

THE UNSOUNDNESS OF THE RELATIVITY THEORY

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In the report the speaker gives mathematical grounds to the fact that Lorenz's transformations are deduced with the violation of logic and elementary mathematical rules. To accord the laws of mechanics and electrodynamics there must be introduced a concept of 'imaginary motion' which should be grounded logically. There is a proposal of setting two experiments that confirm the existence of the ether. There is an explanation of Fizeau's experiment and the fact why during the Earth's movement along the trajectory of its movement the molecules of air remain.

Since the moment of the creation of the special theory of relativity (STR) at the beginning of the 20th century up to the present days some scientists are doubtful about the irreproachability of Einstein's theory of relativity. That proves the theory is at least imperfect.

In the present work we propose to examine the evidence of the discrepancy between Lorenz's transformations and the laws of nature. Let's analyze the movements of the inertial frame (IF) and the light with regard to each other. The system of observer K is considered immovable and the system K' is movable.

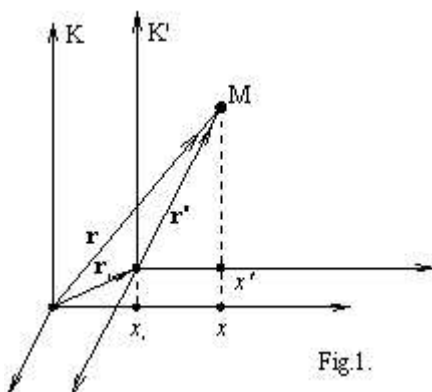


Fig.1.

In the moment of time when the coordinates system totally coincide, in the beginning of the system of coordinates K' occurs a short flash of light, and simultaneously the time reading in each IF begins $t = t' = 0$.

Point M , which the light impulse has reached, has the coordinates in corresponding IF: x, y, z and x', y', z' . The radius-vectors of point M in IF K and K' are correspondingly

$$\mathbf{r}^2 = x^2 + y^2 + z^2, \quad \mathbf{r}'^2 = x'^2 + y'^2 + z'^2$$

To simplify the analysis, consider the starting conditions $y = y'$ and $z = z'$, i.e. all movements are co-directed. Basing on the first postulate of STR $\mathbf{r} = ct$, $\mathbf{r}' = ct'$. From the starting conditions we get $c^2 t^2 = x^2$ and $c^2 t'^2 = x'^2$, equate to zero and make an equation

$$x^2 - c^2 t^2 = x'^2 - c^2 t'^2 \quad (1)$$

It's impossible to find the link between x and x' , t and t' , if space and time in the moving IF are varying. Having assumed that the transformations sought do exist and Galileo's transformations should be the limiting case for the transformations sought with $v \ll c$, Lorenz made the equation of correlations of coordinates and time systems K and K'

$$x' = \bar{a}(x - vt) \quad (2)$$

$$t' = \hat{a}(t - \bar{a}x) \quad (3)$$

After the substitution of values x' (2) and t' (3) to equation (1) the following coefficients were obtained

$$\bar{a} = \hat{a} = (1 - v^2/c^2)^{-1/2} \quad \text{and} \quad \bar{a} = v/c^2$$

The above-mentioned analysis is interpreted in numerous teaching and specialized books but in any variant of interpretation questions without answers still arise.

✓ Why are the values x' (2) and t' (3) substituted to equation (1)? Not to the equation that is simpler

$$x - ct = x' - ct' \quad (4)$$

According to the rules of mathematics, an equation must be first of all simplified to the end and only after that one can make necessary operations with this equation without any violation of logic.

After the substitution of values $x'(2)$ and $t'(3)$ to (4), we get the system of two equations with three unknown quantities that has no solution. According to mathematics laws, if the starting equations are right, after the substitution in (1) and (4) the results of solutions should be equal.

✓ There is no logical explanation why is the time transformation (3) made in such a way and why are the correcting coefficients low? Making an equation of transformations of coordinates basing on Galileo's transformations, it would be logical in the classic time ratio $t = t'$ to introduce one correcting coefficient

$$t' = \hat{a}t \quad (5)$$

as it has been done in coordinates transformation (2). Then, after the substitution to (1) we get $\bar{a} = \hat{a} = 1$, $v = 0$, and after the substitution to (4) we get $\bar{a} = 1$, $\hat{a} = (c - v)/c$. Logically, equations (2) and (5) are made correct but the laws of mathematics do not 'work' here because the results obtained are different and consequently equation (1) and correspondingly (4) are wrong.

