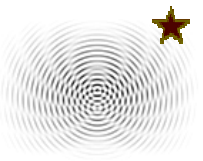
Beta WRD 08.2012.01
http://rhythmodynamics.com

Interdisciplinary Institute of RHYTHMODYNAMICS



There are people who never are wrong because they are never given any reasonable thoughts.

(Goethe)

Rhythmodynamics of Nature

Part 1

Experiment of Michelson and Ether returns to science

2012

Interdisciplinary Institute of RHYTHMODYNAMICS

Trulyy know anything is to know its cause
Francis Bacon

Presentation is dedicated to find the actual causes, in consequence of which the Michelson interferometer has failed on the first purpose intended. Presentation is for theoreticians who are familiar with the Michelson experiment, do not agree with the interpretations available and are willing to solve the problem.

Yuri Ivanov

2012

About the crisis in science: 1881 - 1905.

The absence of the expected results of Michelson's experiment and of a clear explanation of the reasons for the "failure" led to the emergence and adoption of special relativity. As a result, physics was divided into two periods: "before" and "after" 1905.

The period "before" includes belief in the existence of light medium and the belief in the justness of the classical method concerning addition of speeds for light waves. The period "after" is the expulsion of light medium from science, the proclamation of the universal principles of relativity and the constancy of speed of light in all circumstances (c = const).

The period "after" is characterized by the fact that his supporters had not presented evidence of the validity of their positions to the scientific community, particularly in terms of the experiment to measure the speed of light in one direction. Many theorists believe that such an experiment, in principle, can not be realized because of the inability to synchronize spaced hours. It can be assumed, but then, if there is no experimental basis, on which should the speed of light be declared invariant?

Supporters of the period "before", are not in the best situation because none of them has never clearly explained the reason for the failure of Michelson. However, this explanation has more than 15 years [1].

In this paper, we consider the situation in science "before" 1905, and in the concept of the ether presented with newly discovered phenomena, in consequence of which the experiments of Michelson to detect motion in the light medium were doomed to failure.

Exile - this is serious!

For science, 1905 was a unique event; the ensuing was the expulsion of ether from the physics of the undetectable. Since holdouts are fighting over the question: why experiments like the Michelson's can not register the absolute motion through the ether?!

Michelson's experiment to detect light medium, is best known in physics. The obtained results– scandal - have become not only an occasion for the expulsion of ether from science, but the basis for the recognition of the theory of relativity (STR).

Exile – this is a serious sentence! But if it were true? Are there no missed details? Were all the circumstances thoroughly investigated ?. It turns out - not all!

The following will present new phenomena, effects, and evidence indicating the fallacy of the sentence. But after that will there be enough courage in the scientific community to change their attitude to the ether waves, to reconsider the preceding verdict and rehabilitate the falsely accused?

However, the problem is not in the justification for the broadcasting community - or not -, but in the new technologies that support the fixed wave environment, waiting in the wings and ready to fundamentally change the presentation as a way to travel in space, and how to obtain energy. This is a home theme, and for its sake, we consider here the problem, the solution of which was beyond the power of the scientists of the 20th century!

Abstract

So then – Michelson's experiment or rather the results of his experiments are zero. Does this mean that the Michelson interferometer in principle is not suitable for the detection of light medium - the ether? If suitable, why then? What specific phenomena and effects could contribute to this?

There is another assumption: that the lack of results in the experiments indicates the ether, as well as his unusual relationship with moving bodies! But what are these relationships and, assuming the presence of ether, how explain the lack of results?

Yes, it is possible, but only by going back in time to science before 1905. This can be done only by those who consider the theme ether as unfinished, and the ether in need of rehabilitation.

- But why is the question of ether so important? For it worked without it since 100 years!
- Not the bypassing, but a new understanding of the phenomena together with techniques and technologies on a new basis will shape the future of civilization.

The ability to disclose the essential by an essentially mechanical approach will be shown in the second part with the example of self-organization, inertia, motion, gravity, energy flow and other phenomena and properties. But first we will correct the predecessors, and identify the global goal of this work. Is it worth spending the life for this purpose?

A question about the purpose of science

What will happen to humanity in the event of a global catastrophe, and if life on the planet would be impossible? Can modern science, engineering and technology offer concrete and effective solutions for such an event-driven option?

The answer is obvious: The available technology is not suitable for this, because it is dependent on non-renewable resources. For this reason, humanity is helpless in front of the environmental plagues. Hence the definition of the main goals of science:

Target. Ensuring human rights and technical means for survival in space at all times, even in the event of partial or total loss of the planet as a result of a disaster.

Despite the seeming survival solutions exist, but they can not be implemented without a fundamentally new understanding of natural phenomena. And the novelty is hidden in a well-forgotten old!

But for the rehabilitation of the Forgotten, that is Ether, there is need for a strong case. Otherwise, on what basis would lie the decision to cancel the precedents of 1905? Without arguments a cancellation would be another fiction farce!

As for the goal, then the second part is entirely devoted to the basics, without knowledge of which new solutions are not possible.

About the crisis in sciencific purposes: 1881 - 1905.

Question: Is it possible, based on events, logic and common sense, to explain why the results of the Michelson-experiment did not match the calculation?

Now we can, because recently discovered the effect depends on the length of the standing wave and is speed in the medium. This effect is directly related to what is happening in the interferometer. In other words - there was a reason to come back to the problem of interpreting and to expose the situation to the audit.

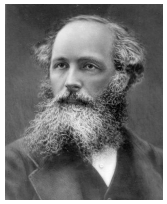
The audit revealed that the actual cause is based on the rate of body size, leading to nullification of the results and the inability to detect the ether using a Michelson interferometer.

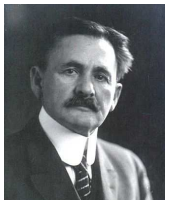
And if the reason for the failure of interferometry is disclosed, is it possible that erroneous results of experiments be used as an argument against the ether? Is it possible on this basis, "to judge the innocent" and even more so - to cast him out?

What is the solution? There are two of them: - either a new experiment in which the speed of light is measured in only one direction (D.Torr and P.Kolen), - or the prediction, following a fundamental approach and experimental validation.

But first things first.

The origins of the problems with the experience of Michelsc





Question: So who was wrong with the interpretation of Michelson's experiment: Lorentz, or Einstein?
Answer: Both are wrong, but Lorentz was closer to solving the problem!

We list the actors:
Maxwell, British physicist and mathematician, proposed a two-beam method for detecting motion of the system in the luminiferous ether;
Michelson, an American physicist, engineer, has created a device: the interferometer;
H.-A..Lorentz, Dutch physicist, to explain the results of experiments of Michelson, proposed the size reduction of the interferometer in the direction of motion;
Albert Einstein, a German physicist, founder of STR, offered to give up the ether;
Yu.Ivanov, Russian physicist, engineer, discovered the dependence of the length of the standing wave on its speed in the medium.

If in 24 years (in the period 1881 - 1905), the scientific community has failed to answer the question: "Why in the experiments with the Michelson interferometer, the results obtained are always not as expected?", the appearance of Einstein's SRT can be considered a natural consequence of the lack of any clear explanation.
Attempts of Lorentz to interpret the zero results by reduced size of moving bodies have failed because of assumptions containing no physical basis. Lorentz tried to create a theory of atomic interactions and thus to find the phenomenon leading to a dependence of body size on the speed, but nothing happened. The idea of □□reducing remained unclaimed.

But let's ask: If Lorentz had found the desired effect, would the ether have a chance? The obvious answer is - Yes!
Other question: If such a thing will be brought in our time (2012), and give a clear explanation of the reasons for failure of the Michelson interferometer to detect movement in the ether, then what?
Answer: So let's see, the scientific community - responding to the full extent of ethics in science, or as always - will look as if nothing had happened, and little by little, will □snitch the idea?

Waves in a wave medium

Standing waves in the moving

About standing waves, - almost everything is well known - except their length depending on the speed of the system of sources! Let's start with the acoustics. Suppose we have a car, the roof of which is equipped with two speakers connected to a single generator. If the car is stationary (Figure 1), the gap between the speakers is a standing wave. If the car is moving (Figure 2), the interfering waves have different lengths. And at first glance it is not clear whether there is a standing wave in this case or not? Answer: yes, it will be! It is not difficult to verify or solve the equation for a standing wave of coherent sources moving in a wave medium, or by writing a simple computer program to see the results of adding the opposing waves. But the best proof is the experiment. The author conducted a series of experiments (1990), and described them in the book "Rhythmodynamics"

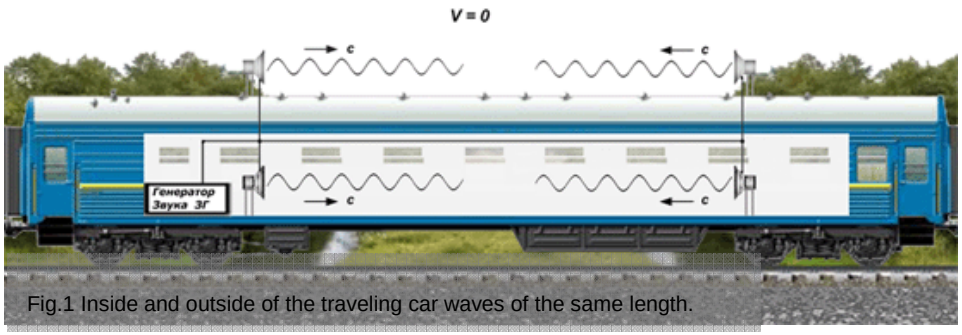


Fig.1 Inside and outside of the traveling car waves of the same length.

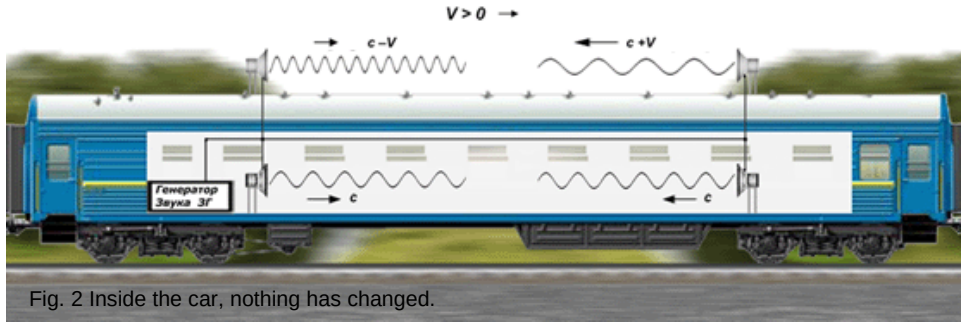


Fig. 2 Inside the car, nothing has changed.

Question: What is the nature of acoustic waves? A: The sound pulse is transmitted from one atom to another by electrical and magnetic fields. In this sense, the sound is of electromagnetic nature, especially when the sound waves are converted into light and electromagnetic waves, and conversely! In science, this research is dedicated to section - "Acoustic."

But between acoustics and modern electrodynamics there is a significant difference: the electrodynamics does not need a wave medium (waves as such and her medium do not exist for them!).

This incredible paradox of sanity was proposed by Einstein in 1905, and therefore formed a "watershed" between the science before 1905, and science after! It was then launched to intercept the mechanisms under the guise of consciousness: to think and reason Non-classical - fun! As a result, we have what we have!

