

Micro structure of the Universe

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*Astrophysics has opened, that "dark" energy and a matter borrow almost 100 % of all Universe. But while their nature remains secret. There are attempts to explain this nature on the basis of existing theoretical physics. Concepts about neutrino are involved or hypotheses of other particles are put forward. The last ones are unknown to a science. In this area of imagination are limited by nothing. The author has published a material about the structure of vacuum responsible for "dark" energy and a matter. But to name vacuum that makes a basis of the Universe, not truly. Therefore it was necessary to address to concept **micro structures** of the Universe.*

In the book [1] the way of a conclusion of the basic characteristics of structure of vacuum is given. Here is a task in view of more "primitive" research of this structure which should be named by name heading of paper. Primitiveness consists in use of laws of Newton and Кулона:

$$F = G \frac{m^2}{R^2}; F = \xi \frac{e^2}{R^2}; F = \eta \frac{\Phi^2}{R^2} \quad (1)$$

Formulas demand the explanatory. Force is identical to all specified laws with the purpose of a conclusion of the basic laws. Distance between masses, electric charges e and streams of magnetic induction Φ are taken equal. In law Coulomb for magnetism usually mean hypothetical magnetic monopoles. On closer examination magnetic monopoles appear to be identical to streams of a magnetic induction.

In paper return values electric and magnetic permeability's of vacuum with exception coefficient 4π are accepted:

$$\xi = \frac{1}{\epsilon_0} = 8.98755179 \cdot 10^9 [a^{-2} m^3 kg s^{-4}]$$

$$\eta = \frac{1}{\mu_0} = 1 \cdot 10^7 [a^2 m^{-1} kg^{-1} s^2]$$

At substitution in formulas (1) an electric charge by quantum $e=1,602177335e-19$ *Coulomb* it is inevitably received from equality of forces of value of mass $m_x = \sqrt{\alpha} m_{pl} = 1.859429541 \cdot 10^{-9}$ *kg*. It appears that the unknown mass is equal to a root square of a constant of the thin structure increased by Planck's mass. Planck's mass is not casual and the found the mass is not occasional. In the book it is shown, that the unknown mass is the candidate on the smallest of "black hole". The quantum of a stream of a magnetic induction under Coulomb's law for «magnetic mass» has size $\Phi=4,8032042e-18$ *Weber*. Size of Φ the same is not occasional. It is defined from quantum of a stream of a magnetic induction for Cupper pairs of a electron in superconductivity: $\Phi = \Phi_q / \alpha^{-1} \pi$. These concurrences specify that the executed "suspicious" procedure is quite lawful. Formulas of Newton and Coulomb are faultless in any sphere of physics.

Substitution in the formula (1) mass of electron or a positron yields additional results, suitable for research micro structures:

$$\sqrt{\xi} \Delta e = \sqrt{G} m_e = \sqrt{\eta} \Delta \Phi \quad (2)$$

The most plausible interpretation of the received result consists that distinction of quantum's of electric charges (+) and (-) on size $\Delta e = 7.8490194 \cdot 10^{-41}$ *Coulomb* is found. This difference in charges of structure is capable to explain gravitation and the reason of expansion of the Universe:

$$F = G \frac{m_1 m_2}{R^2} = \xi (4\pi R)^2 \sigma_{12} \sigma_{21} - \text{The law of Newton, where (3)}$$

$\sigma_{ik} = \sqrt{\frac{G}{\xi}} \frac{m_{ik}}{4\pi R^2}$ *Coulomb /m²* - electric polarization of poorly charged structure of vacuum around of mass m_{ik} .

The size of the received part of a full stream of a magnetic induction explains a birth of electron mass a positron mass at entering necessary quantity of energy 1,022 *MeV* [2] in structure:

$$m_e = \sqrt{\frac{\eta}{G}} \Delta_e \Phi = 9.1093818850 \cdot 10^{-31} \text{ kg, at } \Delta_e \Phi = 2.35076812 \cdot 10^{-39} \text{ Weber. (4)}$$

Inertia of the magnetic phenomena is transferred to the any mass born from a stream of a magnetic induction.

Precisely also it is possible to define masses of any micro particles down to hypothetical boson by Higgs.

Preceding from formulas (1) it is possible to pass directly to micro structure. It consists from charges (+) and (-) between which there is a stream of a magnetic induction.

This structure is a source of gravitation and a source of expansion of the Universe owing to weak electric charge, a source of all masses. Dependence of a constant of Planck on structural elements is curious –

$$h = 2\pi e_o \Phi \alpha^{-1} = 6.6260687 \cdot 10^{-34} \text{ J.s.}$$

In the formula the electric charge and a stream of a magnetic induction together with a constant of thin structure 137,035998 is visible. There is an offer to consider Planck's constant as the characteristic micro structure of the Universe.

Summing up, it is possible to approve with good reason that in all conclusions there are no contradictions. The Universe is arranged very simply. Under eternally true laws of Newton and Coulomb. It is necessary to prove structure by any experiences. All of the phenomena in space and on the Earth there are direct proofs of structure. Gravitation exists, expansion of the Universe exists, electron and a positron masses, muons, protons and antiprotons are born at energy more than **1,022 MeV** [2].

The literature

1. A.V. Vacuum and substance of the Universe // "Restart", M., 2007, c.160.
2. Karjakin N.I., Bystrov K.N., Kireev P.S. The brief directory on the physicist // pub. HS. 1964, p.565.