

# **The Beginning of Neo-Cartesian Physics**

Dizhechko Boris Semyonovich

fizika3000@yandex.ru

Rep. Bashkortostan, Sterlitamak.

Russia

Key words: Descartes, Cartesian physics, neo-Cartesian physics, Heisenberg inequality, Lorentz transformations, dark matter, dark energy.

Abstract: The Neo-Cartesian worldview generalizes modern physics. This worldview is based on Descartes' identity of space and matter. According to this identity, space is matter, and matter is space, the fragments of which move relative to each other at a speed no greater than the speed of light. When the movement of these fragments is co-directed, a movement of space arises, which as such is not observable by our senses. Electromagnetic waves are vibrations of space. Electric current is the movement of space associated with electrons, the excitation of which is transmitted through space at the speed of light. Explaining the equivalence of mass and energy by the existence of a flow of force on each corpuscle from the space of the Universe, the neo-Cartesian worldview creates a new paradigm in scientific knowledge aimed at overcoming the existing crisis in physics, namely at turning it into a unified theory that studies both micro- and macrophenomena .

## **Space-matter**

A person comes to understand the existence of a single substantial body at the basis of natural diversity along with his ability to understand something in this world and not slide into mythology. Already the ancient Greek philosophers, under different names, had a speculative idea of what is now called matter. However, the concept of matter is very often replaced by the broader concept of substance. So, for example, in classical physics and general chemistry, matter is any substance that has mass and occupies space, having volume, i.e. all objects that can be touched directly or indirectly by

auxiliary devices are ultimately made of matter. Along with this came the understanding of the need to have a measure of the amount of matter in a substance. For a long time, such a measure was the mass of an object proportional to its volume. However, after the formula for the equivalence of mass and energy was identified, it began to be mainly a measure of the movement of matter in a substance, and not its quantity. For this reason, they began to talk about the disappearance of matter as a substance common to all bodies and to emphasize that energy is the basis of all bodies. Thus, of the two factors identifying matter as a substance common to all bodies, only one remains - this is the volume of space of the body. And here we come to the identity of space and matter of Descartes, according to which space is matter, and matter is space. If there is no matter, there is no space, and if there is no space, then there is no matter. And since the amount of matter in this case will be measured by the volume of space, then, obviously, there will be as much matter in an empty container as if it were filled with some liquid. In everyday life, a person does not need to think that he lives in a certain environment, like a fish in water. However, with theoretical knowledge of the surrounding world, if a person does not recognize that space is matter, then he will have a feeling of incoherence of surrounding objects and phenomena, which will lead to a crisis in his theories due to the replacement of matter with various mathematical abstractions.

Matter is an objective existence that we begin to recognize as space when we gain the opportunity to move physically and mentally in the real world, i.e. space is matter, and matter is space, the fragments of which move relative to each other. It is matter that creates space and time.

Our brain creates the image of the real world not inside itself, but around itself, i.e. in space, which is matter. Thanks to this, we fit seamlessly into the outside world and feel its influence as a matter of course. At the same time, we do not see space until it is filled with matter. Space is matter, but not yet substance. To become a substance, a fragment of space repeatedly enhances its materiality by its rotation in one place and, standing out from it, becomes a tangible object for us despite the fact that we ourselves and everything around us consist of this substance.

## Law of Conservation of Space

The materialism of classical physics allowed it to formulate Conservation Laws, such as the Law of Conservation of Mass, the Law of Conservation of Energy, the Law of Conservation of Angular Momentum, etc. However, classical physics lost sight of the main Law underlying all these listed Laws of Conservation - this is the Law of Conservation of space (matter) itself. According to this Law, the area of a fragment of space before displacement is equal to its area after rotations and displacements, i.e. its dimensions change in a manner proportional to each other. As M.V. said Lomonosov: "All changes that occur in nature occur in such a way that how much is added to something, the same amount is taken away from another." In our case, if the width of a fragment of space decreases, for example, by half, then its length doubles, but in general the area of the fragment does not change..

The law of conservation of space (matter) allows us to state at the legislative level that if its fragments move, they do so in a circular or oscillatory manner, since only such movement allows them to return and preserve the common space, and not fly into oblivion.

Another Law from this series is Kepler's Second Law: "Each planet moves in a plane passing through the center of the Sun, and in equal periods of time, the radius vector connecting the Sun and the planet describes equal areas." This Law becomes more understandable if we keep in mind that the entire circumsolar space revolves around the Sun, and the radius vector indicates to us the change in the remaining fragment of space. Here we see that the Law of Conservation of Space (matter) makes it possible to evaluate the entire set of changes that have occurred in space by a measure called time.

Using simple arithmetic operations, from two parameters: time and linear dimensions of the amount of matter, you can create expressions that correspond to certain processes in nature. So, for example, a cubic meter per second will correspond to the current (consumption) of space or its charge, a cubic meter per second per second is the acceleration of the movement of space. We usually talk about acceleration in classical physics when we consider linear motion. In neo-Cartesian physics, mainly

returning motions that preserve the amount of space are considered, so here we can assume that only infinitesimal areas are rectilinear, the acceleration on which is decomposed into tangential and normal. In the table of the SYSTEMS OF DYNAMIC PHYSICAL QUANTITIES IN DIMENSION LT by the Russian scientist A.S. Chuev, the acceleration of space is called mass. Indeed, if a mass of 1 kg is multiplied by the gravitational constant  $G=6.67 \cdot 10^{-11} \text{ m}^3 \cdot \text{kg}^{-1} \cdot \text{s}^{-2}$ , we obtain the value of the centripetal acceleration of space corresponding to this mass equal to  $6.67 \cdot 10^{-11} \text{ m}^3 \cdot \text{s}^{-2}$ . This means that the gravitational constant is a coefficient for the transition from a measurement system compiled on the basis of empirical standard units to a system of dynamic physical quantities in the LT dimension of the Russian scientist A.S. Chuev. The transition to this measurement system will make it possible to more clearly imagine the essence of physical processes and give them clarity that prevents them from falling into cognitive dissonance. Now it is necessary to show how space, as a result of the movement of its fragments, becomes matter, substance and antimatter.