I want to warn that the work is written in the framework of concepts and ideas "before 1905" and in the context of the views of the Lorentz wave medium – the rehabilitated ether. The paper contains no criticism of modern dogma and "truths" in the last instance. It is just doing its job to improve the situation in science. There is a reason to it: - the new physical phenomena are lacking Lorentz and his followers to resolve the crisis in science.

Waves in the wave medium

Doppler effect and waves in the moving system

The speed of waves in the ether is 300 000 km/s. The difference of ether from other isotropic media is the speed of waves. The mathematical way describing wave processes is in all cases the same.

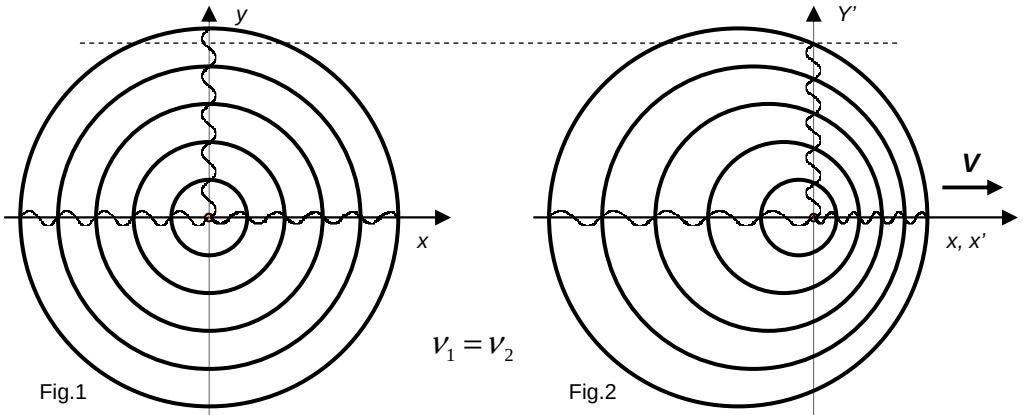
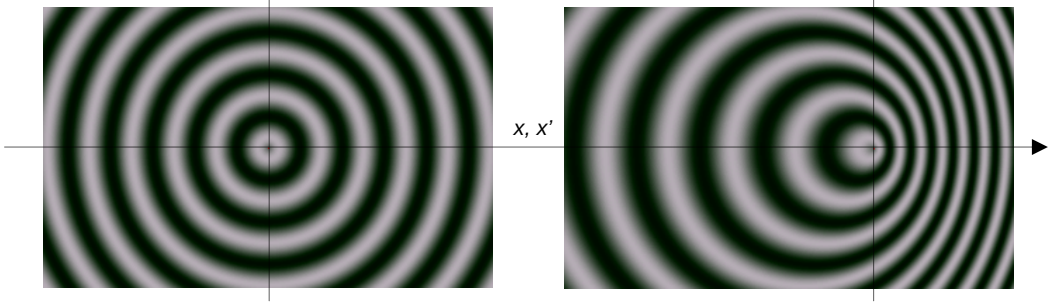


Fig.1 Fig.2



Although the frequency of the oscillator is the same, the wavelengths are different. This is explained by the geometry of the waves propagating in an isotropic medium.

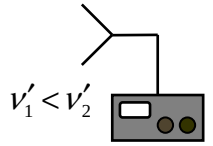


Fig.1 shows a wave source at rest (v=0) in the medium (the electromagnetic ether). Fig.2 shows another source that moves at a constant speed (v>0).

The frequency of the first source is equal to the frequency of the second source ($f_1=f_2$). In the first case (Fig.1), the wave field is symmetrical. In the second case (Fig.2), symmetry is not met because the wavelength depends on the speed. The receiver will register the waves at different frequencies ($f_1 \neq f_2$). This is the Doppler effect.

Waves in the wave medium

Parameters of waves and interference in the moving system

If two identical wave sources are located at a fixed distance from each other, is then the speed of movement of the system in the wave environment reflected in the interference field? Do they depend on the velocity field parameters, and how describe them?

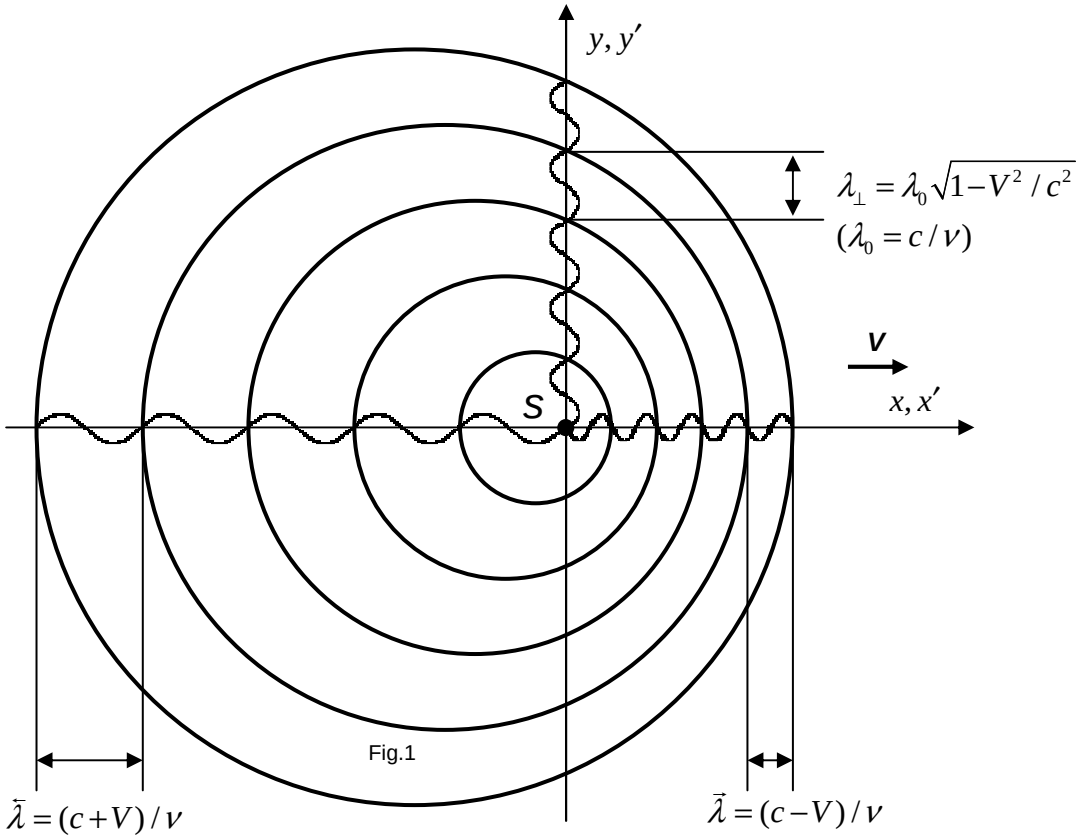


Fig.1

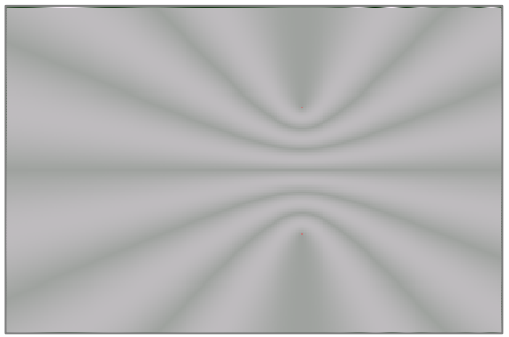


Fig. 2 Interfering waves of equal length. Interference picture is symmetrical in all coordinates.

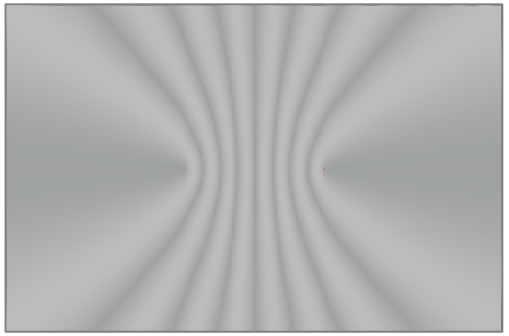
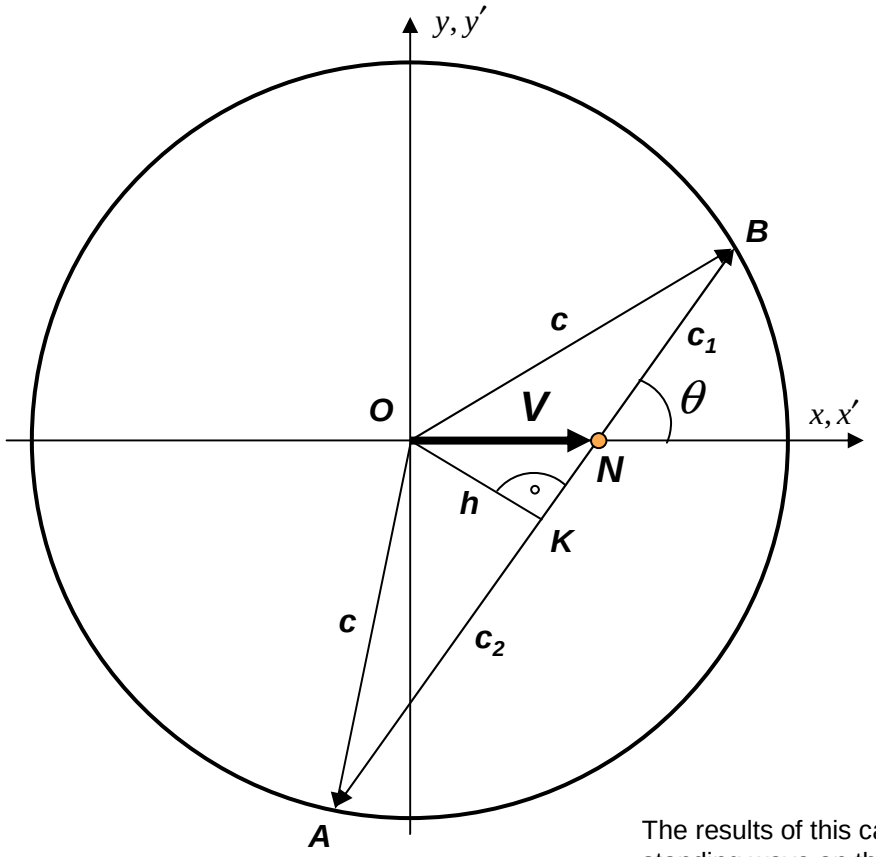


Fig. 3 In the moving source interference picture is symmetrical in all coordinates.

Waves in the wave medium

Calculation of the velocity of the wave front with respect to the moving source

What is the speed of the wave front radiating away from its source? If the source is stationary in the wave medium, this speed is the same in all directions. Otherwise, in the case of the moving source, the speed of the front depends on the choice of directions.



In the diagram:

N – moving source

V – velocity of the source

O – the coordinates of the emission wavelength

c – the speed of the wave front of the place of radiation

c_1 – the speed of the wave front relative to N

c_2 – the speed of the wave front relative to N

Calculation:

$AK=KB$;

$KN = V \cdot \cos\theta$

$h = V \cdot \sin\theta$

$KB = \sqrt{c^2 - h^2}$

$c_1 = KB - KN$

$c_2 = KB + KN$

The result of the calculation:

$$c_1 = c\sqrt{1-\beta^2 \sin^2\theta} - V\cos\theta$$

$$c_2 = c\sqrt{1-\beta^2 \sin^2\theta} + V\cos\theta$$

If $\theta = 0°$, то

$$c_1 = c - V, \quad c_2 = c + V$$

If $\theta = 90°$, то

$$c_1 = c_2 = c\sqrt{1-V^2/c^2}$$

The results of this calculation will be required for derivation of the length of the standing wave on the speed of the system sources (see next slide).

