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The fundamental worldview optical experiments in the representation about of the dark matter of the universe.

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Abstract

The content of the article is based on the assumption that the space between the bodies of the universe has been filled by the "gaseous dark matter." In essence we are talking about the fact that in addition to the of solids, liquids and gases, in a nature there is a fourth, elastic medium that fills the entire space. The dark matter is in a gaseous state. It is invisible, about the same as a person does not see the surrounding air. It has not a smell or a taste.

However, in our studies [1,2] using the continuum mechanics medium it was determined the physical properties of this gaseous dark matter (gas dark). They have some the differences from the properties the terrestrial of gases. The mechanism of the interaction of dark matter and baryonic matter was investigated. It is shown that the baryonic body continuously absorbs a dark gas from the surrounding space. On this basis, to a series of mysterious of the natural phenomena has been offered the explanations [1 ...7].

Dark matter is different from the ether 18-19 of the century , wich in a science has been assigned the role of the elastic environment, between the stars. Through this medium the light could propagated in the form of waves. It was assumed that this is a very rarefied environment, which therefore does not interfere to move the space bodies through this environment. Nothing other nobody did not expect from it. Therefore, all researchers quite easily abandoned from it when it became clear, that there is the contradiction between the phenomenon of "stellar aberration" and famous optical experiences Michelson. The contradiction lies in the fact that the "stellar aberration 'showed that the Earth in its motion did not drags the interstellar medium. And " Michelson experiment ", by contrast, shown that the Earth motion around the sun completely drags wednesday. To explain this contradiction the physics of the time could not.

Due to the fact that according to modern ideas light quantum is a chain of the photons (linked by an electromagnetic forces), it has not only a wave properties, but also a corpuscular properties. Accordingly to its distribution in space is applicable the laws of relativity of Galileo and Newton on the addition of speeds when moving any material bodies, including the photons. We show in this paper that with this understanding of the laws of a motion and a reflection of light, the contradiction between the phenomenon of "stellar aberration" and of experience Michelson is eliminated. On our view it is removes the objections of Einstein and other relativists against the possibility of the existence in space of a dark matter and a dark energy.

1. The speed of the Light

The basis of our research was the presence in the space between the stars of the dark mother, wich was revealed by the astrophysics. We have assumed that a dark matter is in a gaseous state and are fairly evenly fills the entire space of the universe. It is not visible, is tasteless and odorless. It can not be weighed, as it is easily permeates inside baryonic bodies, even as big as planets and stars around us. The jets of a dark gaseous matter (dark gas), penetrating through the body, forced to flow around the outside only a very dense nuclei of atoms and some other equally dense formations. Nevertheless, it can be detected, because it interacts with the baryonic matter. This interaction in our opinion is that the baryonic bodies continually absorb a dark gas. This leads to an increase in the mass of the baryonic bodies and the emergence of a dark gas flows in the space between them The interaction of the flow of a dark gas with planets and stars has caused the force of gravity and the force of inertia at the baryonic body. It must be noted what priroda these phenomena so far not understood physics.

So far we had not considered with a significant objection to against the dark gaseous matter related to the contradictions in the interpretation of the optical experiments related to the phenomenon of stellar aberration and experience Michelson. On the basis of the first experiment it was concluded that the Earth in its motion around the sun does not drags for yourself the dark a gas, and the second, that it completely it draws. Therefore it is necessary to better understand the physical nature of light, which is quite contradictory. For this we turn to the history of the astronomical and physical methods of the determination of the speed of light.

Recall that the first attempt to determine the speed of light was taken in 1607 by Galileo. The only result of this effort was an understanding what the speed of light is very high. Subsequently a number of more accurate methods were developed and implemented. In 1676 the astronomical method Roemer was offered, based on observations of abnormalities in the eclipse of Jupiter's moons. This method gave the underestimated speed of light 215000 km / s. In the early 18 th century, a method was developed stellar aberration. It allowed to determine the speed of light c = 303000 km / s. The error amounted to about 3000 km / s. In our opinion it may be not error, but the difference due to the influence of the dark matter in the light depending on the difference in distance between the investigated stars. In 1849 Fizeau had carried the method of a cogwheel which when rotating or transmits light between the teeth, or is overlaps his road. One could choose the number of teeth, the wheel speed , the distance between the light source and by the reflecting mirror so that the light on the screen was not disappears. Deciphering these indications, allowed to Fizeau to determine the speed of light as $C = 299870 \pm 50$ km / s. In the future, this approach to the problem has been improved by the method Foucault rotating a mirror and by the method of Michelson a rotating prism. Since all methods of measuring the speed of light were in the air, then the results were corrected by a known refractive index of air. It is possible to determine the speed of light in a vacuum with a very high

accuracy (C = 299776 ± 4 km/s). At a rough estimates with a sufficient accuracy can to assume C = 300000 km/s = $3 \cdot 10^{10}$ cm/s=$3 \cdot 10^{8}$ m/s.

