Superluminal photons

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Abstract . The properties of dynamic space-matter are considered, a special case of its fixed state is the Euclidean space-time of modern theories. Such dynamic space-matter is already represented in the quantum coordinate system. And already under such conditions the possibility of the presence and detection of superluminal photons is presented.

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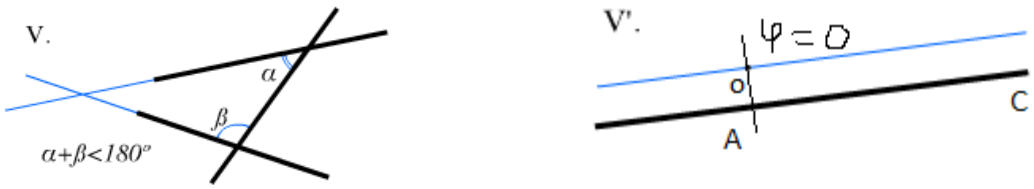
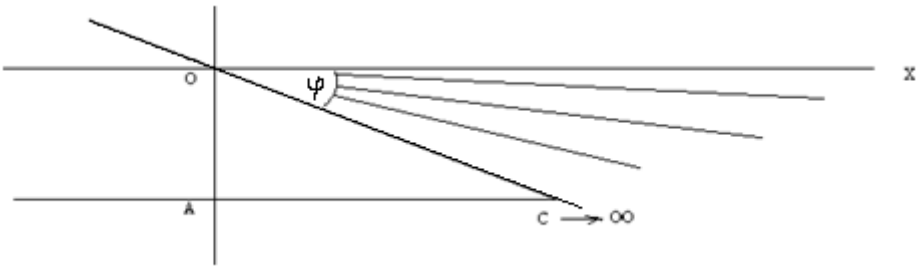
1.Introduction.

The tool for cognition of the laws of Nature is mathematics, the basis of which is the Euclidean axiomatics. Let us highlight here the definition of a point, a line and the conditions for parallelism of straight lines.
1. "A point is that of which nothing is a part") ("Principles" by Euclid). Or, a point is something that has no parts,
2. Line - length without width.
3. and 5th postulate about parallel straight lines that do not intersect. If a straight line intersecting two straight lines forms interior one-sided angles less than two right angles, then, extended indefinitely, these two straight lines will meet on the side where the angles are less than two right angles.



rice. 1 Euclidean axiomatics .

In this case, many points at one point give again a point. Is it a point or a set of them, determined by a certain relationship between the elements of the set? Or, many lines in one line, gives a line again. Is it a line or many of them? Euclidean axiomatics does not provide answers to such questions. On the other hand, in Nature there is no space without matter, and there is no matter outside space. Space-matter is one and the same. The main property of matter is movement. In Galileo's experiments, a ball after an inclined plane moves along a horizontal plane endlessly, without external resistance forces. The main property of dynamic space-matter, within the dynamic angle of parallelism, (United **Theory 2 ,** http://viXra.org/abs/2210.0051) is also movement.



rice. 2. Dynamic space-matter.

Straight lines passing through point O , within the always dynamic angle of parallelism $(\varphi \neq const)$, do not intersect AC at infinity. Infinity cannot be stopped, which is why such a dynamic space always exists. In general, we are talking about dynamic space-matter. Its properties are discussed in "Unified Theory 2". Let's highlight the main thing. From the Euclidean space OAS, we cannot get into dynamic space-matter, within the always dynamic angle of parallelism $(\varphi \neq const)$. Euclidean space itself in the XYZ axes loses its meaning.

