

Fundamental in New Cartesian Physics

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1. Fundamental without Foundation

This essay is devoted to the fundamental problem that modern physics is not solved completely. That is consideration of the Foundation on which grew to a critical height of its modern building, which is build up became difficult. Contemplating this "skyscraper", passers-by admire and rejection of his abstract forms. Those wishing to enter it are many, but not all can reach the upper floors. To do this, you need to break away from real life and go into a virtual world, which allowed everyone to create their fantasies on the subject of modern physics

The observer in this building did not see its Foundation. Working each in his place, putting into mathematical form the object of their research, they sometimes achieve considerable success. Charmed by these successes, they continue to ignore the decay of the Foundation, which is their structure. A huge success in the applied Sciences and the technologies are not yet proof that the Foundation of physics was originally based on truth, entirely covering the whole real world. And the contemporary community as never before requires an adequate level of development of clears vision of the world of its existence, which currently does not give answers to many global issues.

A sign of a lack of fundamental in modern physics is its fragmentation into separate theories, loosely connected. Excess of mathematics, which tries to replace the lack of basic provisions, dilutes physics. Sometimes discovery is not a physical property of an object, but a property of a mathematical structure, which put a physical object. All the upper floors of modern physics – is a solid mathematical abstraction with a distant hint of physical content.

Indeed, in mathematics modeled the functional relationship is much more than observed in the physical world. If some of its conclusions are supported by observations, for others you can endlessly seek and never find them. In addition,

mathematical models allow for different interpretation, the correct choice of which is crucial for the further development of physics. The choice of interpretation, seeming at first glance correct and in the future leading to a dead end, if it grabs the majority of scientists, became the official dogma that threatens to permanently stop the development of science, as has often happened in the history of mankind.

However, criticism of the postulates lying at the Foundation of modern physics means to try to destroy her centuries-old structure. So all someone had to do it, rejecting the old, tried to leave the original classical Foundation of physics as a limiting special case, stemming from a synthesis of theories. Here is an attempt to build a new physics building a broader Foundation and to collect it from the structures of the former physics let not such a high but sustainable structure. To do this by connecting some rejected and accepted views in a single concept in which the known laws of physics, including classical, would acquire a more clear and specific meaning. Read these laws so as to cut off from them mathematical abstraction. Anyway, this essay is about the old new physics, i.e. New Cartesian Physics, the example which you can understand what is fundamental.

2. What is New Cartesian Physics

New Cartesian physics represents a generalization of the theory of relativity, quantum mechanics and other physical theories based on fundamental principle of identity of space and matter of Rene Descartes. She claims that physical space is a rotating substance, which in the state of the physical vacuum is realized by the person as the length and is not perceived by them as a body. It is the corporeality, the measure of which is mass, is recognized still in science as required property of matter and the huge gaps between the bodies is empty. New Cartesian physics argues that corporality is a manifestation of a rotating physical space, which is matter. Particle space, to be bodily, rotated in a more complicated way than in the physical vacuum. The stability of particles due to known from the theory of relativity by slowing down time, i.e. the achievement of space the speed of light in the center of rotation of the particles, which leads to internal deceleration time until it stops, i.e., to the particle stability. In this way, new Cartesian physics distinguished physical space from geometric space is the fact that it is a substance and not an abstraction.

According to Descartes space is the environment and every movement in it is done in a circle, as no part of them cannot get away from his seat otherwise than in the place of the other part, which in turn goes to the third place, etc. "When a body," he writes, "leaves its place another body, banishing it, it takes the place of

the third body, and this is the last - place fourth, and so on until the last which at that moment occupies the place left the first of the bodies." This movement is called the Descartes vortex by analogy with the observed air-eddies and whirlpools, which are also vortex motion of the space being of air or liquid. For New Cartesian Physics body is the accumulation particles of space in a rotational movement, therefore they have the same spatial nature as the physical vacuum. Corporeality and length of it laid in the identity of space and matter. This fundamental principle of identity allows us to recognize each point in space the material so that you can associate with it an infinitesimal system of reference in which the maximum speed signal is equal to the speed of light. Moving from one infinitely small frame of reference to another, the light representing the fluctuation of the space, maintains its speed regardless of their motion relative to each other. The fluctuation of the space changes its frequency according to the Doppler Effect, if a motion of the infinitesimal reference systems associated with its points, with respect to each other. Einstein's postulate that all inertial frames the speed of light is the same, is essentially a statement about the identity of space and matter, so as infinitesimal inertial system associated with points of space (of matter).