On the basis of these experiments in the minds of physicists and astronomers firmly entrenched the idea that the speed of light is constant, independent of the speed of its own light source and of the reflecting surface. This confidence was reinforced by the fact that this feature is also the characteristic of the sound in air and in other known a gases and a liquids. So it seemed quite natural that in the dark gas of the interstellar space the light is similar to the propagation of sound in the air.

However, the astrophysics was not failed to reconcile these two experiences. therefore, astrophysics in accordance with the views of the theory of relativity began to consider that between the stars is an empty space, and a light travels in a vacuum at a constant rate C = $3 \cdot 10^{8}$ m/s. Its the speed was considered the limit for a light and a material bodies. It is not dependent on the specific speed of the source and the reflecting surface.

But is it really? Currently in astrophysics firmly established the existence of a dark matter in the space between the stars and other baryon bodies. So we shall to try again to look with fresh eyes at the results of the methods for determining the speed of a light. We note that a common feature of the high-precision physical experiments is that they measure the average speed of the light beam during the passage of a fixed distance necessarily in forward and reverse directions. This means that if, say, the forward speed of a light is greater than C by an amount V, and in the opposite direction by the same amount is smaller then the average velocity is equal to the speed C. **The speed V disappeared from the sight, and it could not be fixed at this experimental procedure, no matter how reduced the distance between the light source and the receiver, and no matter how an accuracy was increased.**

Therefore, it can be argued that these experiments, despite their diversity and accuracy of some of them, do not reject the possibility for a light to spread with respect to material bodies or the gaseous dark matter between them at a speed different from the speed of light in the vacuum. Apparently, in the history of science the experiments are not known, except in the Doppler phenomenon, which was conducted specifically for the study of the laws of the emission and the reflection of a light by moving the light source and the reflecting surface.

In a sense, the physics has made a big step in the direction of the withdrawal from the dogma of the theory of relativity about the constancy of the speed of light, recognizing that the bearer of light are photons, that is a material body, but not a sound waves in gases and liquids. This alone requires a revision of views on the laws of emission and reflection of light and makes the return to the law of addition of the velocities of the bodies formulated by Galileo and Newton and accepted in classical mechanics for the material bodies.

Continuing to develop the emerging trend, we note that a photon leaves the atom with the speed of light (in a vacuum), "C" with respect to the atom itself. If the atom emitting a light itself is moving at a speed "V" with respect to the observer and the undisturbed dark gas around atom, the speed of the photon, as is known in a practice movement the baryon material bodies is the vector sum of these velocities, and may be written by the formula

$$\vec{\mathbf{C}}' = \bar{\mathbf{C}} \pm \bar{\mathbf{V}} \qquad (1)$$

In connection with this it is possible to try to clarify the formulation of the laws of a radiation and a reflection of light, without coming into a conflict with the known methods of determining the speed of light.

The law of light emission: When moving the radiation source with the velocity V relative to the field relaxing dark gas and associated with it of the observer in direction of the light wave with respect to the field of the dark gas $\overline{C}'$ determined by the vector sum of the speeds $\overline{C}$ and $\overline{V}$:

$$\vec{C}' = \vec{C} \pm \vec{V} \qquad (2)$$

Here C - the velocity of light in a dark gas relative to the source of the radiation. It is equal to the speed of light in the vacuum. The direction of a propagation of the light from the source is taken as positive, and it corresponds to the "+" sign. If the light source is moving in the opposite direction, he has the sign "–". The formula implies that the speed of a light in the dark gas relative to the radiation source or the observer moving relative to the dark gas with the same speed V, is equal to C.