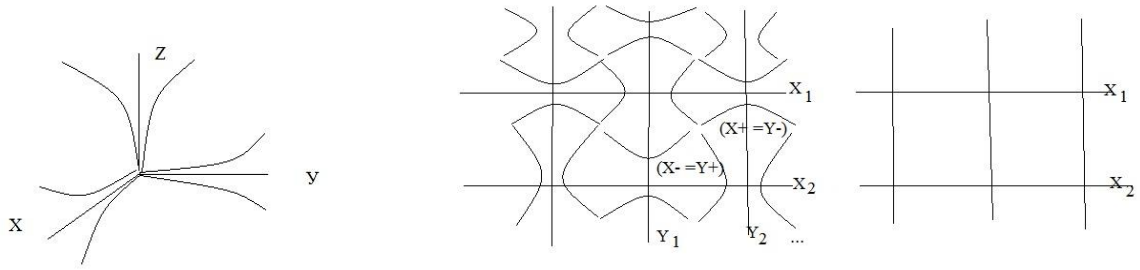


Fig.3 dynamic space-matter

Within the framework of the Euclidean $(\varphi = 0)$axes grid, we do not see dynamic $(X+= Y-),(X-= Y+)$ space-matter, and we will not be able to imagine it. Therefore, the axioms of dynamic space-matter are introduced as facts that do not require proof. Already in these axioms the problem of the Euclidean axiomatics of a point, as a set of indivisible sphere-points, is solved in one indivisible sphere-point, but already on (n) convergence, dynamic space-matter. Any fixation (in experiments) of a non-zero $(\varphi \neq 0)$ angle of parallelism gives a multisheet Riemannian space:

$\boldsymbol{e_i} = \frac{\partial X}{\partial x^i}\boldsymbol{i} + \frac{\partial Y}{\partial x^j}\boldsymbol{j} + \frac{\partial Z}{\partial x^k}\boldsymbol{k}, \quad \boldsymbol{e^i} = \frac{\partial x^i}{\partial X}\boldsymbol{i} + \frac{\partial x^j}{\partial Y}\boldsymbol{j} + \frac{\partial x^k}{\partial Z}\boldsymbol{k}$, with a fundamental tensor $e_i(x^n) * e_k(x^n) = g_{ik}(x^n)$ and topology $(x^n = X, Y, Z)$ in Euclidean space. That is, Riemannian space is a fixed $(\varphi \neq 0) = const)$state of dynamic $(\varphi \neq const)$space-matter. And the mathematical properties of such space determine the physical properties of matter. All Criteria for the Evolution of Velocity Space, and in Riemannian Space too: $\boldsymbol{e_i}(x^n) = \boldsymbol{v_i}, \quad \boldsymbol{e_k}(x^n) = \boldsymbol{v_k}, \boldsymbol{g_{ik}}\,(x^n) \equiv \boldsymbol{v^2}$, as a potential in the coordinate -time space of velocities $W^N = K^{+N} T^{-N}$, in multidimensional space-time. A striking example of this is Einstein's General Theory of Relativity. Moreover, Einstein's theory was created in a fixed $(\varphi \neq 0) = const)$Riemannian space. And there are no problems with quantum theories.

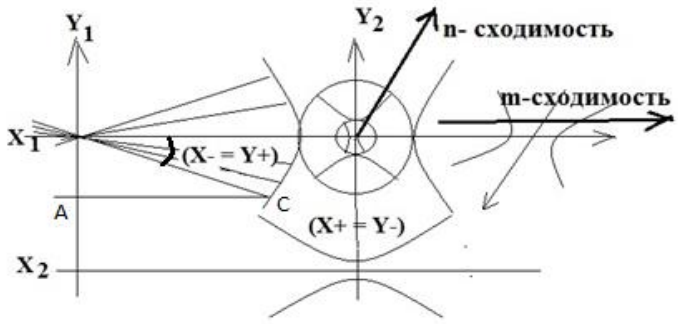


Fig. 3a. dynamic space-matter

2. Initial provisions.

From the axioms of such dynamic $(\varphi \neq const)$space-matter, as geometric facts that do not require proof. $(m - n)$convergence, are formed by Indivisible Areas of Localization as indivisible $(X\pm)$and $(Y\pm)$quanta of dynamic space-matter. Indivisible quanta

$(X\pm = p), (Y\pm = e), (X \pm = \nu_\mu), (Y \pm = \gamma_o), (X\pm = \nu_e), (Y\pm = \gamma)$, form OL $_1$ – the first Area of their Localization. This is exactly how OL $_2$ and OL $_3$ ... Areas of Localization of indivisible quanta.