In New Cartesian physics there is no question about the proper line of motion is straight or circular. It rectilinear motion is represented by motion on a circle of infinitely large radius, i.e., along the trajectory of an infinitesimal curvature. Theory of relativity it was revealed that the rectilinear motion is reduced length and deceleration time, i.e. there is a conversion of one space (resting) to another (moving) and Vice versa. Reducing the infinitely large radius of the circular motion leads to an increase in speed according to the law of conservation of angular momentum, which in turn leads to a further increase in speed, etc. as long as the speed will not be close to the speed of light. At the same time slows down to almost zero and the rotation of the space inside the vortex becomes eternal in relation to the external world. So the vortices become stable particles, which can be linked into other vortices, molecules, planets, stars. Energy on the formation of vortices and their Union is drawn from the Universe itself and remains an integral part of

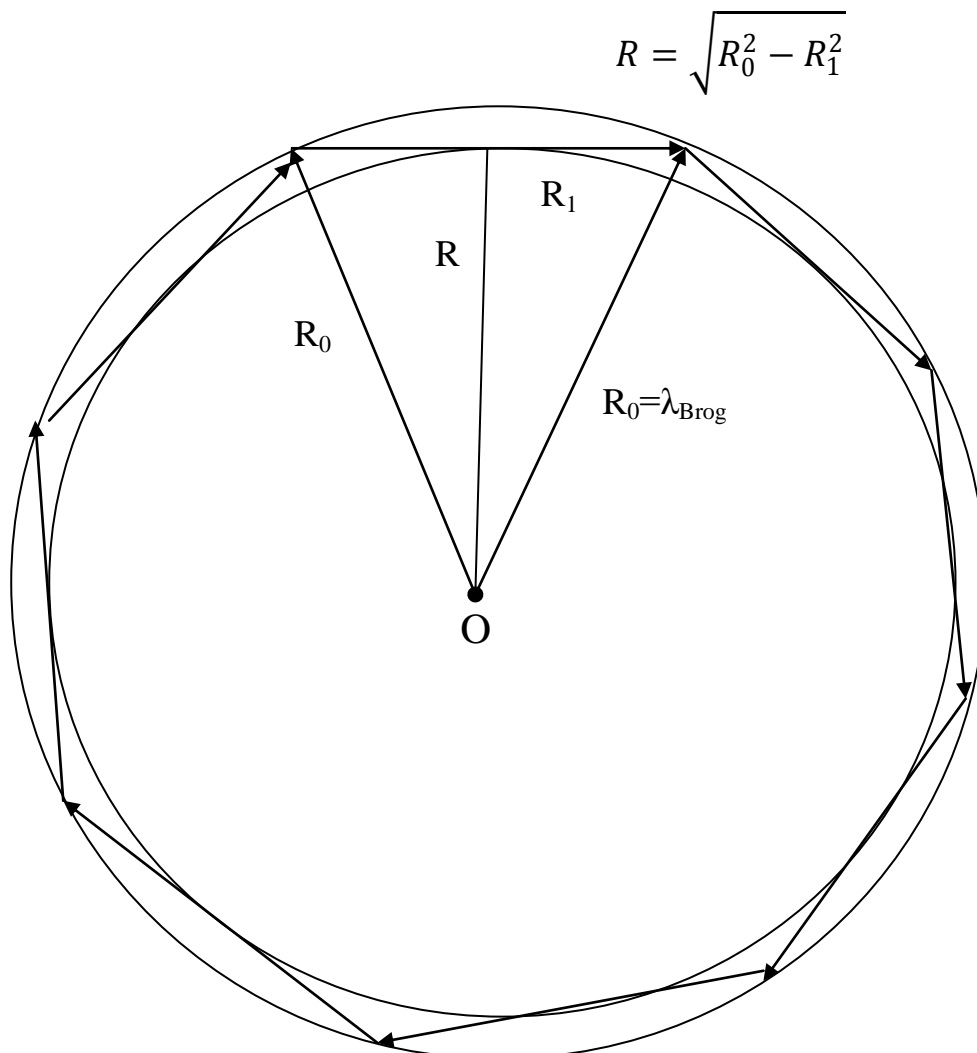
Let us consider uniform motion of space on the circumference of an infinitely large radius, i.e. an inertial reference frame. Inertial system can leave your seat, if only to free his other and take the place of the third system, and this is in place of the fourth, and so on until the last one, which will occupy the empty place left by the first reference system. Thus, on the circumference will be the wave of disturbances, the speed of which cannot be more than the speed of light and the last reference frame will take the place of the first not instantly, as in

Descartes, but after a certain period of time, in this case infinite. Education endless void makes it impossible to leave the space of his place - this means that straight-line motion in space is not, and it can only move along paths having a finite curvature.