Compression of standing waves

The dependence of the length λ_{st} on the speed of the "source-mirror"

$$E = \vec{E}_1 + \overleftarrow{E}_2$$

$$E_1 = E_0 \cdot \cos(\omega t_0 - k_1 \cdot x)$$

$$E_2 = -E_0 \cdot \cos(\omega t_0 + k_2 \cdot x)$$

where:

$$\omega = 2\pi\nu$$

$$k_1 = 2\pi\nu / c_1$$

$$k_2 = 2\pi\nu / c_2$$

then:

$$E = E_0[\cos 2\pi\nu(t_0 - x/c_1) - \cos 2\pi\nu(t_0 + x/c_2)]$$

$$E = 2E_0 \sin\{2\pi\nu[t_0 - \frac{x(c_2 - c_1)}{2c_1 \cdot c_2}]\} \cdot \sin\{\pi\nu[\frac{x(c_2 + c_1)}{c_1 \cdot c_2}]\}$$

$$E = 2E_0 \sin\omega t \cdot \sin k'x$$

where

$$t = t_0 - \frac{x(c_2 - c_1)}{2c_1 \cdot c_2} \qquad (1.1)$$

$$k' = \frac{\pi\nu(c_2 + c_1)}{c_1 \cdot c_2}$$

but

$$\lambda_{st} = \pi / k'$$

then

$$\lambda_{st} = \frac{c_1 \cdot c_2}{\nu(c_1 + c_2)} \qquad (1.2)$$

but

$$c_1 = c\sqrt{1 - \beta^2 \sin^2\theta} - V\cos\theta$$

$$c_2 = c\sqrt{1 - \beta^2 \sin^2\theta} + V\cos\theta$$

Substituting the values c_1 and c_2 in the formula 1.1 and 1.2, we obtain expressions for t and λ_{st} for any orientation of the standing wave in the moving frame:

$$t = t_0 - \frac{V/c^2 \cdot x \cdot \cos\theta}{1 - \beta^2}$$

$$\boxed{\lambda_{st} = \frac{c}{2\nu} \cdot \frac{1 - \beta^2}{\sqrt{1 - \beta^2 \sin^2\theta}}} \qquad (1.3)$$

Formula 1.3 is universal and suitable for the description of standing waves in acoustics and electrodynamics in the example until 1905. The formula describes the dependence of the length of the standing wave between sources on their speed and points to the physical phenomenon (compression of standing waves), which was lacking Lorentz to explain the results of the Michelson.

The absolute and the relative

The outside of the observer, let’s call it "absolute“, does not belong to the world he observes, but because it is outside of him, it is not subject to the changes occurring in him, so we know the phenomena and processes in the instant of their condition. Theoretically, know it is possible if the observer detects and uses information, the speed of which, in comparison with the speed of light is infinite. By analogy, an absolute observer is the researcher overseeing the wave processes in the water or on the computer screen: the waves propagate slowly and the researcher sees what is happening at once and entirely. Another example: the blind and the seeing. The blind "sees" the world through acoustic oscillations and thus creates a picture of the world. This picture is correct, but only with the care: within the available means of communication with surrounding objects. If the "blind" sees clearly, thus moving to a more rapid way of sharing information, the world around him takes different forms.

An observer system, let's call it "local", belongs to the observed world, subject to all the changes and dependencies that occur with the surrounding bodies and phenomena. For information exchange with the environment the local observer uses the maximum available to him from the world with the speed of light. This limitation makes it impossible to see what was happening at the time of the accomplishments, and the fact is that all the events for the observer, have already occurred. Example: the stars and galaxies we see are not in the present, because they were a long time ago. Because of the speed limited information transfer, we can not say in what state the objects are in the present moment.

Being in a position of absolute observer with respect to computer constructs we see what is happening as it is. But if you become part of the simulated events and accept the rules of "artificially" created world, you immediately feel the difference in the perception of what is happening. Much will become inaccessible to direct observation, and therefore will not be grounds for a formal talk, for example, to reduce the size of the moving bodies and prior to that phenomenon. Local view of what is happening is always different from the vision of the outside!

Computer experiment

Standing waves in the system "source - mirror"

A program to illustrate the effects of these phenomena was written many years ago and since then has not been updated. The reason is simple - lack of stakeholders and resources. In the presence of the first and the second condition and with the participation of the education market in the process of software training, as in the United States and Europe, after acquired experience, it would be wise to create a program that covers a share of this market sector.

The program works in swc_20.exe WinXP OS and earlier versions. If run this program is not possible, then the following slides are a gif-animation for several speeds

Program rhythmo1.exe (program requires completion)

The program works in faza_1en.exe WinHR OS and earlier versions

The program allows you to spend a few rg_03.exe acoustic experiments without leaving your computer.

Requires a stereo and two speakers

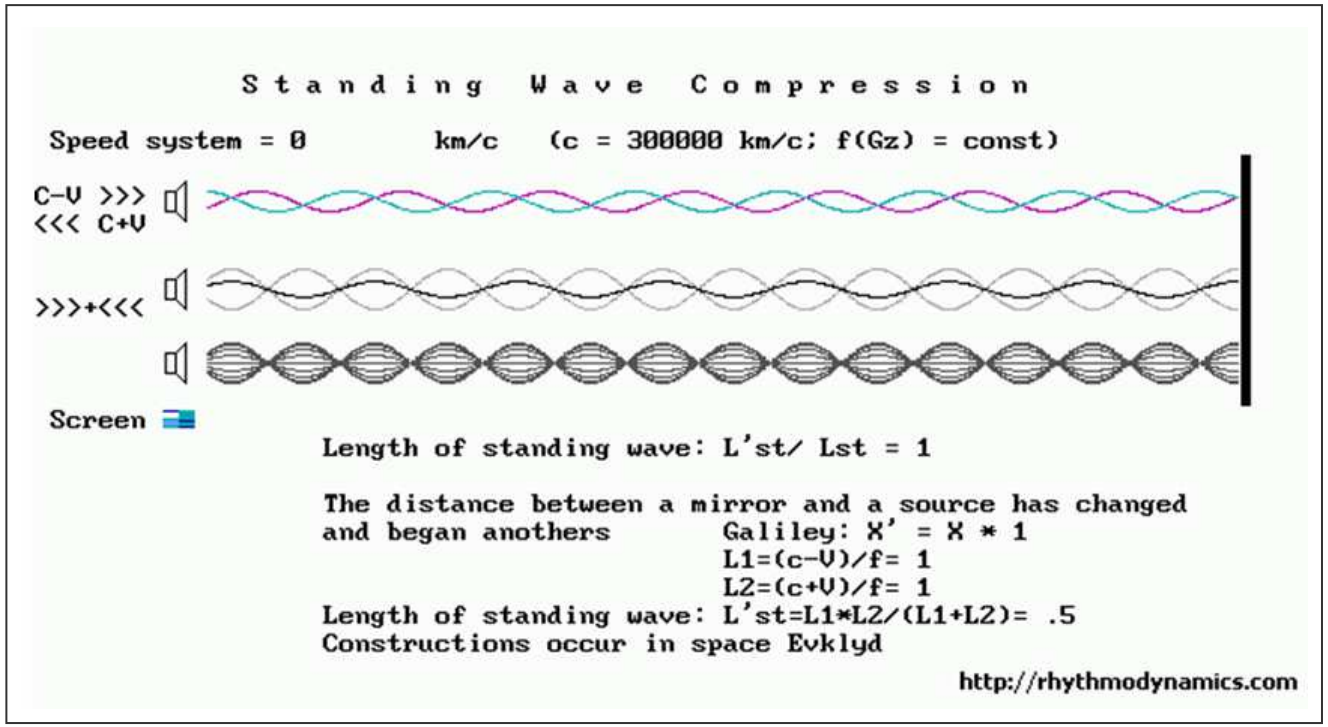
All programs are checked. No viruses!

The dream of the user is a choice to the maximum. For example, the program rhythmo1.exe can set frequency sources, assign wave velocity and the speed of the system, to watch what is happening in the "source-mirror" for different types of reducing size.

Above is only a small part of what is intended and - wait their commercialization.

Computer experiment

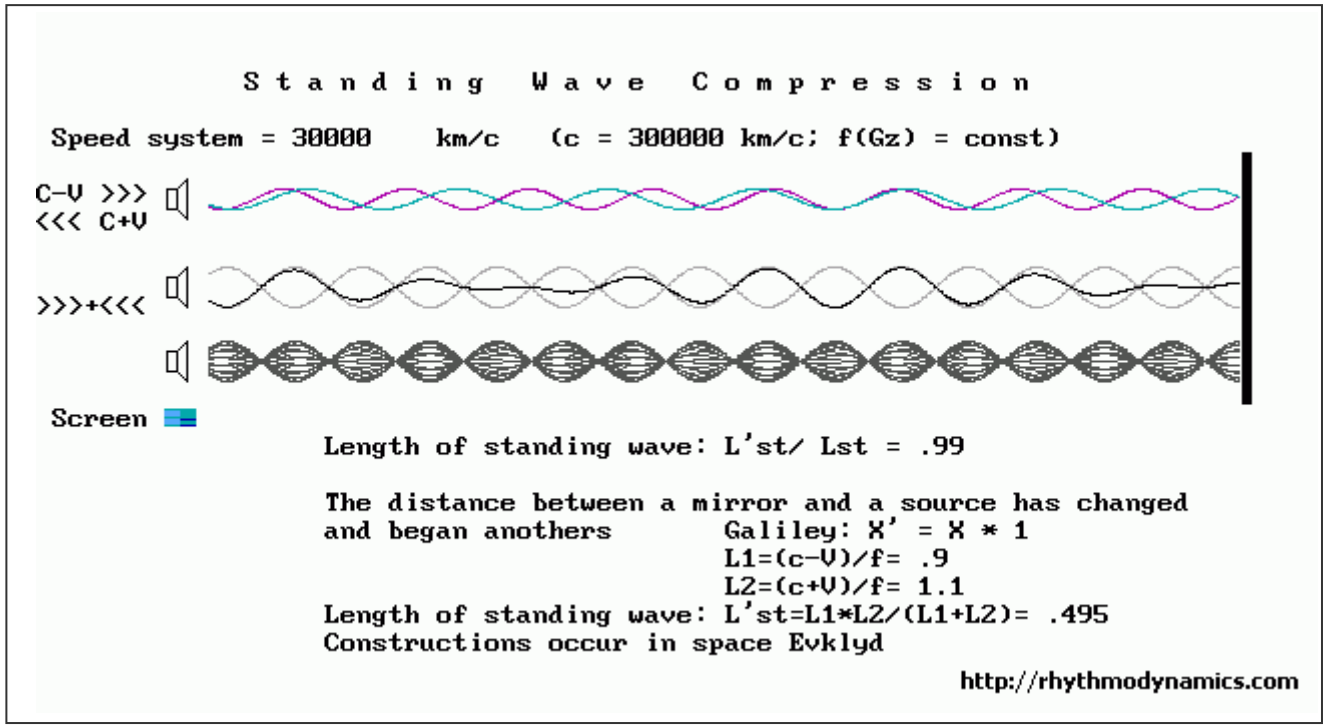
Compression of standing waves in the system "source - mirror"



