theory of the modern physics as axiomatic strict and logically consistent theory. And this problem finds its resolution within the limits of the materialistic physics (Theory of the nature).
33. The problem of achieving absolute truth in our knowledge of nature and its laws within our Universe. This truth reveals itself to us in the author's model of a universe, which includes a model of the Universe on the macro level and the model of the atom of the matter on the micro level.
34. The problems of the special and the general theories of relativity. These theories grounded on the recognition of a constancy of the speed of light in vacuum appear untenable and false.
35. The problem of the Higgs boson. In connection with definition of concept of mass of an atom of the matter and a fundamental particle the problem of the Higgs boson appears forced, artificial and false. The Higgs boson is fiction, it simply does not exist.
36. The problem of the Big Bang. In connection with findings of investigation of bases of the nature, stated in the author's article "Theory of the nature", undoubtedly that the Big Bang theory is imagination, instead of a reality. The reality is corresponded to by only the positions set forth in the author's article "Theory of the nature". According to this theory there was the initial Singularity containing all the matter of the Universe, and there was "first impulse", become by the beginning of evolution of the Universe. There was no Big Bang, in which our universe was formed.

All these listed above problems are the global problems, the problems of the modern science, the problems of the natural science, the problems of the dialectical materialism, the problems of the scientific world outlook, the problems of the physics, the problems of the cosmology. These problems are the problems of the first advanced edge of the modern science.

## Conclusion

Presented in this article the findings from the author's "Theory of the nature" once again convincingly emphasize the idea of the ancient materialists about the materiality of the world around us and whole nature. Concrete carriers of the matter in the nature are revealed, it is the Singularity and the atoms of the matter. This specificity of modern science was not enough to come to the conclusions that are presented in this article. To achieve clear and meaningful understanding of the material world around us in the macrocosm and in the microcosm it was possible only from the standpoint of the scientific theory of dialectical materialism. In his studies the foundations of nature and the world building (a universe) author has used the dialectical materialist scientific method of understanding reality. Modern natural sciences and

physics, having imbibed (absorbed) the ideas of dialectical materialism and the idea of the concept of the universe set forth in this article and in the author's article "The theory of nature", and put the matter in the framework of these theories by taking the matter to the bosom of these theories become the original true science about the nature. Thus, the physics becomes the materialistic physics. Dialectical materialism is organically assimilated these sciences, it loses its independent role. About it one and a half centuries ago wrote F. Engels, the founder of the dialectic materialism. The author is grateful to his grandson Maxim for joint nature walks. The nature, the material nature has allowed the author to understand and to realize to the full those ideas which he has stated in the present article.

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