The vector of this movement is decomposed into component vectors, one of which is directed on hypothetical straight line, and the other on the perpendicular to the radius of curvature. As in the theory of inertial reference system moving uniformly in a straight line, the delay period is maintained during the entire time of motion. From this it follows that the circle does not correspond to a valid trajectory. This leads to the known correction of physical quantities characterizing the process movement. Further, if we decrease the radius of an infinitely large circle, so that it was not such, but was infinitesimal, it is obvious that these ratios will continue, and will characterize the microcosm with all its quantum properties.

3. The Lorentz transformations and the probability density

Thus, in new Cartesian physics any movement is seen as the result of rotors of space.



From the figure we see that the movement space is made in the strip between the two circles. Within this strip a space moves at a speed of v and at the same time spreading wave of indignation at the speed of light c . Continuous movement space can be schematically represented as a process consisting of two stages – the first stage space shifts from his seat and excites the shear wave, which takes away his energy in the second stage this wave comes in the rear, and returns it the ability to move forward. Thus, according to the law of conservation of angular momentum have the equality: $vR_0 = cR_1 \Leftrightarrow \frac{v}{c} = \frac{R_1}{R_0}$

Further, this expression can be converted like this:

$$1 - \left(\frac{v}{c}\right)^2 = 1 - \left(\frac{R_1}{R_0}\right)^2 \Leftrightarrow 1 - \frac{v^2}{c^2} = \frac{R_0^2 - R_1^2}{R_0^2}$$

Denoting $R_0^2 - R_1^2$ as R^2 , we get:

$$\frac{R}{R_0} = \sqrt{1 - \frac{v^2}{c^2}} \Leftrightarrow \frac{2\pi R}{2\pi R_0} = \sqrt{1 - \frac{v^2}{c^2}}$$

Here R_0 is the length of de Broglie wave: $R_0 = \frac{h}{mv}$;

R_1 is the wave length of Compton: $R_1 = \frac{h}{mc}$;

and R let's call the wavelength of Lorentz.

Get the formula of the Lorentz transformations:

$$l = l_0 \sqrt{1 - \frac{v^2}{c^2}}$$

Multiply on 2π the numerator and denominator of the fraction on the left of the expression $\frac{R^2}{R_0^2} = 1 - \frac{v^2}{c^2}$, get: $\frac{S_1}{S_0} = 1 - \frac{v_0^2}{c^2}$, where in accordance with the geometric definition: the probability of an event A is the ratio of the measure of area g , conducive to the emergence of an event a, as the whole region g , i.e. $P(A) = \text{mes } g / \text{mes } G$, so the attitude $\frac{S_1}{S_0}$ shows probability of that the particle on the area S_0 will

Express this rotation in the complex plane by the operator turning the corner $\frac{\pi}{2}$: $i = \sqrt{-1}$ with the help of functions of a complex variable, modules which will be equal: R_0 and $R_1 = \sqrt{R_0^2 - R^2}$

$$\psi_1 = R_1 e^{\frac{i}{\hbar} Et} \quad \text{и} \quad \psi_0 = R_0 e^{\frac{i}{\hbar} px}$$

Dividing ψ_2 for ψ_1 , obtain the wave function for the wave of space-matter:

$$\psi = \frac{\psi_1}{\psi_0} = \frac{R_1}{R_0} e^{\frac{i}{\hbar}(Et - px)}$$

Where module $A=R_1/R_0$ is a dimensionless number. Multiplying ψ on the adjoint function ψ^* , will receive a square module $[\psi]^2=R_1^2/R_0^2$, which in quantum mechanics has the meaning of probability density.