The law of reflection of light: the law of the reflection of light should take account the velocity of the reflecting surface with respect to the radiation source. The sign "–" before the speed of the reflecting surface U corresponds to its movement in the direction of the light source, and the "+" in the opposite direction. The speed of the incident light beam relative to the reflecting surface in this case will be expressed by the formula

$$\vec{C}_l = \vec{C}' \mp \vec{U} = \vec{C} \pm \vec{V} \mp \vec{U}. \qquad (3)$$

Here $\overline{V}$ and $\overline{U}$ - the speeds of the light source, respectively, and the reflective surface relatively dark gas. The relative speed of the fall C_l is equal to the relative speed of light reflection C_l' . The angle of the incidence equals the angle of the reflection. The speed of the reflected light beam with respect to the dark gas C'', as in the case of radiation, is determined by the vector sum:

$$\vec{C}'' = \vec{C}_l' \pm \vec{U}. \qquad (4)$$

The sign "–" before the speed of the reflecting surface U corresponds to its movement in the direction of the light source, and the "+" in the opposite direction. Therefore, as can be seen from (3), at equal velocity V and U the speed of light with respect to the source and the reflecting surface is equal to the speed of light in vacuum.

At the moment, to be mainly a ban for this a view on the speed of light is not an experiment and the astronomical observations, but is the corresponding postulate of the theory relativity. So once again we note the most important from our point of view. No objective restrictions based on the experimental data or from the observation that the rate of propagation of the light with respect to a dark gas or material bodies could be more or less than the speed of light in vacuum, but dependent from the velocity of the emitting and the reflective surfaces. What is then bring us the rejection from the dogma of the constant speed of light in a vacuum, independent of the velocity of the source or the observer? As in this case will look like the phenomenon of the stellar aberration and the optical Michelson's experiment? Let us examine this question in the following sections.

2. The explanation of the Michelson experience

The Michelson experiment was performed to detect the motion of the Earth with respect to the any gaseous medium (e.g., dark gaseous matter or ether) at the world space. It is known that the Earth moves in its orbit at a speed of about 30 km/s, is involved in the overall movement of the solar system relative to the center of the galaxy at a speed of 220 km/s, and in the movement of the galaxy.

The main idea of this study was the assumption that if the dark gas located in the space around the Earth then the motion of the Earth should give the rise to a significant difference in the numerical values of some variables in the propagation of the optical beam of light along and across the direction of motion of the Earth. The speed of light is assumed to be constant to depending on the velocity of the radiating source and the reflecting surface. The leading role in the experience played the interferometer. This interferometer and the experimental method was described in the many books [8,9]. Note that Michelson and subsequent researchers have not found the expected differences. On this basis, it was concluded that or the interstellar space empty or dark gas (air) is captured by the earth. However, this latter assumption contradicts the results of the phenomenon of star aberration [9].

In this work the explains classical Michelson via formulated in the preceding section of the radiation laws and light reflection (see Eq. (2) - (4)). We believe that the Earth in its motion does not carry the dark gas after yourself. The scheme Michelson interferometer shown in Figure 1 in simplified form.

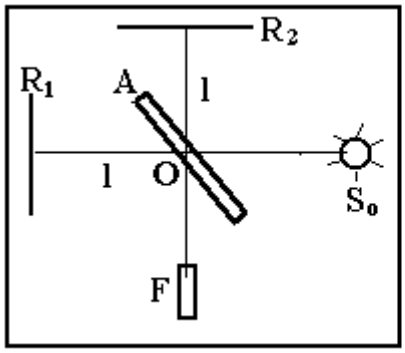

Figure 1

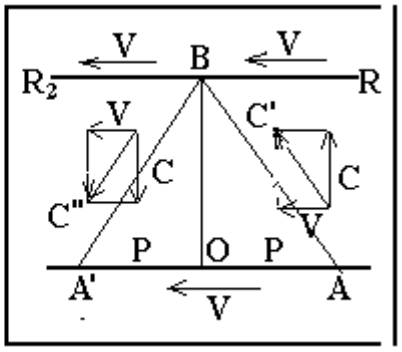

Figure 2

The beam coming from the source S_o, partly reflected in the point 0 from the glass, slightly silvered plate A; further it is reflected from the mirror R_2, and part of it passing through the A, enters the telescope box in F. Another part of the beam S_o passes through the A, it is reflected from the mirror R_1, again in part reflected in the 0 and also falls into the pipe F. The observer sees the interference fringes F, depending from the difference by the time of passageways $0R_10$ and $0R_20$ by two the beams.

