

THE PHYSICAL VACUUM AND GRAVITY.

Abstract

The presence of dark matter and dark energy, which is also called physical vacuum substantially change our views on gravity. This is due to the fact that the vacuum has physical properties possessed by the liquid. These properties should be attributed primarily flow rate, density and impermeable screen for this substance.

Initially, we present a summary of our point of view gravity of the problem [1,2].

According to Newton's law of gravitation force between two bodies is subject to the formula $F = \gamma_c \frac{M m}{r^2}$,

where F – force, measured in N (newtons), M and m - mass of the two bodies, measured in (kg), r – the distance between the centers of gravity of the two masses, measured in (meters) and γ_c – constant of

Gravity ($\frac{\text{meter}^3}{\text{sec}^2 \text{ kg}}$). Rewrite the formula

for this force follows

$$w = \frac{F r^2}{m} = \gamma_c M, \text{ where } w \text{ have}$$

measured ($\frac{\text{meter}^3}{\text{sec}^2}$). Such dimension

has, in particular, changes of a vector flow some flux. General to conclude that, from the equality dimensions implies that physical quantities, in the general case is not correct.

Well known for the following example: dimension ($\text{New} \times \text{meter}$) has a scalar value –

work of force and a vector value-moment of force. Here we assume, and this is the hypothesis that we are dealing with a flux vector dark matter and possibly dark energy that makes up the so-called physical vacuum. In the early 20th century after Einstein's papers in physics, it was recognized that there is no ether in nature, and we

are surrounded by the vacuum of space. The author remembers that on the question of what is the temperature of the vacuum? The reply: the vacuum of space is a void that has not and can not have any temperature.

Is now generally recognized that so-called "void" has temperature. This temperature is measured and equal $2.731^0, K$.

The so-called "vacuum" has spiral, elliptical and irregular vortices. Inside one of these spiral vortices we live. Spiral vortices are well known in the atmosphere and hydrosphere of the Earth. These and other types of vortices have been observed in the atmospheres of Jupiter, Saturn and the Sun. Recently been done in Boston numerical experiment. Mark Vogelsberger and his staff have done this with Harvard supercomputer "Odyssey" with the latest software Arepo. Computer worked continuously for several months and in the virtual dark matter rose spiral vortices.

Time spent on the computer corresponding to about 14 billion years old in reality and virtual elliptical vortices in the time specified accounts and have not appeared. It is now believed that about three billion years, our Milky Way galaxy to unite with the neighboring Andromeda galaxy, and together they form an elliptical galaxy, and the Sun, or what remains of it, as the sun belongs to the class of stars that live about 7.8 billion years old, will be at a distance of 160

thousand light-years from the center of the new galaxy.

The so-called "vacuum" are convective cells of the form hexagonal honeycomb. Linear size of these cells is about 200 Mpc. Similar cells, but much smaller, and thus exceeding the diameter of the Earth, have been detected in the atmospheres of Saturn, Jupiter and the Sun.

In the so-called "vacuum" was discovered soliton that previously observed in the gaseous medium in the liquid in an optical medium that is a tangible media, rather than in a vacuum.

In the so-called "vacuum" takes place Casimir's effect, analog which exists in a gaseous medium and liquid. On the Internet, it is written that one Egyptian patented wing design for the spacecraft, which implements this effect. The result is something similar to a lifting force of an airplane wing, which can be calculated using the formula Zhukovsky, where the density of the medium used for the density of the physical vacuum. True rod will then be small, but the speed of the spacecraft will increase indefinitely.

In the so-called "vacuum" are real emptiness (voids), ranging in size from 100 Mpc to 3000 Mpc [3], in which no galaxies or no stars, and means no planets. Analogues of

this phenomenon are the air holes atmosphere and gas bubbles in a liquid. All of the above evidence supports the fact that the vacuum of space is not a void, but a peculiar medium having such a physical characteristic such as a flux. And then the law of gravity can be interpreted as follows: **the rate of change of the flux passing through a certain weight is directly proportional to the mass, and the coefficient of proportionality is the constant of Gravity.** In this case, between two masses will only