✓ Why does symbol **c** exist in the left part of equation (1), if there is no light in the system of the observer of the **real** movement? The postulate of equality of IF does not consider the light movement in the observer's IF obligatory. The postulate just affirms the fact that **if** the light moves in the observer's system, the speed is equal to **c**.

✓ First of all the observer sees the movement of system K' i.e.

$$\mathbf{r}_1^2 = x_1^2 + y_1^2 + z_1^2$$

then the question arises: why isn't in the given analysis the radius-vector of IF K' movement, taken into account? Mathematically, the $\bar{\mathbf{r}}$ vector is the result of two vectors' composition, i.e. these three vectors are interconnected

$$\bar{\mathbf{r}} = \bar{\mathbf{r}}_1 + \vec{\mathbf{r}}'$$

That's why the analysis of the movement along the $\bar{\mathbf{r}}$ vector is impossible without a total analysis of the movements along vectors $\vec{\mathbf{r}}'$ and $\bar{\mathbf{r}}_1$. I.e. this is a biased analysis of the events.

The author has several questions of a less importance, the analysis of which, together with the above-mentioned ones say that Lorenz adjusted the solution to the equations of Michelson's experiment.

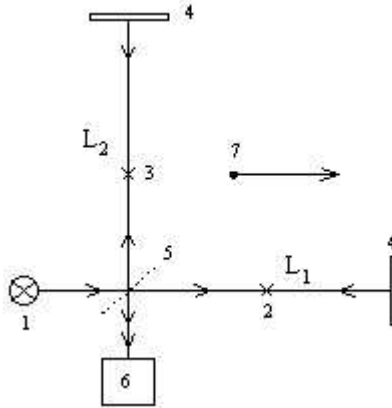


Fig. 2. 1 – light source, 2,3, - trajectories of beams 1 and 2 correspondingly, 4 - mirrors, 5 – semitransparent mirror, 6 – register device, 7 – interferometer's movement direction.

$$t_1 = 2L_1/c(1-v^2/c^2)^{-1}, \quad t_2 = 2L_2/c(1-v^2/c^2)^{-1/2}$$

where t_1 – time of the beam 1 movement, parallel to the interferometer's movement, t_2 – time of the beam 2 movement, perpendicular to the interferometer's movement.

Let's analyze the formula of t_2 calculation, where $2L_2/c$ time of beam 2 movement forwards and backward, the interferometer being immovable, and the coefficient $(1-v^2/c^2)^{-1/2}$ corrects the time of a perpendicular movement of beam 2, the interferometer moves (formula t_2 is obtained incorrectly, the grounds for that are below in the text).

The same ratios, obtained by Lorenz, run counter to the starting conditions $y = y'$ and $z = z'$, because in the presented analysis of the movements there is no movement of light at the angle to axis x of coordinates system.

Conclusion: since Lorenz's transformations run counter to the laws of mathematics, they run counter to the laws of nature.

It is possible to accord the laws of mechanics and electrodynamics if to introduce to physics the term **imaginary movement** (illusory) instead of the term ‘relative’ and make clear the term ‘absolute movement’.

The definition of the movements: absolute movement – interaction movement. Imaginary (illusory) movement – absolute movement in the observed IF with regard to the observer’s IF. The movement of the observed IF, real for the events in it and, in the same time, absolute movement in the IF where it moves.

Here is an example: a boat drifts along the river; if it goes against the stream at the speed of the stream, the observer on the bank will see that the boat is not moving, the distance covered and the speed in IF are equal to zero. Consequently, from the observer’s viewpoint, the energy the boat takes for the movement is equal to zero as well. I.e., the observer thinks in a wrong way. In the example of the light movement in the moving IF, the observer notes (without any relativity effects) the speed of light that differs from the speed of light in vacuum. That’s why the proposed definition **imaginary movement** reflects the idea of these events in the most precise way.

Mark the imaginary value through the dot above the symbol. In this case, Galileo’s transformation look like

$$\dot{x} = x' + v_x t, \quad \dot{y} = y' + v_y t, \quad \dot{z} = z' + v_z t, \quad t = t'$$

Time can’t be an imaginary value – time is absolute. The events. Simultaneous in one IF are simultaneous on other IFs that move with regard to the first one.

According to the author, the postulate of relativity of the speed of light is to be clarified. Here is an imaginary experiment. A flashing lamp, making short impulses, moves in space. The front of the light impulse radiation is a sphere with the center in the point where the lamp is located in the moment of a flash. If the light quanta had moved considering the source movement direction, Doppler’s effect wouldn’t have been observed. Consequently, speed and **direction** of the movement of electromagnetic waves are absolute and not dependent on the speed and **direction** of the flash source movement.