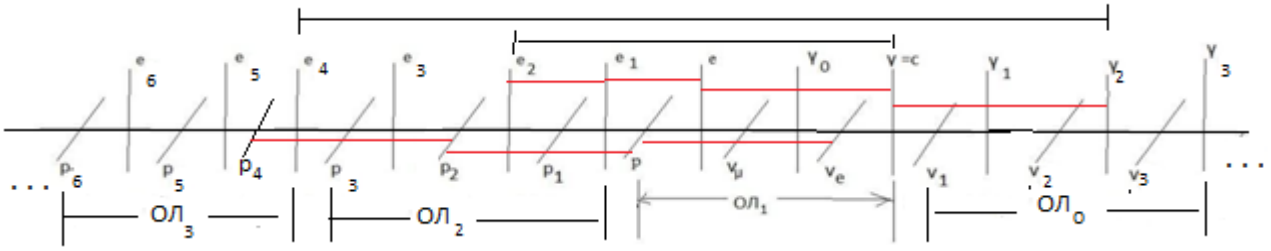


Fig.4 quantum coordinate system

"Unified Theory 2" presents the calculated characteristics of such quanta, which correspond to the recorded facts of reality. Let us highlight the facts necessary here. An electron emits and absorbs a photon : $(e \leftrightarrow \gamma)$. Their speeds are related by the relation: $(v_e = \alpha * c)$. This is exactly how the speeds of a photon $(\gamma \leftrightarrow \gamma_2)$ and a superluminal photon are related $(v_\gamma \leftrightarrow \alpha * v_{\gamma_2})$. They are connected by red lines in Fig. 4.

In “Black Holes” (http://viXra.org/abs/2312.0018), we considered the sequences of emission and absorption of indivisible (stable) quanta, in such a quantum coordinate system, in the form : $(p_8^+ \to p_6^-)$, $(p_6^- \to p_4^+)$, $(p_4^+ \to p_2^-)$, $(p_2^- \to p^+)$, with the corresponding atomic nucleus: (p^+/e^-)substances of an ordinary atom,(p_2^-/e_2^+) antimatter core of the “stellar atom”,(p_4^+/e_4^-) matter of the core of the galaxy, (p_6^-/e_6^+) antimatter of the core of the quasar and " (p_8^+/e_8^-) matter of the core of the "quasar galaxy". Further, we proceed from the fact that quantum(e_{*1}^-) substances$(Y- = p_1^-/n_1^- = e_{*1}^-)$ planetary cores emits a quantum

$$(e_{*1}^+ = 2 * \alpha * (p_1^- = 1{,}532E7\ MeV)) = 223591MeV, \qquad \text{or:} \qquad \frac{223591}{p=938{,}28} = e_*^+ = 238{,}3 * p$$

the mass of the uranium nucleus, the “antimatter” quantum $M(e_*^+) = M(238{,}3 * p) = {}^{238}_{92}U$, the uranium nucleus. Such “antimatter” $(e_*^+ = {}^{238}_{92}U = Y-)$is unstable, and decays exothermically into a spectrum of atoms in the core of planets. Such calculations are consistent with observed facts.

3. Superluminal photons.

At superluminal level $w_i(\alpha^{-N}(\gamma = c))$ physical vacuum, such stars do not manifest themselves. Next, we are talking about the substance of $(p_3^+ \to p_1^-)$the nucleus$(Y- = p_3^+/n_3^0 = e_{*3}^+)$ “black spheres” around which, in their gravitational field, globular clusters of stars form. Similarly below, we are talking about radiation from antimatter matter and vice versa: $(p_6^+ \to p_5^-)$, $(p_5^- \to p_3^+)$, $(p_3^+ \to p_1^-)$, $(p_1^- \to \nu_\mu^+)$. The general sequence looks like: $p_8^+, p_7^+, p_6^-, p_5^-, p_4^+, p_3^+, p_2^-, p_1^-, p^+, \nu_\mu^+, \nu_e^-$ ....

Further: $\text{НОЛ} = M(e_4 = 1{,}15\ \text{E16})(k = 3.13)M\left(\gamma_2 = 2{,}78\ \text{E} - 17\right) = 1$. These quanta$(p_4/e_4)$ galactic nuclei are surrounded by individually emitted quanta(p_2/e_2) the cores of stars are the reason for their formation. Such galactic nuclei, in the equations of quantum gravity, have spiral arms of mass trajectories, already: $v_i(\gamma_2 = \alpha^{-1}\text{c}) = 137 * \text{c}$, in superluminal speed space. Below the energy of light photons $(v_{\gamma_2} = 137 * \text{c})$ in a physical vacuum, galaxies do not manifest themselves. Outside galaxies, we are talking about quanta from the core of mega stars $(Y- = p_5^-/n_5^- = e_{*5}^-)$. They generate many quanta $(e_{*5}^- = 2 * \alpha * p_5^- = e_{*4}^+ = 290p_4^+)$ galactic nuclei. Likewise further.