## **Matter and ether.**

### **The difference between physical space and geometric space.**

Rene Descartes viewed the ether as matter that endlessly divides to fill the void left between the corpuscles, which represent the rotational movements of space-matter. According to his idea, matter is in the form of ether, i.e. infinitely small particles of matter, instantly fills the void in space (matter) and thereby eliminates its existence. In light of the latest hints of the existence of dark energy and dark matter, we should take a closer look at this void, the impossibility of the formation of which Descartes said that if it appears somewhere by the will of God, it is instantly filled with matter in the form of ether, i.e. its endlessly crushed particles. Let's call this void, which supposedly appears by the will of God and is instantly filled with matter, a virtual void and examine the conditions for its occurrence and behavior.

The neo-Cartesian generalization of modern physics is based on Descartes' principle of the identity of space and matter, according to which space is matter, and matter is space, the fragments of which move relative to each other. That is, when we

say “matter,” we mean “space,” and when we say “space,” we mean “matter.” Most researchers still believe that matter is basically what creates physicality with mass, and space is a kind of container for this mass, which is fundamentally wrong, since they refuse to admit that it is matter that creates space. If there is no matter, then there is no space, and if there is no space, then there is no matter. This position makes it possible to apply the laws of kinematics, considered during the movement of rigid bodies, to fragments of space-matter as material points, since they are such, and to obtain an idea of the surrounding world as a single interacting space-matter. It should be clearly understood that the geometric space that we most often talk about and depict on paper differs from physical space in that it is created by our imagination as its rectilinear copy and. that physical space differs from it in that its fragments locally move relative to each other while maintaining the amount of space. If in geometric space a point has neither length nor width, then in physical space both the length and width of a point, as a fragment of space, are determined by Heisenberg’s inequality, i.e. impulse acting on it:

$$\Delta x_i \Delta p_i \geq \frac{\hbar}{2}$$

This inequality suggests that fragments of space, like “matryoshka dolls,” are inserted into each other depending on the magnitude of the angular momentum and are capable of rotating, having it no less than the value of Planck’s constant, which is quite consistent with Descartes’ views on the rotational motion of space-matter. Here Heisenberg’s inequality shows that for the unwinding of an infinitely small fragment of space, i.e. its point, it is necessary to apply an infinitely large impulse. In this case, the moments of impulse are redistributed among the fragments of space-matter in such a way that the flow of force through the closed surface of each fragment is equal to the product of the speed of light and the Planck constant –  $ch$  (Casimir force). Violation of this equality leads to the movement of fragments of space, restoring its continuity, and we can conclude that the cause of all interactions in the real world is a violation of this Law of the constancy of the flow of forces and that this flow of force is the defining quantum in all quantum mechanics. Based on this, each movement (rotation) of a

fragment of space should theoretically correspond to a wave function.

## **Absence of inertial reference systems in nature**

To mathematically describe physical space, a geometric space with all its abstractions and coordinate axes is superimposed on it. In this case, the illusion of the independent existence of this superimposed space as a container of physical space arises, so impressive that many researchers have no doubt about its independence. The mixture of these two spaces - physical and geometric, gave rise to many misunderstandings in physics when the properties of one of them extended to the other. For example, the limitation of the speed of movement by the speed of light, inherent in physical space when transferred to geometric space, gives rise to well-known paradoxes and the emergence of an entire branch of physics for their study. The inertial reference systems (IRFs) used in these conceivable studies are constructed from straight infinite axes and the IRFs move uniformly in a straight line.

Straight lines in the general rotational movement of fragments of space are represented as trajectories of their movement along a circle of infinitely large radius, i.e. infinitesimal curvature. Straight lines, whose curvature is zero, exist only in geometric space, in which, according to our understanding, the movement of matter can occur at infinitely high speed along infinitely straight trajectories. It is in geometric space that relativistic paradoxes arise that are incompatible with rational thinking when a limitation of the speed of movement by the speed of light is introduced into this space. The discovery of these paradoxes indicates to us the existence of processes that transform it into physical space, i.e. in nature, everything moves in such a way that these paradoxes do not arise. In physical space, trajectories of motion have the width of a fragment of space, the size of which is subject to the Heisenberg inequality, and curvature, the radius of which depends on the speed of movement and is determined by the De Broglie wavelength. The requirement to achieve absolute straightness of the motion trajectory is equivalent to the requirement for the existence of an infinitely high speed. Therefore, just as there is no speed in physical space greater than the speed of light, there are no inertial reference systems in it that move uniformly and rectilinearly,

and the resolution of all relativistic paradoxes that arise in inertial reference systems underlies the force interactions of fragments of space-matter in physical space, those. in the emergence of non-inertial reference systems. For this reason, inertial frames of reference should be used very carefully to construct theories. Their use is justified only when analyzing infinitesimal intervals of trajectories of curvilinear non-uniform motion, i.e. It is accepted that non-inertial reference systems consist of many infinitesimal inertial reference systems.

To be continued