4. Pressure of Space

Pressure of space is the cause of all movements occurring in the real world. Most it manifests itself in the corpuscle, where, under his influence, formed its mass. The pressure of space is derived from the formula of equivalence of mass and energy: $E = mc^2$

It is obvious that this formula expresses the total energy, which is equal to the sum of the kinetic W and potential energy U : $E = U + W = Fr + \frac{mv^2}{2}$

Thus, the potential energy enclosed in mass of rest is equal to kinetic energy when it's full liberation: $U_{m_0} = W_{max}$

In new Cartesian physics a corpuscle is a stationary vortex, in which the movement of space reaches the speed of light, I.e. $W_{max} = \frac{mc^2}{2}$ and the necessary energy accumulates as a result of compression space on the Compton wavelength, i.e. $U_{m_0} = Fr$, where Compton wavelength $r = \frac{\hbar}{mc} = \frac{h}{2\pi mc}$. Therefore, we have

$$Fr = \frac{mc^2}{2}$$

From here the force resulting compression of space

$$F = \frac{mc^2}{2r}$$

Multiply numerator and a denominator of this expression by Compton wavelength $r = \frac{h}{2\pi mc}$, we shall receive $F = \frac{mc^2 r}{2r^2} = \frac{ch}{4\pi r^2}$

Having transformed this expression, we shall receive

$$F * 4\pi r^2 = ch$$

At the left there is a stream of force through the closed surface, and on the right there is a constant

$$\oint F ds = ch$$

Thus, pressure of the Space is expressed in the form of the Law of a constancy of a stream of forces through the closed surface.

Thus, the recognition of the concept of mass–energy equivalence requires the recognition of the existence of force of pressure of the Space

$$F = \frac{ch}{4\pi r^2}$$

5. What is Mass

Mass is defined in a New Cartesian physics from the existence of the Universe the pressure and the centrifugal acceleration of rotation of the physical space inside particles, compressed to the size of the Compton wavelength. Note that the Compton wavelength of a particle is equivalent to the wavelength of a photon whose energy coincides with the rest mass energy of a particle [1.2]

$$h\nu = m_0 c^2 \Leftrightarrow r = \lambda = \frac{h}{m_0 c}$$

In corpuscle the pressure of the Space $F = \frac{ch}{4\pi r^2}$ is balanced by centrifugal force internal rotation of space, reaching the speed of light at a distance of Compton wavelength $F = \frac{mc^2}{r}$. From this we get equality $\frac{ch}{4\pi r^2} = \frac{mc^2}{r}$, rewrite this expression $ch = \frac{mc^2}{r} 4\pi r^2$. Here the left stands the flow force of the Space, and on the right flow of centrifugal force. Make a mass m in front the integral symbol, we obtain [4]

$$ch = m \oint \frac{c^2}{r} ds$$

This is Newton's second law for a rotating space inside the corpuscles.

It is clear that here we are dealing with an inert mass, because it is a factor in the second law of Newton.

It should be borne in mind that in the center of the corpuscles speed of movement space reaches the speed of light and that it did not exceed it you must add the formula of Lorentz factor γ [3].

$$\gamma m = \frac{ch}{\oint \frac{c^2}{r} ds}$$

γ – Lorentz factor, which takes into account the movement of space inside the corpuscles reaches about light speed

$$\gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Next, we obtain an expression for the gravitational mass. Denote the denominator expression as follows:

$$\gamma_0 M = \oint \frac{c^2}{r} ds$$

Here γ_0 - gravitational constant which translates the mass expressed in kg, in a stream of a vector of centrifugal acceleration through the closed surface [5].

Given that the Compton wavelength equal to $r = \frac{h}{mc}$, further rewrite

$$\oint \frac{c^2}{r} ds = \frac{c^2 4\pi r^2}{r} = \frac{ch}{m}, \text{ then get:}$$

$$\gamma_0 M = \frac{ch}{\gamma m}$$

Hence we have the expression of the Lorentz factor

$$\gamma = \frac{ch}{\gamma_0 M m}$$

As in corpuscle $M = m$, we will have of the Lorentz factor:

$$\gamma = \frac{ch}{\gamma_0 M^2}$$

The Relativistic effects arising from the fact that the speed of light in all frames of reference is identical and does not depend on speed of its source play the basic role in transformation of space into substance

In conclusion, we should say that New Cartesian physics provides the Foundation for building fundamental theories. This Foundation is built on the principle of identity of space and matter of Descartes. Physical space is the body of God in which we exist and in which wander on the way to it.

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