It is clear that, if the device is stationary with respect to the dark gas, then the time spent on the movement of the light rays is equally, the same as each of them is traverses a path with $2l$ the speed C. This time is equal $t = 2l/C$.

Let us now consider the impact of the interference phenomena wich must be during the time the movement of the whole instrument, along with the Earth in a fixed dark gas. We assume that this movement takes place in parallel to one of the destinations $0R_1$ or $0R_2$. The distances $0R_1$ and $0R_2$ are equal. Thus, we can to imagine that the light source, is located at the point 0. Let the source and the mirror moves in the direction of the straight line joining them, with velocity V relative to the dark gas. According to the formula (4) at the outlet from the point A the speed of the light beam relatively a dark gas taking into account the extra speed V will $C'=C+V$. The speed relative to device, which itself moves in the same direction with a speed V would $C_l=C'-V=C$. Therefore, the passage way from 0 to R_1: $t_1 = l/C_1 = l/C$. The light beam fits to the mirror with a relative velocity $C_l'=C'-V=C$. According to the formula (4) the reflected beam starts to

move in the opposite direction at a speed C″ relatively a dark gas. There C″=C$_1$′-V=C-V. The speed of the reflected light beam with respect to the device, which is now is moving forward with a speed V, will be $C_1^{"} = C^{"} + V = C$. The time of the passage way l from R$_1$ to 0: $t_1^{"} = l / C_1^{"} = l / C$. The total time of the passage of the light beam range $2l$ of 0 to R$_1$ and reverse: t$_1$=t$_1$′+t$_2$″=2l/C. The movement of the device relative to the dark gas does not change the time of passage by the beam the of path in the direction of the velocity V.

Let us turn to the case where the light source A (beam splitters) and mirror R$_2$ is moving perpendicular to the direction of propagation of the light beam 0R$_2$. The detailed fragment of the beam of the light in this case is shown in Figure 2. According to (2) the speed of the emitted light beam in the AB direction in view of the direction and magnitude of the velocity V of the light source will be $C' = \sqrt{C^2 + V^2} = C\sqrt{1 + \frac{V^2}{C^2}}$. As the device moves in the direction R$_2$R$_2$ with speed V, the relative velocity of the incident beam of light in this direction is zero, and in a direction perpendicular to the movement of the device, the speed of the incident beam is C. The reflected light beam has an angle of reflection equal to the angle of incidence. It has a speed equal in absolute value according to the formula (4) the rate of incident light $C'' = \sqrt{C^2 + V^2} = C\sqrt{1 + \frac{V^2}{C^2}}$, as the speeds of U = V. The road that a beam of light passes in the dark gas there and back, will

$$S = 2\sqrt{l^2 + p^2}. \qquad (5)$$

In the direction of the line B0 a light beam travels at the speed C, and in the direction AA' a light beam travels at a velocity V. Therefore it is possible to make the proportion $p / l = V / C$, from where it is $p = l \cdot V / C$. We shall be insert this value in the formula (5). Then the path S can be written as follows $S = S' = 2\sqrt{l^2 + l^2 \frac{V^2}{C^2}} = 2l\sqrt{1 + \frac{V^2}{C^2}}$. The time it takes a beam of light on the passage of the path is defined as $t_2 = \frac{S'}{C''} = \frac{2l}{C}\sqrt{\frac{1 + V^2/C^2}{1 + V^2/C^2}} = \frac{2l}{C}$. Comparing the result with the time t$_1$, we find that t$_1$ = t$_2$.

Thus, due to the motion of the entire system the time of movement of the light source to the mirror and back, in the two mutually perpendicular directions are the same, and furthermore, they equal to the time of transit of the light rays of the distances when the appliance is motionless relatively a dark gas. It is therefore natural that the experience of Michelson has not gave a displacement of the interference fringes and did not show the expected effect of the Earth's motion in a stationary dark gas on the optical characteristics of the light. No matter how big nor was the speed of the Earth relative to the dark gaseous matter, Michelson's experiment can not to reveal this.