Let’s **presume** that the speed of light follows the laws of classic mechanics, i.e. $\dot{c} = c + v$, where \dot{c} – imaginary speed. Then equation (4) will look like

$$x - \dot{c}t = x' - ct' \quad \text{or} \quad x - (c+v)t = x' - ct' \quad (6)$$

After the substitution of values x' (2) and t' (5) we get $\gamma = \alpha = 1$, i.e. the laws of mathematics are strictly followed because equations (6) are composed

right. Consequently, ratios γ and α have no physical sense, and having assumed the light movement is subject to the laws of classic mechanics, and the term ‘imaginary value’ is introduced to physics with the grounds for that.

Forma the positions of the proposed definitions of movement, the complete analysis of the movement of IF and light, considering point M the Observer’s system possesses am imaginary character, let’s mark the radius-vector and co-ordinates in the Observer’s system through the dot, $\dot{\mathbf{r}}$, \dot{x} , \dot{y} , \dot{z} (Fig. 1).

Radius-vectors of all movements

$$\mathbf{r}_1^2 = x_1^2 + y_1^2 + z_1^2, \quad \mathbf{r}'^2 = x'^2 + y'^2 + z'^2, \quad \dot{\mathbf{r}}^2 = \dot{x}^2 + \dot{y}^2 + \dot{z}^2$$

take $y_1 = y' = \dot{y}$ and $z_1 = z' = \dot{z}$, then $vt = x_1$, $ct' = x'$, $\dot{ct} = \dot{x}$, since $\dot{x} = x_1 + x'$ and $t = t'$, then $\dot{ct} = vt + ct$. Canceling t , we get $\dot{c} = c + v$, i.e. a classic speed composition.

This solution can be checked in one more way. For example, in the problem: What is the speed of light in the moving IF with regard to the observer’s IF with $\dot{y} = y_1 = y'$ and $\dot{z} = z_1 = z'$? We have in IF K' $x' = ct'$ and Galileo’s transformation of the coordinate x , $\dot{x} = x' - v_x t$, and time $t = t'$. After the substitution of values x' and t' we get $\dot{x} - vt = ct$ or $\dot{x}/t = c + v$, since in the ratio \dot{x}/t there is an imaginary parameter, the result of the ratio is imaginary, too. Consequently, $\dot{c} = c + v$.

In the present analysis of the movements, together with the introduction of the imaginary value to physics, we get rid of contradictions of the laws of mechanics and electrodynamics, the postulate of IFs’ equality is strictly followed and Galileo’s relativity principles rightness is confirmed. Consequently, imaginary speed (including c) can have any value, and Einstein’s relativity principles run counter to the laws of nature.

Still there is no answer to the question, why do the laws of electrodynamics correspond with the laws of classic mechanics?

Let’s recall scientists’ proposal about the existence of the **ether**, that is taken away by moving objects. This is the existence of the ether the answer to this question is in (ether, physical vacuum, dark matter are the same).

Since energy quanta are not substantial matters, these are just a wave process in ether, they are moving together with the ether when the latter is carried away by material substances. It is analogous to the movement of a sound wave in the moving air stream.

Let's analyze thoroughly the movements of beam 2 in Michelson's experiment from the viewpoint of the ether's presence and the second clarified postulate. Since the **direction** of beam 2 movement does not depend on the **direction** of the interferometer movement, beam 2 will never reach that point of the mirror it had been 'aimed' to, consequently, the time of its movement will not change if the interferometer's movement speed is not constant $t_2 = 2L_2/c$, and the beam way covered along the hypotenuse and the speed of its movement are imaginary (illusory). With the speed of the Earth's movement $t_2 = 2L_2/c$ and $L_1 = L_2 = 0,5\text{m}$, the discrepancy in the movement of beam 1 and beam 2 will be

$$\Delta t = t_1 - t_2 = 2L/c \cdot \left[\frac{1}{(1 - v^2/c^2)} - 1 \right] \approx 3,3 \cdot 10^{-17} \text{ s}$$

With the light wave $\tilde{e} = 0,6\text{mkm}$, the period of maxima on the interferometer's screen will be $T = \tilde{e}/c = 2 \cdot 10^{-15} \text{ s}$, the displacement of interference stripes $\Delta t/T = 0,0165$, i.e. less than two hundreds of the linear distance between the maxima on the interferometer's screen. If the ether is taken away by moving substances (the author is absolutely sure about this), then, because of low sensitivity of the interferometer measurements are impossible on the Earth's surface. The reason for that is the movement of each beam in two directions.