V = 0.0c ***V = 0.1c*** ***V = 0.5c*** ***V = 0.7c*** ***V = 0.8c*** **comparision of standing waves**

Computer experiment

Compression of standing waves in the system "source - mirror"



V = 0.0c V = 0.1c V = 0.5c V = 0.7c V = 0.8c comparision of standing waves

Computer experiment

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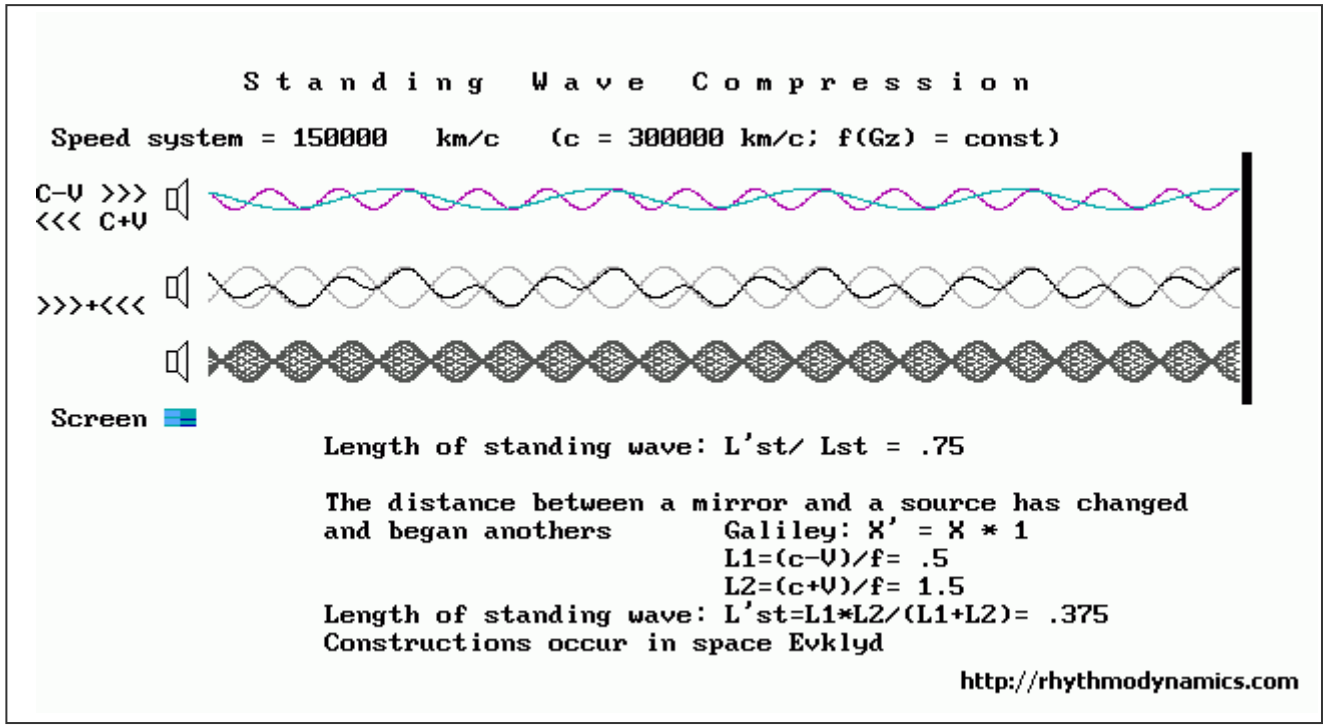

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Computer experiment

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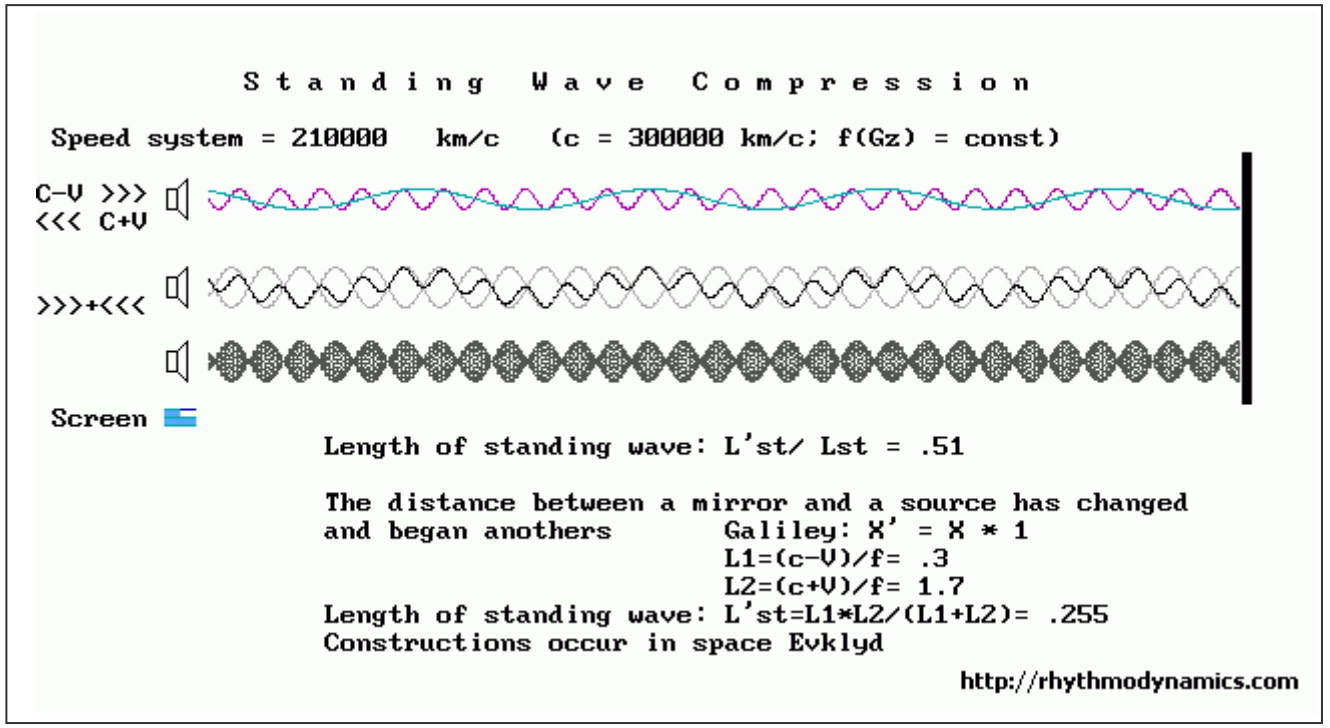
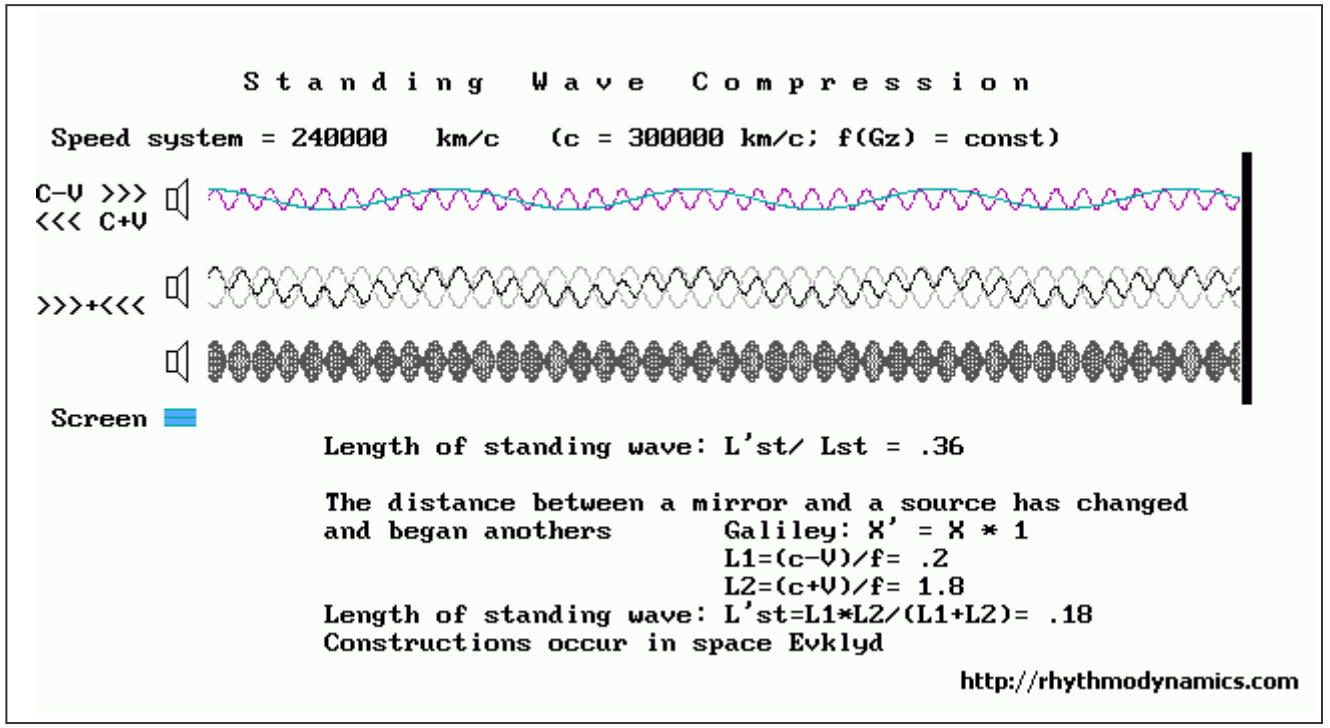


V = 0.0c V = 0.1c V = 0.5c ***V = 0.7c*** V = 0.8c **comparision of standing waves**

Computer experiment

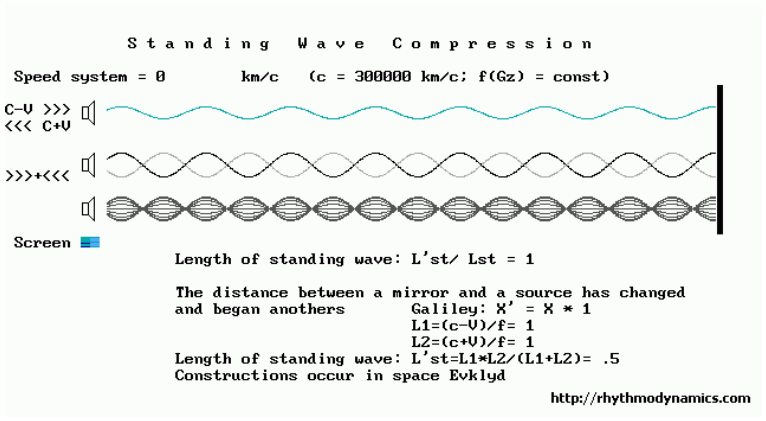
Compression of standing waves in the system "source - mirror"