Given the large number of previously described in [1 ... 7] of the evidence to the availability of the dark interstellar gas and its great role in the formation of inertial forces, the forces of attraction, in the energy processes occurring in the universe, it would be regarded as of Michelson experimental the proof contained in this work of the laws of the radiation and the reflection of a light. Moreover, if such an experience was not carried out, it should be devise to test and validate these laws.

We must to say frankly that the physics itself invented the difficulties by postulating the constancy of the

speed of a light, its the independence from the velocity of the source and the reflecting surface. Physics wrongly departed from known the principles of the relativity of Galileo and Newton. By the analogy with the propagation of a sound in the gases and the liquids was considered that the light wave is propagating in a dark gas equally. Therefore it is only natural for the speed of a light have also recognized independent from the speed of the radiation source and the reflecting surface. Therefore, in the future in science a struggle was being occurred with the apparent contradictions in the interpretation of the experimental results the Michelson and stellar aberration based on the erroneous постулате. In the result of this struggle it was the emergence of a bizarre theory of the relativity, with its the paradoxes, contrary to the practical life of the mankind.

Currently, the success of the physics led to the recognition that the light wave has the particle properties, along with the wave properties. This allows you to return to the principles of the relativity of Galileo (Newtonian mechanics) within the meaning of the processes of a radiation, a propagation and a reflection of a light. Wave properties of a light is manifested in the phenomena of the interference, diffraction and polarization, by characteristic of de Broglie waves accompanying the flying photons.

All of our previous the studies have led us to the unambiguous conclusion that the speed of light depends on the velocity of the source and the reflecting surface. This the refusal from the acknowledge this fact has led to a crisis in physics first late nineteenth early twentieth centuries, and then to the appearance of Einstein's general relativity with its paradoxes, contrary to the daily practice of the mankind. Naturally, we are not the first who are interested in this issue. In the history of the science knows about the discussions in the journal Physikalische Zeitschrift about the issue depends whether or not the speed of a light from the speed of a light source. While the dependence

$$\vec{c}' = \vec{c} \pm \vec{V}$$

justified E. Freindich, Ritz and others. It was the basis of the so-called the ballistic Ritz hypothesis [10]. The discussion was cut short by World War 1st with the negative conclusion for to this point of view. The prevailing view was that the speed of light in a vacuum is the constant and independent of the velocity of the light source (C = const). Ritz ballistic hypothesis was rejected because of its apparent contradiction with the spectroscopic observations of the double stars, grounded in the work of de Sitter. We will examine this issue in another article.

2. The aberration of a light

In the early 18th century the English astronomer Bradley, watching the stars, he noticed that their situation is changing with a one-year period This indicated a link with the movement of the Earth. All the stars near the pole of the ecliptic is performing the circles within a year with the exactly same radius $\alpha = 20'',5$. The observations have shown that the shift does not depend on the distance from the Earth to the stars. A star falls short of the expected position on the ¼ of turn. This phenomenon was called of the aberration of the stars.

In 1728 year Bradley found the explanation of the aberration. It is caused by a combination of traffic a light with the movement of the Earth in its orbit. To understand this, let us turn to Fig.3

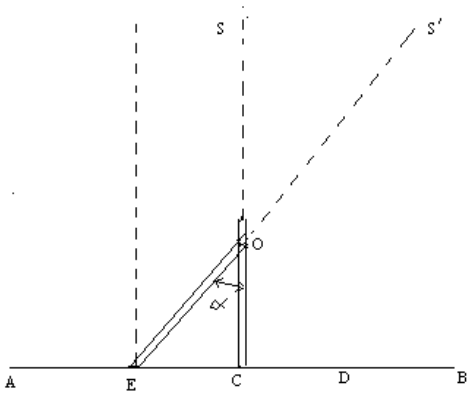

Fig. 3

Let the observer will has set his pipe in the direction of CO, perpendicular to AB. Since the speed of a light, although very large, but not infinite, the light from the star passed the lens O, reach the eyepiece C after some period of time t. But for this time, the eyepiece is moved from the point C to point E. In order to light from it reached of the eye of the observer, it is necessary to move the eyepiece end of the tube at E. The distance EC is the path that the Earth passes in time t. In this case the light reaches the point C at the very moment when the eyepiece will comes in it Thus we see the star not in the direction of CS, but in the direction ES'. It would be shifted in the direction in which the Earth moves at a given time.