attraction and repulsion will never be. Incidentally, according to the statements of his contemporaries, answering the question of what makes one attracted to another body, Newton replied something like this. The more I think about it, the more it seems to me that we live in some kind of liquid that flows through us quietly. This view was developed Fatio [4]. In response to criticism that the small liquid particles will bounce off the surface of the body, he predicted that for this hypothetical liquid while all surrounding bodies are porous and even more than that consist mainly of empty space. Of course, while he could not allow such a heretical idea that an atom of any substance is virtually empty and particles such as neutrinos can penetrate through it unscathed. Recently, as a result of experiments failed to detect another flavor neutrinos, which called sterile neutrinos [15]. He was named sterile because it is not involved even in the weak interaction. Sterile neutrinos, with a significant mass (its mass must be higher than the tau neutrino) may become one of the main candidates for the dark matter particles in contrast to the hypothetical WIMPs, which has not yet been found.

Fatio hypothesis developed subsequently Le Sage [5]. Thomson JJ [6] considered the model of Le Sage suggested that the flow of extraterrestrial particles is a hypothetical form of radiation with much more penetrating than X-rays. That neutrinos have this property. I would like to mention the work of Henry Cavendish [7], Ettore Majorana [8] in the past and at the present time Robert Hilster [9,10], as well as an extensive review of S.G. Fedosin [11]. Neutrinos can not penetrate the nucleus and therefore, if you follow the gravity hypothesis presented here, no

gravitational interaction between the atomic nucleus and the electrons do not exist. Typically gravitational interaction is neglected compared with the electromagnetic, an enormous difference between these forces. Here is not considered insignificant little, and the exact equality zero. Exactly the same story happens, from our point of view, with neutron stars and so-called black holes. Neutrino passes through the body, the density of which

$\rho \geq 1022 \frac{\text{gramm}}{\text{sm}^3}$ and **therefore in the vicinity of the surface thereof and no gravity occurs. Thus Newton's formula would be fair for those bodies whose density is less than the specified number, and will not at high densities of cosmic bodies they represent an impenetrable screen for physical vacuum and no gravity.**

This means that in the center of spiral galaxies, including the Milky Way, there is no such body, which is due to the huge gravitational absorbs coming stars, but in general this body does not have any power of Gravity. An indirect confirmation of this fact are the following astronomical observations [12]. According to the Internet is indicated that with the Hubble Space Telescope in the center of the Andromeda nebula found ring consisting of more than four hundred young stars that orbit around the super massive black hole, and that there is the theory of black holes there in principle should not be. Located in the form of a disk, diameter of one light year, they will inevitably have to be broken by the gravitational field of the central black hole, not even reaching the embryonic phase of development. Meanwhile, according to the data onboard the Hubble spectrograph STIS (Space Telescope Imaging Spectrograph), these stars are well developed at least 200 million years.

Curiously, writes New Scientist SPACE, the ring of blue young stars surrounded by another ring of red giants, extending approximately 5 light years, and lying in the same plane. In some respects, which are not similar ring and surrounds the central black hole Milky Way. I.e. detected in M31 (Andromeda) phenomenon not so unique and does not fit into the concept of black holes.

According to [13] the astronomers who worked at the Keck Observatory telescopes discovered star SO-102, located at a distance of 120 A.U., which comparable to the radius of the solar system, that interstellar distances negligible. Despite such close proximity with all the absorbing black hole, the star was not absorbed and more revolves around This black hole with a velocity of about 10,000 km / sec.

Listed facts can not be explained on the basis of the theory of the existence of black

holes, but from the assumption that gravity is caused by their neutrino flux you can explain. However, to prove this hypothesis, an experiment is needed to determine the rate of change of the neutrino flux at its passage through the Earth. Neutrino flux was measured in the experiment [14].

Unfortunately, due to a technical error, which wrote much Internet experiment declared invalid. Repetition similar experiment delayed at least for a year.

Conclusion

In operation, based on the description of some theoretical hypotheses, including and works of the author, as well as a number of astronomical observations it is concluded that in the center of spiral galaxies there is a massive object that has no gravity. The situation in the

center of these galaxies resembles situation inside the eye of a typhoon or hurricane on Earth. Raging all around, and there all is quiet and calm.

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