The important thing is that an ordinary photon $(Y\pm = \gamma)$ can emit and absorb a superluminal photon $(Y \pm = \gamma_2)$in exactly the same way that an electron $(Y\pm = e)$ emits an ordinary photon $(Y\pm = \gamma)$. The source of ordinary photons is stars. And the source of superluminal photons are the “heavy” electrons of the galactic nucleus.

$$\text{НОЛ} = M(e_2 = 3{,}524\ \text{E7})(k = 3.13)M(\gamma = 9{,}07\ \text{E} - 9) = 1$$
$$\text{НОЛ} = M(e_4 = 1{,}15\ \text{E16})(k = 3.13)M(\gamma_2 = 2{,}78\ \text{E} - 17) = 1$$

Moreover, for the photon $(Y\pm = \gamma)$, the speed of a superluminal photon $(Y \pm = \gamma_2)$will have the same speed of light: $w = \frac{c+137*c}{1+\frac{137*c*c}{c^2}} = \frac{c(1+137)}{(1+137)} = c$. These connections are indicated in Fig. 4. Essentially, we're talking about “immersion” of quanta of the core of stars and galaxies into the corresponding levels of physical vacuum. As we see, quanta from the core of galaxies are “immersed” in superluminal velocity space.

And there is the fact of the presence of “supermassive compact objects” discovered in the core of galaxies. And there is another representation of the properties of such objects:

$$(R < R_0) = \frac{2GM}{(v_\text{i} > c)^2}$$

with the presence of superluminal space: $(v_\text{i} > c)$inside $(R < R_0)$such “black spheres” called “black holes”. There are no "holes" and there are no singularities in "black holes". The mass of such “black spheres” $(M \neq 0)$is not zero, and this is a fact of our galaxy. A misconception about Einstein's General Theory of Relativity is that it is believed that non-zero mass is represented in the equation as the source of space-time curvature, as the source of gravity. There is no such mass in Einstein's equation. In the equation of Einstein's General Theory of Relativity, as a mathematical truth in dynamic space-matter in its entirety:

$$R_{ik} - \frac{1}{2}Rg_{ik} - \frac{1}{2}\lambda g_{ik} = \frac{8\pi G}{c^4}T_{ik}.$$

there is no mass: $(M = 0)$, in its classical sense. In mathematical truth, this is the difference in relativistic dynamics at two fixed points of Riemannian space, one of which **is reduced to the Euclidean sphere** (these are key words), in an external, non-stationary$(\lambda \neq 0)$ Euclidean space- time. No one goes inside the sphere, just like in Newton's law. This is a law that has been tested many times: $F = \frac{Gm_1m_2}{K^2}$, where (K)- the distance between the centers of the massive spheres of the Earth and the Moon, for example. And if a small ball is lowered into the diametrical hole of a large ball, the gravitational force should tend to infinity at $(K = 0)$.

This is also a kind of singularity that does not exist in Nature. Newton's law is only valid outside a massive sphere.

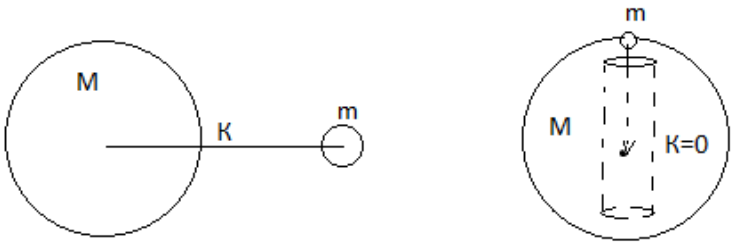


Fig.5. Newton's law

Likewise, the equation of Einstein's General Theory of Relativity is actually outside the Euclidean massive sphere, in its gravitational field. In physical truth, in the equation of the General Theory of Relativity, Einstein, in the unified Criteria of Evolution, Newton's formula (law) is "hardwired":