We define the offset. Let C denotes the speed of light, V - the velocity of the Earth. The light goes the way OC during t, and the Earth at the same time goes the way EC. Consequently

$$\frac{EC}{OC} = \frac{V}{C} = tg\alpha \tag{6}$$

The speed of light $C = 3 \cdot 10^8 [m/s]$. The speed of the Earth $V = 29{,}7[km/s]$. From (6) we obtain

$$\alpha = 20'',48 . \tag{7}$$

This value is called the constant of aberration. These studies were carried out by Bradley, assuming that the space between the Earth and star is empty. And if it is filled with gas, then the Earth in its motion does not drags the gas. Let's see how this will affect the result of our assumption that this space is filled with a dark gaseous matter.

In [1,5] it was shown that in its movement around the sun in an orbit the Earth does not drags the dark matter. The substance of Earth relative to the size of the particles of dark matter is a very porous structure. According to [1,2] the size of the elementary particles of a dark gas is of the order $10^{-25}[m]$. While the size of the atomic nuclei baryons are of the order $10^{-15}[m]$, and the distances between the nuclei of the atoms is not less $2 \cdot 10^{-10}[m]$. So when the earth is moving through the dark gas this dark gas permeates the earth, flowing around only a very dense nuclei of atoms of earth materials. Therefore, the Earth does not drags the dark matter and does not alter the conclusions of Bradley.

Incidentally, although it is believed that the value $\alpha = 20'',48$ is a constant, but slight the difference in its value for different stars was marked. This difference was interpreted as an error of measurement. We believe that this is not the measurement error, but the very real differences that depend on the distance to the star. Ie these differences depend from the time of the travel of a light wave through the dark matter. In [3] it was shown that the speed of light is reduced in the long-term movement of the photons through the dark gaseous matter.

The Sagnac experiment

Michelson, despite the negative result of his famous experiment believed in the existence in outer space continuum elastic medium (at that time it was called ether) and soon developed the idea of a new rotational experience for its detection. This experience was carried out in 1911 by Sagnac. The schematic diagram of the Sagnac interferometer is shown in Figure 4. The interferometer was assembled on a rotating platform and consisted of a light source, a splitter plate P, the three mirrors $3_1,3_2,3_3$ and the telescope. The splitting plate separated the light beam from the source at the two coherent beams, describing the lines at perimeter platform in opposite directions. Going round the circle they meet again at the splitter plate, then the light rays sent to the telescope to obtain the interference pattern. It was assumed that the rotation of the interferometer does not drags the interstellar medium after its and the interstellar medium remains stationary. It was expected that there will a shift in the interferometer spectrum bands and it show the rotational movement of the device relative to the interstellar medium.

In the Sagnac experiment was obtained by the stunning the result confirming the presence of the fixed interstellar medium. In future for its designation we will use the terms "gaseous dark matter" and "dark gas." This result was obtained with a high degree of accuracy. However, it seemed that he was in an insoluble contradiction with the experience of Michelson. Surprisingly, but the scientific world, which just come out of the crisis with the help of the theory of relativity A.Eynstein had refused to plunge into a new crisis, full of doubts and disagreements. As a result, the experience of Sagnac was ignored by the majority of the physicists and, moreover, in further it was silenced in the educational and scientific literature. This gap needs to be corrected, and needs to be analyzed the experience of Sagnac, to make sure that it does not contradict set out in this book of the laws of the propagation of a light in the gaseous dark matter. In accordance with the laws of reflection and radiation of a light (2), (3), (4) the speed of a light relative to a fixed gaseous dark matter while rotating platform will be:

at the direction of rotation

$$C_{+}^{'} = C + U \cdot Cos45^{o}; \qquad (8)$$

against the direction of rotation

$$C_{-}^{'} = C - U \cdot Cos45^{o}; \qquad (9)$$

Here U=ω·r - a circumference speed of the device, along with a platform at a distance r from the axis to a circle located on it mirrors and splitter plate.