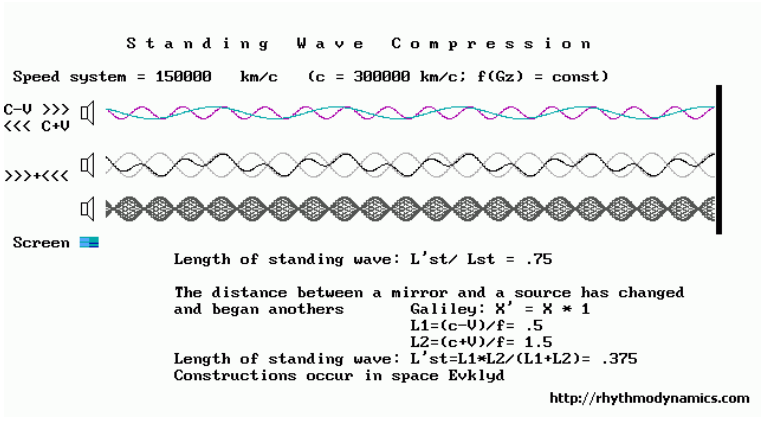


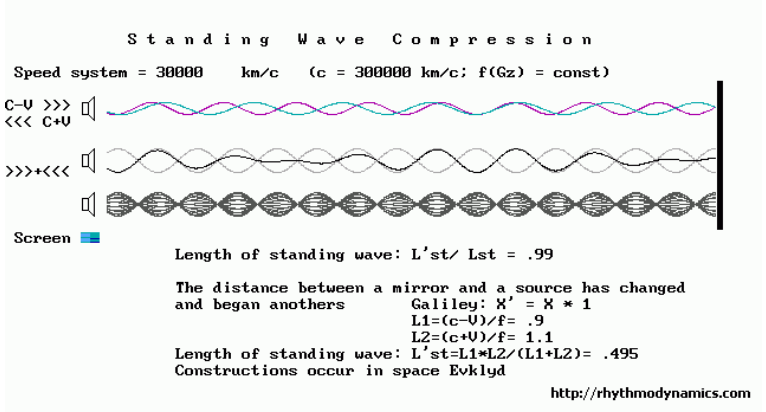
V = 0.0c V = 0.1c V = 0.5c V = 0.7c ***V = 0.8c*** **comparision of standing waves**

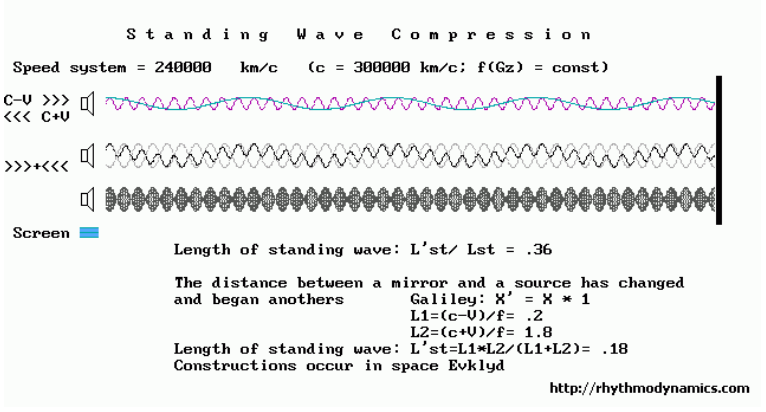
Comparison of simulation results

Compression of standing waves in the system "source - mirror"









V = 0.0c *V = 0.1c* *V = 0.5c* *V = 0.7c* *V = 0.8c*

Theoretical basis, computer modeling and field experiments with the standing waves are a sufficient basis for the application and for the opening of the phenomenon and the effect. The phenomenon is the compression of standing waves in moving frames; the effect is dependence of the length of the standing wave in the moving system from its speed in the wave medium.

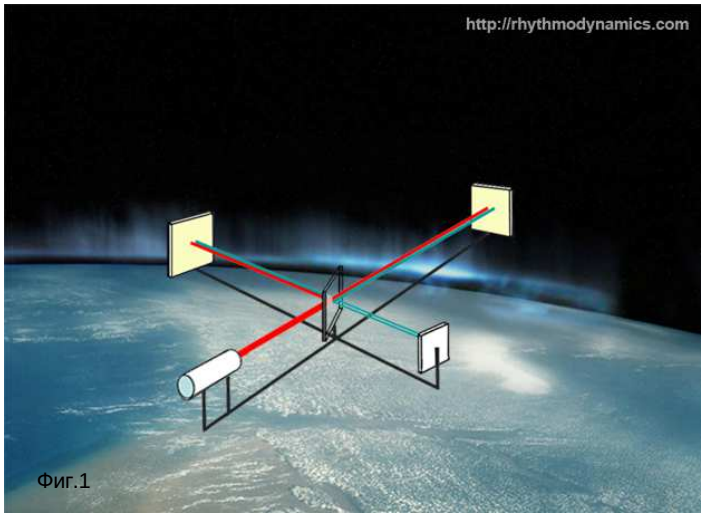
Acoustic analogy of the Michelson

In 1990, a Michelson experiment was conducted on acoustic waves in order to confirm the length dependence of the acoustic standing wave on the speed of the "source-mirror" in the wave medium predicted by the author. In the experiment, it was found that the length of the standing wave is really dependent on the speed of the system by the rule:

$$\lambda_{st} = \frac{c}{2\nu} \cdot \frac{1-\beta^2}{\sqrt{1-\beta^2 \sin^2\theta}} \qquad \beta = V / c$$

The scheme was similar to computer animation. There were technical difficulties caused by the dependence of the amplitude on the distance to the sound source (the distance between the source and the "mirror" - 70 meters), but it was resolved. As a result, it was concluded that the wind between the source and the mirror is the origin of an additional standing wave that compress the package of standing waves.

As for the "wave medium", which is distributed by the perturbation, it is the hypothesis of dreamers: the ether is entrained by bodies and can not be identified by Michelson's instrument that carries it. This hypothesis is not difficult to verify. Fig1 shows an interferometer in open space (such an interferometer can not captivate ether). If there were two interferometers, but one in an "ether impermeable" box, then comparing the results would eliminate many disputes and cut a number of disturbing scientific speculations.



Фиг.1

The term "wave medium" (ether) means we are studying the basic component of the world. One of the properties of the components we know for certain - the ability to transfer information from one place to another receptor at a constant speed.

A receptacle seems empty, and the lack of resistance to movement of bodies creates an extra illusion of the lack of basic components. In other words, the air seems clear, for example, glass is transparent for sound, and light. But is it?

Only two states are undeniable basic components - the non-manifest and manifest. Manifest is available to us and our instruments, non-manifest - anything else.

Now for the real body, he is transparent only in one case - if the body consists of a package of standing waves, whose nodes are the sources of these waves.

Aquarium and nesting bases

Suppose living creatures in an aquarium, the flesh of which are made up of standing waves of sound. So, the actual acoustic environment is not only transparent and permeable, but also the fundamental component. As if the sound of things were the only way of information, the electromagnetic light is it in the world as it exists. But we know that the light is and it can even turn into a sound (and vice versa, see acousto-optics). And then there are phenomena that without apparent reason excite the acoustic environment. A crude example is the sound of water boiling in a microwave oven. This state of water is inexplicable for acoustic creatures: their transparent and permeable environment will look like an "unreasonably" fundamental boiling component. Here it is appropriate to compare with the hypothesis of boiling vacuum ...

For creatures of the electromagnetic world picture is different, it is and sound and light, open source, as in the example of the water. For the light, the fundamental component is ether. But the world of electromagnetic phenomena may be in "aquarium" where information flows of higher order are invisible to the inhabitants, but manifest themselves as in the acousto-optics. As a result, ether is excited and becomes manifest. And this by infinite nesting...

Q: Then what levels of organization of matter to study?
A: The Available first! But it is possible to identify common patterns that are independent of the levels of matter. You will need tools - wave geometry (see the second part of the presentation), in which there are no effects of nesting and no transformations.
Question: Can the sound with an interferometer built on the basis of acoustic standing waves detect his own movement in the acoustic environment?
Answer: No, it can not, because and interferometer, and used events have the same nature.

Фиг.1

What is the solution? If you can not find affordable ways to detect the own movement in the environment, then:

1. You may refuse ether and say that this is no problem agreeing by impotence of the own intelligence. Then, to satisfy public opinion, create a mathematical “model”, which replaces the ether medium, and - consider yourself a winner!
2. Not giving up the medium, identify its presence by the opposite way: the consequences of the hypothesis, and then test their effects. If the predictions are confirmed and have access to the practice, which is very valuable, then the hypothesis has the status of theory.

The choice is yours...

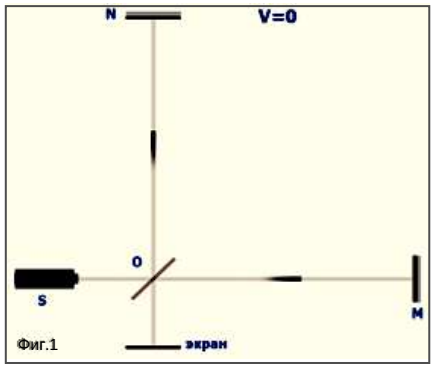
Meaning of the idea and the calculation of the Michelso

Background: The development of physics of the 19th century came with the emphasis on the idea of □□a thin medium filling all space and which is the bearer of light waves. This medium was called ether. There were opponents to consider space empty. But many scientists of pre-Einstein period were convinced of the existence of the ether, and the case was at least finding a way of registration, ie the experiment.

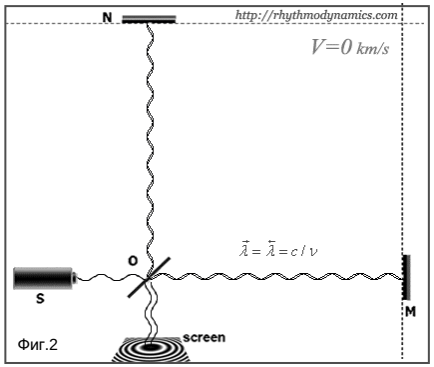
Maxwell considered the possibility of the test that would unambiguously decide which of the existing ideas is just and proposed an experiment that measured the speed of light coming from a terrestrial source on the moving earth in the direction of its movement, and compare it with the light speed measured in the transverse direction. Because of the smallness of the effects, Maxwell was skeptical about the feasibility of the solution of the issue through the proposed experimental design. Nevertheless, this experiment was soon implemented (already in 1881).

Michelson's interferometer scheme was created by Maxwell and thus intended to detect the movement of the ether. The meaning of the Michelson was to turn the device at 90° by filtering the incoming rays, the phase shift of the two consecutive directions should be observed on the screen as interference fringes which would be evidence of motion in the ether.. But neither he nor the other experimenters did ever get the expected results. And a question rised : why, why?

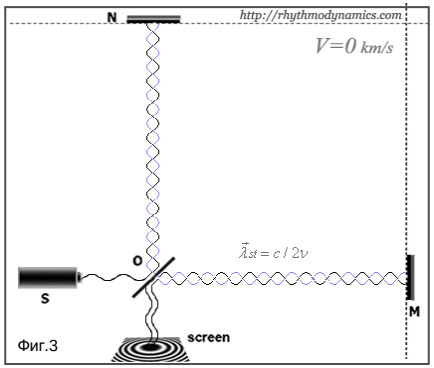
The physical cause of the crisis.



Фиг.1



Фиг.2



Фиг.3

You can not get out of the crisis without understanding the reasons. A reason may be the myth: the observed seems real, but it is actually not the case (holography, for example). This also applies to size reduction of the interferometer: in reality independent of the observer, the reduction occurs, and the locally observed size is subjective - we can not register it. Why - is explained by Lorentz and Poincaré, but they did not know the physical phenomena involved in the implementation depending on the size of bodies according to the ether speed.

What happens in the interferometer can be measured following two ways: 1) by the movement of the rays in the arm (Fig.1); 2) by the wave processes in the arms (Fig.2), which leads to the standing wave (Fig.3). We consider all methods to demonstrate the size reduction. The results will not only remove the problem of interpretation of the Michelson experiment, but also allow the return of ether to the scientific approach.