$$E = c^4K,\ P = c^4T,\ \left(c_i^2 - c_k^2 = \Delta c_{ik}^2\right) = \frac{E^2}{p^2} = \left(\frac{K^2}{T^2} = c^2\right),\quad \Delta c_{ik}^2 = Gv^2(X+) \neq 0$$

$$\Delta c_{ik}^2 = \frac{c^4c^4K^2}{c^4c^4T^2} = \frac{G\left(c^2K_Y=m_1\right)\left(c^2K_Y=m_2\right)}{c^2\left(c^2T^2=K^2\right)} = \frac{Gm_1m_2}{c^2K^2},\qquad \Delta c_{ik}^2 = \frac{Gm_1m_2}{c^2K^2},\qquad \Delta c_{ik}^2c^2 = F$$

As we see, in the equation of Einstein's General Theory of Relativity, the force of gravity acts in fields with zero mass. In relativistic dynamics $E^2 = {m_0}^2c^4 + p^2c^2$, in fields with zero mass (${m_0}^2 = 0$), Einstein took only the energy-momentum tensor $\frac{E^2}{p^2} = c^2$, already like gravitational potential. It reads: the difference in mass flows $\Delta c_{ik}^2(Y-)$ in the external field of gravity $c^2(X+)$, with their Principle of Equivalence, gives strength. Let's pay attention - the gravitational field both in Newton's law and in Einstein's General Theory of Relativity is reduced to the Euclidean sphere. In both cases, there is no entry into the Euclidean sphere with non-zero mass as a source of gravity.

Thus, from two sides: $(R < R_0) = \frac{2GM}{(v_i > c)^2}$, and $(v_{\gamma_2} = 137 * c)$, we came to the conclusion that there is a superluminal velocity space inside the "black sphere" of the galactic core, to which the gravitational field of Einstein's General Theory of Relativity is reduced. Inside the "black sphere", all the laws of physics, space-time, work as a special case of a fixed state of dynamic space-matter, but already in the space of superluminal speeds. This is why even photons cannot get inside the "black sphere" of the galactic core. Photons simply circle around such a "black sphere", which is called a "black hole".

The question is how to catch a superluminal photon $(Y \pm = \gamma_2)$with an ordinary photon $(Y\pm = \gamma)$? This is a typical problem of an electron absorbing $(Y\pm = e)$a photon $(Y\pm = \gamma)$. We are talking about a change in photon energy $(Y\pm = \gamma)$when a superluminal photon is absorbed $(Y \pm = \gamma_2)$. Photon energy has momentum: $E = p * c$, with zero mass ${m_0}^2 = 0$. Such a photon can only absorb energy $E = p * \alpha * c$, already a superluminal photon $(Y \pm = \gamma_2)$. Thus, the photon energy $(Y\pm = \gamma)$, absorbing a superluminal photon $(Y \pm = \gamma_2)$, is equal to: $E = p * c * (1 + \alpha)$, where $(\alpha = 1/137)$, for any momentum of the primary photon $(Y\pm = \gamma)$. The task is to search for such photons in the direction of the galactic nucleus as a source of superluminal photons $(Y \pm = \gamma_2)$. For example, an orbital electron of hydrogen emits a photon as it moves from one orbit to another. It's clear. So, emitted photons, from the same orbits of hydrogen electrons in the direction towards the Galactic core, and in the direction perpendicular to the Galactic core, can have the following: $E = p * c * (1 + \alpha)$, energy difference. And trial experiments will have the decisive say here.

Literature .

1. Mathematical _ encyclopedia, Moscow, «Science ", 1975
2. (BKF) Berkeley Physics Course. V.4, "Quantum physics", Science, 1986
3. V. Pauli, "Theory of Relativity", Moscow, «Science ", 1991
4. PA Dirac, "Memories of an Extraordinary Epoch", Moscow, «Science ", 1990
5. G. Korn , T. Korn , "Handbook of Mathematics", Moscow, " Science ", 1974
6. V. Smirnov, "Course of Higher Mathematics", v.1, p.186. Moscow, "Science". 1965, v.3, part 1, 1967