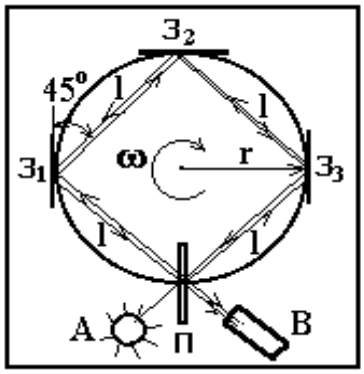

Fig.4

The difference in the magnitude of the velocity $C_+^{'}$ and $C_-^{'}$ was formed at the time radiation of coherent beams on the splitter plate П. In accordance with (4), it does not change when rereflection rays from the mirrors $З_1$, $З_2$, $З_3$. The distance l traveled by the beam in a quiet dark gas while rotating system of the mirror is also not changed due to the fact, that a mirror moving at a tangent to the circle connecting them. Therefore, the time difference of motion colliding rays will

$$\Delta t = \frac{4\ell}{C - UCos45^o} - \frac{4\ell}{C + UCos45^o} = 8\mathrm{Cos}45^o \frac{\ell U}{C^2}. \qquad (10)$$

This corresponds to the appearance of the optical path difference, containing many optical wavelengths λ, how many times during one period T of the light fluctuations is contained in the difference Δt. Let N - the number of bands at which in this case should shift the entire system of bands. Then

$$N = \frac{\Delta t}{T} = \frac{8Cos45^o \ell U}{C^2 T} = 8Cos45^o \frac{\ell}{\lambda}\frac{U}{C}, \qquad (11)$$

since λ=CT. It is this value was obtained in the Sagnac experiment.

It should be noted that in this article expounded the theory, wich had explained the phenomenon of the stellar aberration to combine the experience of Michelson and Sagnac experiment. This eliminates the inconsistencies in their interpretation. This is a clear confirmation of the existence of gas in space of dark matter and of our understanding of the laws of propagation of light.

By the way, for the perception of this concepts nature of a light is enough to make just one more step in the direction of the expanding notions of the duality of a light - to abandon the dogma of the constancy of the speed of light. It's not scary, because it will mean a return to a normal and a natural representation of the addition of the speeds used in the daily life practice, physics and mechanics. It should disseminate these ideas on the motion of photons and escape from the well-known paradoxes of Einstein's relativity theory.

The phenomenon of the Doppler in the gaseous dark matter (dark gas)

The phenomenon of Doppler is widely used in astronomy to determine the radial velocities of the stars and the nebulae in relation to the Earth, in order to determine the angular velocity of the object and in some other cases, the science and the technology. This phenomenon describes the relationship between the oscillations emitted by the source, and the vibrations perceived by a recording device, and if the source and device is moving relative to each other.

In [9] states that "in order to the vibrations can be distributed from the source to the device in the form of waves, the instrument and the source should be immersed in a continuous elastic medium." These views fit well into the picture of the propagation of a light in the dark gas. At the same time it should be noted that the

rate of propagation of the light depends on the speed of the radiation source and the radiation is described by the light in the dark gas (2).

As in [9], we agree to consider the velocity of the source relatively the dark gas U at the positive value if the source is moving towards the source to the device. If the source is removed from the instrument, its speed will be negative. A similar condition we introduce for the sign of the velocity of the device relative to the interstellar medium: at the approach to the source we assume her by positive magnitude, while removing from the source we assume her by negative magnitude.

Let the recording device and the source are moved simultaneously relative to the field of dark gas in which light waves propagate. The source of the radiation is moving toward the recording instrument with a speed U> 0, relative to the field of dark gas. The recording device can move in the same direction relative to the field of dark gas at a rate V <0 or towards the source at a speed V> 0. Accordingly, and in view of the law (2) the relative velocity of the light wave with respect to the device, moving forward, will be C + U + V. Suppose that the product CT is the wavelength of light λ. Then The number of the waves that have passed per unit time past the device (frequency)

$$\nu' = \frac{C+U+V}{\lambda} = \frac{1}{T}\left(1+\frac{U}{C}+\frac{V}{C}\right) = \frac{1+V/C}{1-U/C}\nu.$$

If the device is removed, the relative velocity of the light is C+U-V. The number of waves, that have passed per unit time past the device (frequency), and in this case is

$$\nu' = \frac{C+U-V}{\lambda} = \frac{1}{T}\left(1+\frac{U}{C}-\frac{V}{C}\right) = \frac{1-V/C}{1-U/C}\nu.$$

Thus, ν' depend differently on the speed of the device V and speed of the source U relative the field gaseous dark matter. The formulas obtained here coincide with the formulas [9] for the light waves propagating in an elastic medium with a constant speed independent of the own speed of its light source. Therefore, their practical use is not different from the usual practice.

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