Classical calculation of the Michelson

The beams are divided at the point O and pass the same distance (OMO = ONO) at regular intervals (Fig 1), reaching the point on the screen; and they will come in the same phases. But it is at V = 0. If the interferometer is moving in the ether (Fig 2), the situation is changing. Beams travel the same distance (OMO = ONO) at different times and come to the screen in different phases. When turning the interferometer arms, situation is changing, and this should lead to a phase shift between the incoming rays in O and to shifting interference fringes on the screen.

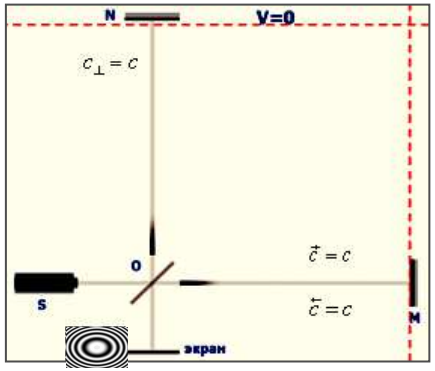


Fig 1 Rays come to the screen at the same time. In the center of the screen will be a bright spot.

The interferometer is at rest in the ether

The movement of rays in the arms is the ratio of distance covered at the speed of light. The speed of light in the system is isotropic. The movement of rays is the same in both arms.

$$V = 0 \qquad \vec{c} = \overleftarrow{c} = c_\perp = c$$

$$l_{OM} = l_{ON} = l_0 \qquad \sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c$$

$$t_{ON} = t_{NO} = l_0 / c \qquad \sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c$$

$$t_{OM} = t_{MO} = l_0 / c$$

$$\boxed{\sum t_\parallel = \sum t_\perp = \sum t_0}$$

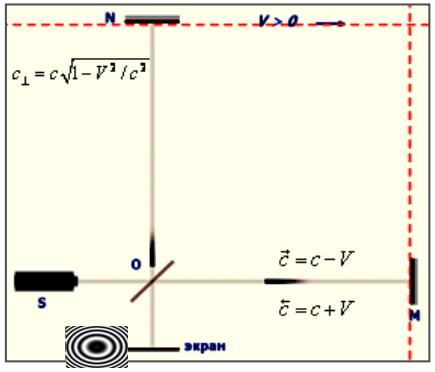


Fig.2 Rays come to the screen out of phase. In the center of the screen will be a dark spot.

The interferometer is moving in the ether to the right

The speed of light in the system is anisotropic. Time of the rays in the arms was different. The rays come to the screen simultaneously.

$$V > 0 \qquad \vec{c} = c - V \qquad \overleftarrow{c} = c + V \qquad c_\perp = c\sqrt{1 - V^2/c^2}$$

$$l_{OM} = l_{ON} = l_0$$

$$t_{ON} = t_{NO} = l_0 / c\sqrt{1 - V^2/c^2} \qquad \sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c\sqrt{1 - V^2/c^2}$$

$$t_{OM} = l_0 / (c - V) \qquad \sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c\left(1 - V^2/c^2\right)$$

$$t_{MO} = l_0 / (c + V)$$

$$\boxed{\sum t_\parallel > \sum t_\perp}$$

Calculations with size reduction

Lorentz, to eliminate the difference between the time of the rays in the arms, suggested to reduce the longitudinal dimension of the interferometer (Fig. 2). Preventing a reduction in the real makes possible to explain why the light rays come to the screen always in the same phase. But there was a problem - the time of the rays in the arms also becomes dependent on the speed of the interferometer in the ether. It took one more assumption, called "time dilation" in moving systems. Finally, instead of one hypothesis there were two! And each hypothesis required its own physic explanation.

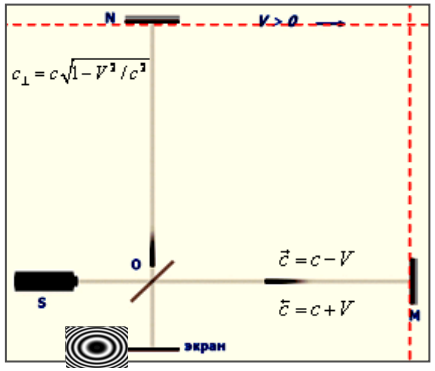


Fig.1 Rays come to the screen at different time. In the center of the screen is a dark spot.

No size reduction

$$V > 0 \quad \vec{c} = c - V \quad \overleftarrow{c} = c + V \quad c_\perp = c\sqrt{1-V^2/c^2}$$

$$l_{OM} = l_{ON} = l_0$$

$$t_{ON} = t_{NO} = l_0 / c\sqrt{1-V^2/c^2}$$

$$t_{OM} = l_0 / (c - V)$$

$$t_{MO} = l_0 / (c + V)$$

$$\sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c\sqrt{1-V^2/c^2}$$

$$\sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c\left(1-V^2/c^2\right)$$

$$\boxed{\sum t_\parallel > \sum t_\perp}$$

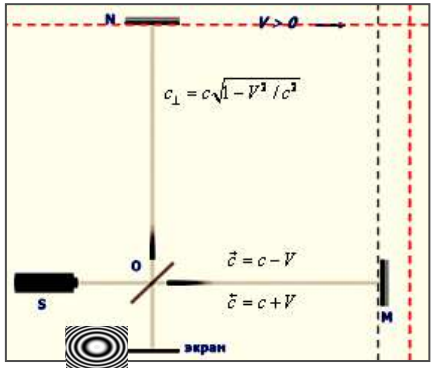


Fig.2 Rays come to the screen at same time. In the center of the screen is a bright spot.

Dimensions are reduced by Lorenz

$$V > 0$$

$$l_{ON} = l_0$$

$$l_{OM} = l_0\sqrt{1-V^2/c^2}$$

$$t_{ON} = t_{NO} = l_0 / c\sqrt{1-V^2/c^2}$$

$$t_{OM} = l_{OM} / (c - V)$$

$$t_{MO} = l_{MO} / (c + V)$$

$$\sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c\sqrt{1-V^2/c^2}$$

$$\sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c\sqrt{1-V^2/c^2}$$

$$\boxed{\sum t_\parallel = \sum t_\perp > \sum t_0}$$

Calculations with size reduction

You can get rid of the hypothesis of time dilation and leave only one assumption: the dependence of the size on the speed of moving objects in the ether. You must reduce the size and the way (Figure 2), the time of the rays motion in the arm did not depend on the speed. Consideration of this option also requires a physical justification. Otherwise, the problem of ether will remain open.

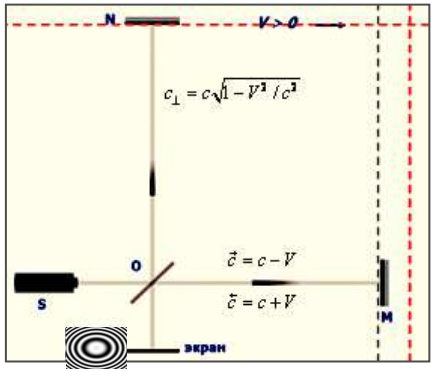


Fig.1 Rays come to the screen at same time. In the center of the screen is a bright spot.

Dimensions are reduced by Lorenz

$$V > 0$$

$$l_{ON} = l_0$$

$$l_{OM} = l_0\sqrt{1-V^2/c^2}$$

$$t_{ON} = t_{NO} = l_0 / c\sqrt{1-V^2/c^2}$$

$$t_{OM} = l_{OM} / (c - V)$$

$$t_{MO} = l_{MO} / (c + V)$$

$$\sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c\sqrt{1-V^2/c^2}$$

$$\sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c\sqrt{1-V^2/c^2}$$

$$\boxed{\sum t_\parallel = \sum t_\perp > \sum t_0}$$

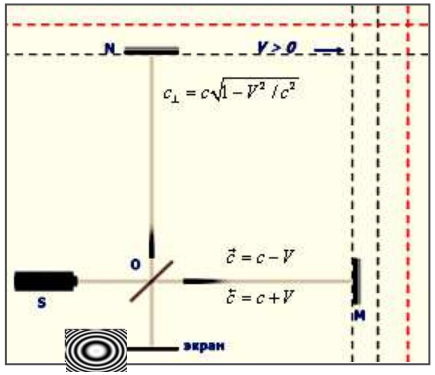


Fig.2 Rays come to the screen at same time. In the center of the screen is a bright spot.

Dimensions are reduced by Ivanov

$$V > 0$$

$$l_{ON} = l_0\sqrt{1-V^2/c^2}$$

$$l_{OM} = l_0\left(1-V^2/c^2\right)$$

$$t_{ON} = t_{NO} = l_{ON} / c\sqrt{1-V^2/c^2}$$

$$t_{OM} = l_{OM} / (c - V)$$

$$t_{MO} = l_{MO} / (c + V)$$

$$\sum t_\perp = t_{ON} + t_{NO} = 2l_0 / c$$

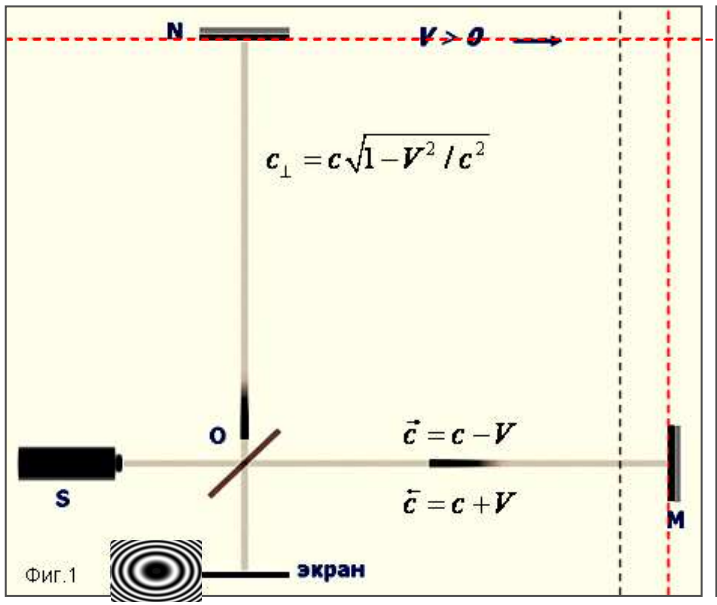
$$\sum t_\parallel = t_{OM} + t_{MO} = 2l_0 / c$$

$$\boxed{\sum t_\parallel = \sum t_\perp = \sum t_0}$$

Michelson interferometer

If the dimensions of the interferometer are cut only along one direction following the rule of Lorentz, the rays will come to the screen simultaneously, and without phase shift. But compared with the option of V = 0, the time spent by the rays on the route will increase. This effect is called "slow time", which means dependence of the processes in the system on its speed in the ether.