The analogous example is in the movement of the boat perpendicular to the stream. The time of the boat movement from one bank to the other is constant, when the stream speed is varying, because for the absolute boat movement water is an immovable IF.

To confirm the existence of the ether, the author proposes setting experiments in the space and on the Earth with the interferometer of another type.

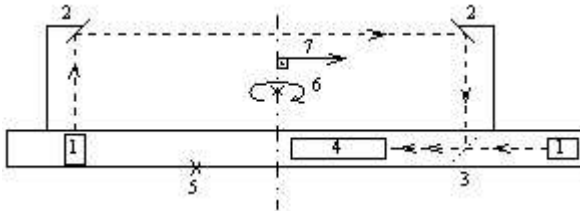


Fig. 3. 1 – precisely selected coherent lasers, 2 – mirrors on stands, 3 – semitransparent mirror, 4 – register device, videocamera, videosignals transceiver, 5 – interfer-

ometer body, 6 – rotating axis that goes through the center of gravity of the device and the beam's trajectory, 7 – device's movement vector.

The device, slowly rotating, $\approx 0,1$ turns per second, moves along the orbit around the Earth. The axis of rotation is perpendicular to the orbit's trajectory. When the distance $L = 1\text{m}$ between the mirrors 2, the sensitivity of the interferometer is four times higher than of Michelson's. The number of shifted maxima from the central position, when the beam's movement is perpendicular to the device's movement along the orbit $N = L/\lambda \cdot v/(c \pm v)$, where L – distance between the mirrors 2, v – the speed of the interferometer's movement along the orbit. The practical result will be lower because the device carries the ether away. The conventional frontier of the ether carried away movement with regard to the interferometer, the level $\approx 0,01$ of the interferometer's speed, can be clarified from the experiment, varying the height of the stands with the help of managing radiosignals and the corresponding type of mirror stands.

The experiment on defining the possible (few centimeters per second) speed of the ether's movement with regard to the Earth's surface $v = 2N\lambda c/L$ (where L – distance between the interferometer and any laser (Fig. 4), is to be preferably set high in the mountains, where the air is clear. In that case, the distance between the lasers 1 can be tens of kilometers, the beam's movement must be along the parallel of the Earth.

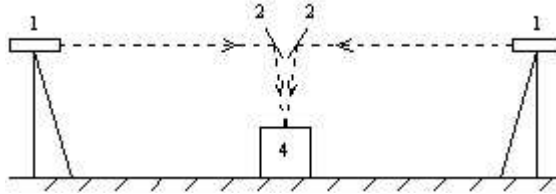


Fig. 4. Symbols are similar to fig. 3.

The maxima of the interference stripes deviation will be observed at noon and midnight with regard to the middle position in the morning and in the evening, more at noon than at midnight. This is connected with the Earth's rotation direction around the Sun and its own axis.

The proposed experiments are not necessary because there are two experiments that prove the ether exists. The first one was set by Fizo, the second one – by nature.

Fizo's experiment is interpreted in a wrong way. Quantum interactions are present in that work but the number of quantum interactions is a constant value because the final volume of the beam that interacts with water, chemical components of water, the temperature and pressure are also constant values that are not dependent whether the water moves or not. Consequently, the changes of the speed of light in Fizo's experiment, the water movement varying, can be explained only in that way: the molecules of water in its movement carry the ether away because there is nothing more in the water.

"The second experiment": The science knows the fact that in its rotation along the orbit, the Earth leaves after it a 'tail' of air molecules. The attempt to explain it by the sun wind or light pressure are groundless, because these forces, according to the level of its influence the atmosphere, can't overcome the gravitation, and they just transport a part of air molecules from the lit side of the Earth to the darkened side. The fact can be explained from the position of the ether existence (no other explanation is found by the author). Air molecules escape from the upper layers of the atmosphere, following the ether's resistance to the molecules' movement; analogous to the air resistance to, for example, the movement of a car.

Conclusion:

In the base of all interactions, in a wide range of speeds, there is a field interaction. The speed of light is just a local case of this range, and it is not the limit of the speed of field interactions, the speed of movement and interactions of material substances.

The existence of Einstein's Relativity Principle, that distorts the reality perception for about one century is an unprecedented mistake in the history of science.

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