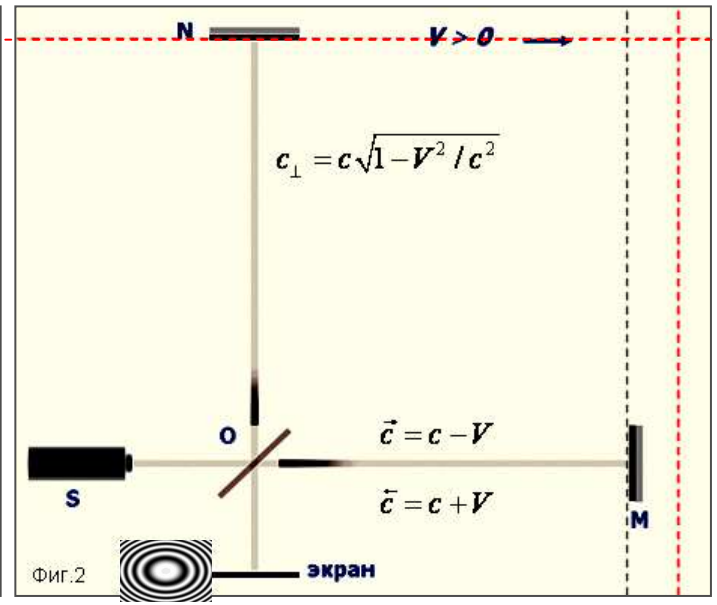
No size reduction



Rays come to the screen at different time. There is a phase shift. In the center of the screen a dark spot

$$\sum t_{\parallel} > \sum t_{\perp}$$

Dimensions are reduced by Lorenz



Rays come to the screen at same time. The phase shift is absent. In the center of the screen a bright spot

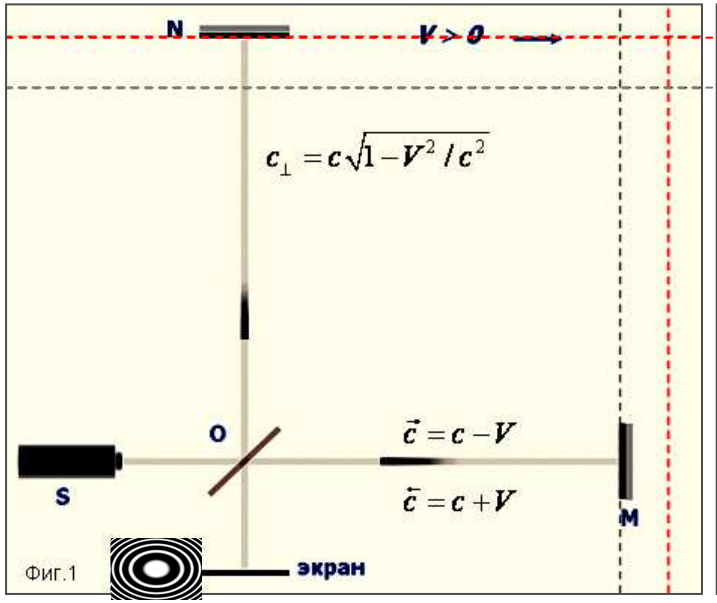
$$\sum t_{\parallel} = \sum t_{\perp}$$

The hypothesis implies time dilation as well as size reduction. It does not follow that both assumptions are founded on strictly physical basis. For this reason, Lorentz expressed doubts as to the legitimacy of these hypotheses, if they are based on the construction of a physical picture of what is happening. One hypothesis could be taken as an assumption, but when its adoption requires additional hypotheses, and the chain continues, then there is doubt!

Michelson interferometer

The arguments in favor of one hypothesis are easier to find than for two! To manage "time dilation", you need to reduce the size of the interferometer so that the movement of rays in the arms remains constant at any orientation of the interferometer, and at any rate of it to the wave medium (V <c). This requires a change not only in the size of x, but also on other axes: y and z. The idea of the reduction follows from the dependence of the length of the standing wave on the speed of the "source-mirror."

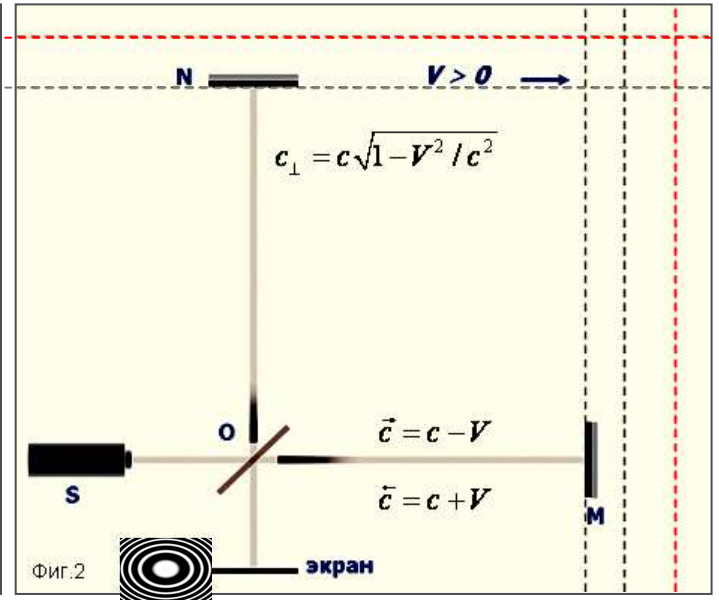
Dimensions are reduced by Lorenz



Rays come to the screen at same time. The phase shift is absent. In the center of the screen a bright spot

$$\sum t_{\parallel} = \sum t_{\perp} = 2l_0 / c\sqrt{1-V^2/c^2}$$

Dimensions are reduced by Ivanov



Rays come to the screen at same time. The phase shift is absent. In the center of the screen a bright spot

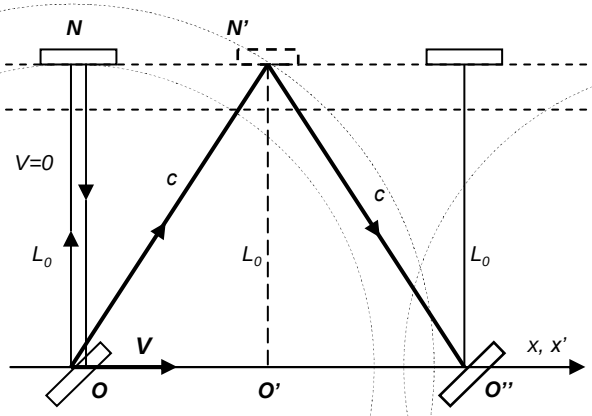
$$\sum t_{\parallel} = \sum t_{\perp} = 2l_0 / c$$

$$\sum t_{Lorentz} > \sum t_{Ivanov}$$

Michelson interferometer

The timing of the movement of rays in the interferometer

Dimensions in x, y, z do not depend on the speed



Way ON'O" is much longer than way ONO, so the light wave passes there a longer time. In the moving, the average wave velocity in the area O'N'O' will be lower than in the same area in the stationary system, and is equal to:

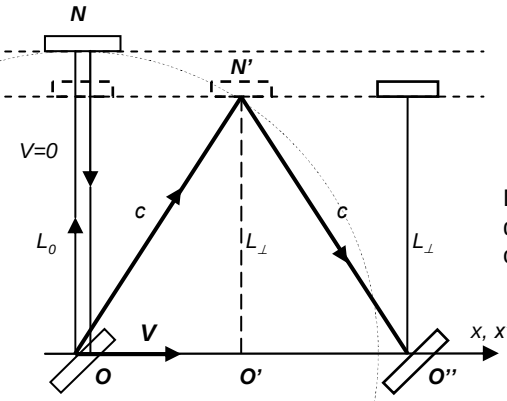
$$c_{\perp} = c \cdot \sqrt{1 - V^2 / c^2}$$

To determine the wave period in the area O'N'O', divide traveled distance by the speed:

$$\Delta t_{\perp} = \frac{2L_0}{c_{\perp}} = \frac{2L_0}{c\sqrt{1 - V^2 / c^2}} = \Delta t_0 / \sqrt{1 - V^2 / c^2}$$

$$\Delta t_{\perp} = \Delta t_0 / \sqrt{1 - V^2 / c^2}$$

These are prerequisites for the introduction of the hypothesis of relation between the pace of time and the speed of the ether.



Dimensions in x, y, z depend on the speed of the rule of Ivanov.

Transverse movement of the arms diminishes so that the light path ON'O" remains equal to ONO:

$$L_{\perp} = L_0 \cdot \sqrt{1 - V^2 / c^2}$$

The average wave velocity in the area O'N'O 'will be lower In the moving system, than in the stationary system, and equal to:

$$c_{\perp} = c \cdot \sqrt{1 - V^2 / c^2}$$

To determine the wave period in the area O'N'O ', divide traveled distance by the speed:

$$\Delta t_{\perp} = \frac{2L_{\perp}}{c_{\perp}} = \frac{2L_0\sqrt{1 - V^2 / c^2}}{c\sqrt{1 - V^2 / c^2}} = 2L_0 / c = \Delta t_0$$

Light wave covers the way O'N'O 'for the same time as in the rest of the system in the case of the ether:

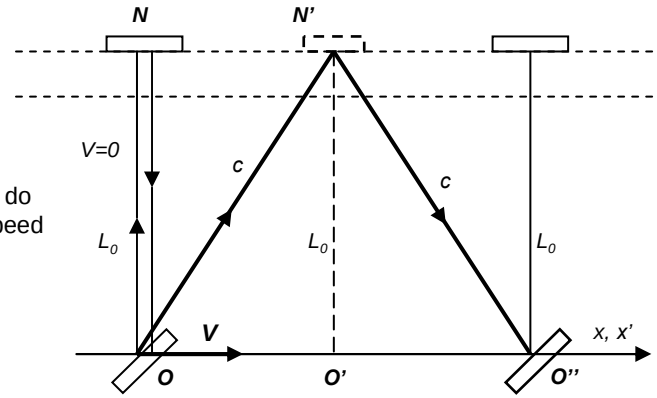
$$\Delta t_{\perp} = \Delta t_0$$

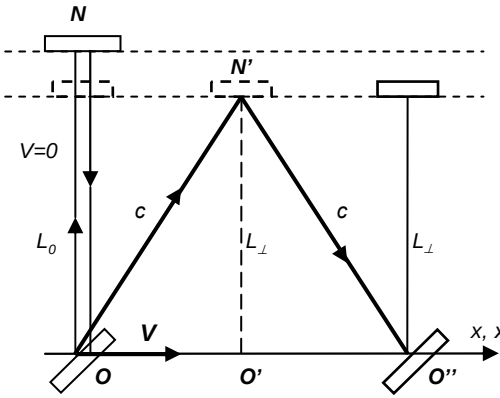
The hypothesis of time dilation is not required!

Michelson interferometer

The illusion of constant average speed of light

Dimensions in x, y, z do not depend on the speed





Dimensions in x, y, z depend on the speed of the rule of Ivanov.

We assume that the speed of light does not depend on the direction and is always the same: c = const. But in the moving along O'N (this geometry). 'the speed of light is lower. For observers, however, it still seems to be equal to the speed of light in the ether, ie c' = c. The explanation of this strange assumption can be that the pace of time in a moving system depends on the speed according to the rule:

$$\Delta t_\perp = \Delta t_0 / \sqrt{1 - V^2 / c^2}$$

Then look at the ratio of the path traveled by light O'N'O' to the time on the clock of the moving observer:

$$c_\perp = c\sqrt{1 - V^2 / c^2} = 2L_0 / \Delta t_\perp$$

$$c\sqrt{1 - V^2 / c^2} = 2L_0 / \Delta t_\perp$$

$$c = 2L_0 / \Delta t_0$$

$c' = c$ – the illusion of constancy of the speed of light, which requires time dilation.

In this scheme, there is no time dilation, but in the system of the moving observer the speed of light is constant as it seems, that c = const. The reason is different - the dependence of the length of the cross-arm O'N' on speed:

$$L_\perp = L_0\sqrt{1 - V^2 / c^2}$$

The speed of light in the system also depends on speed:

$$c_\perp = c\sqrt{1 - V^2 / c^2}$$

Then look at the ratio of the path traveled by light O'N' the time on the clock moving observer:

$$c\sqrt{1 - V^2 / c^2} = 2L_\perp / \Delta t_0$$

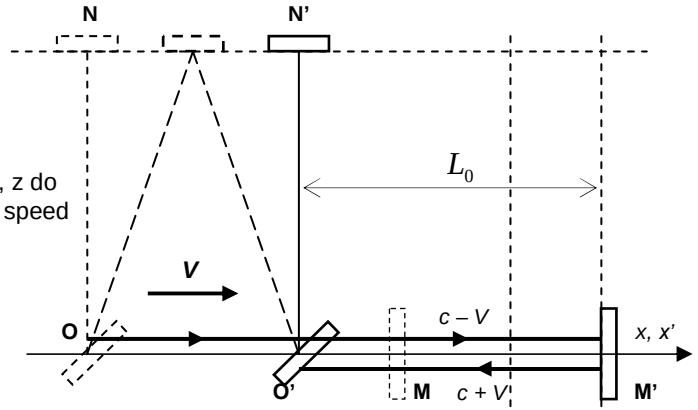
$$c = 2L_\perp / \Delta t_0\sqrt{1 - V^2 / c^2} = 2L_0 / \Delta t_0$$

$c' = c$ – And there lies the illusion of constancy of the speed of light, which does not need the hypothesis of time dilation.

Michelson interferometer

The timing and speed of light in a parallel arm

Dimensions in x, y, z do not depend on the speed



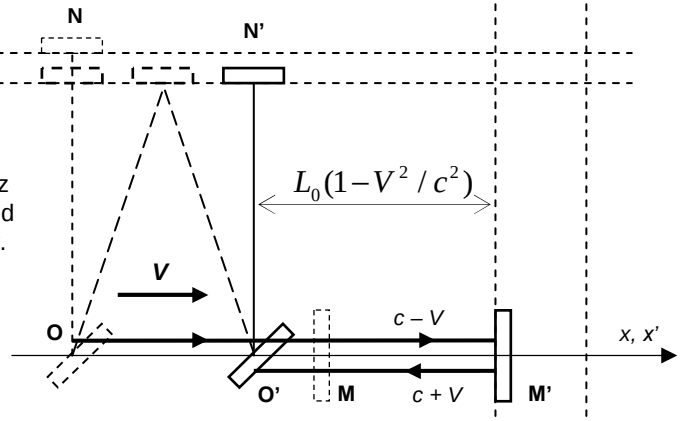
When V> 0, and there is no optical path cuts, then OM'O' is longer than OMO (for V = 0), so the light wave passes it over a longer time:

$$\Delta t_{||} = 2L_0 / c\left(1 - V^2 / c^2\right)$$

In the moving average wave velocity in the area O'N'O' will be lower than in the same area in the stationary system, and is equal to:

$$c_{||} = 2\vec{c} \cdot \vec{c} / (\vec{c} + \vec{c}) = c \cdot (1 - V^2 / c^2)$$

Dimensions in x, y, z depend on the speed of the rule of Ivanov.



When V> 0, and by reducing the optical path according to Ivanov OM'O' is equal to OMO (for V = 0), so the light wave passes the arms within the same time:

$$\Delta t_{||} = \Delta t_0 = 2L_0 / c = 2L_{||} / c_{||}$$

The average speed of light in a parallel arm of the interferometer will be the harmonic mean value between c-V and c+V:

$$c_{||} = 2\vec{c} \cdot \vec{c} / (\vec{c} + \vec{c}) = c \cdot (1 - V^2 / c^2)$$

We know that the parallel arm decreases in the same proportion as the average speed of light in this arm. But if the local observer does not see it or denies the reduction of the speed of light and continues to judge by the time in which the light beam passes the way there and back, he will always get the same subjective result:

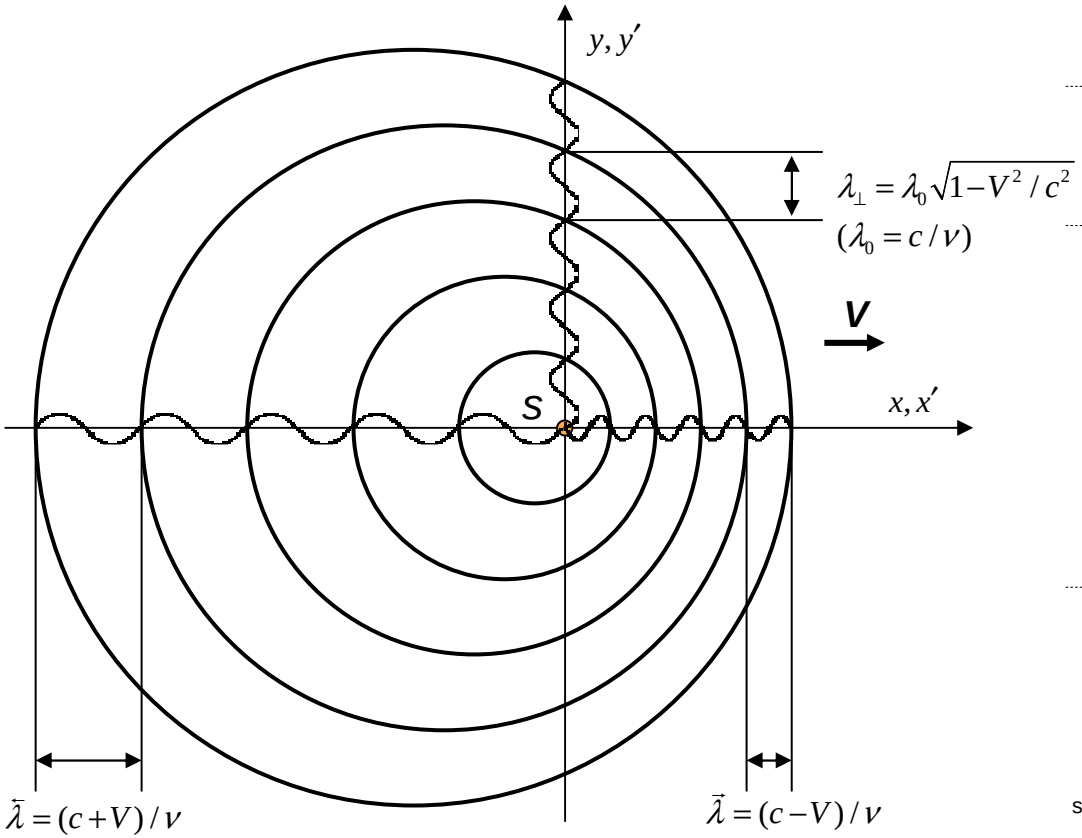
$$c'_{||} = c = const$$

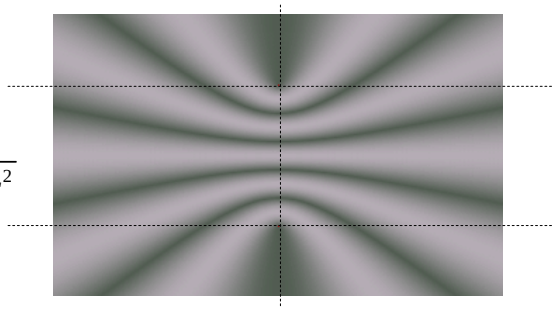
There is the illusion that the average speed is independent of the speed of the system is always constant and always equal to c.

Michelson interferometer

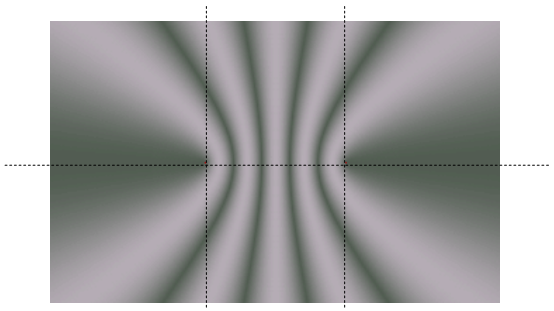
Wave in the interferometer, and density dependence of the field on speed

The wave sources are at a fixed distance from each other and the speed of the wave in the medium is increased. The geometry of the interaction of the waves is such that the energy of the interference field is condensed. If the opportunity is given to the source to be in areas of stable equilibrium, the distance between them will be reduced by the rules of rhythmodynamics.





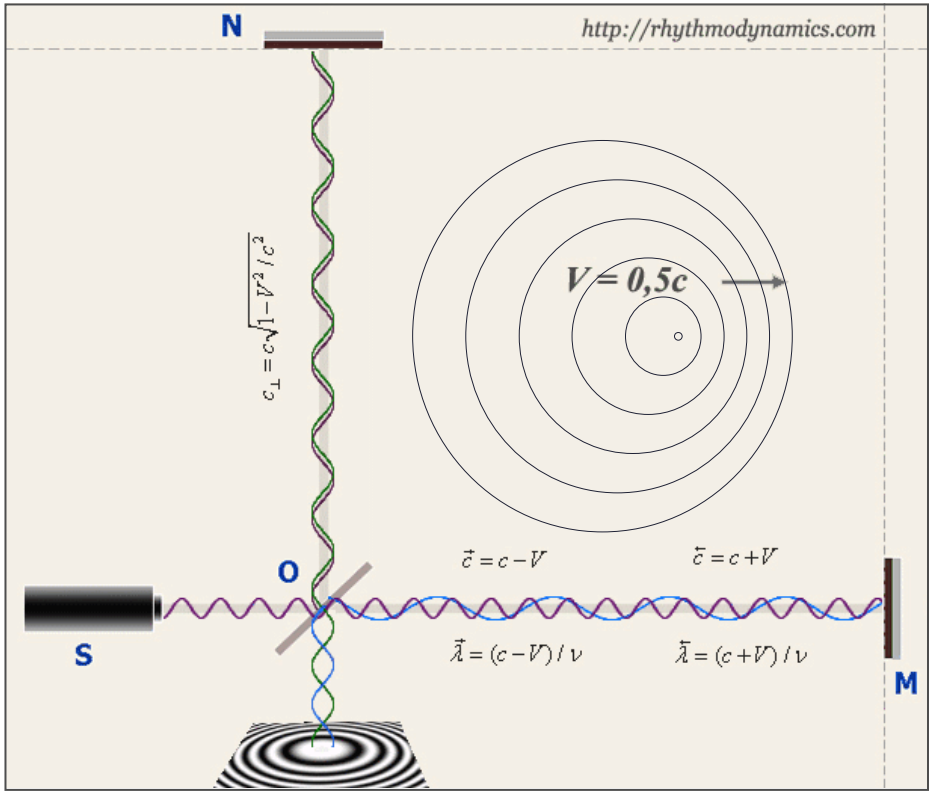
Speed of systems increases. The distance between the sources is constant. Standing waves and interference field is compressed (compacted).



The distance and the phase shift between the wave sources are unchanged. Increasing the speed of the system leads to compression of standing waves and the compaction of the interference field.

Michelson interferometer

Wave processes in a moving interferometer



To see the wave processes in the arm OM, use the rhythm1.exe: enable the "mirror" and "mixer", set the "move right" and "speed system» (V = 150'000), and in the "downsizing" select your location. Then - «Start».

In the arm ON opposing waves are of equal length, in arm OM different. Modeling and experiments with acoustic waves, the formation of standing waves in the arms!

A standing wave is the result of the addition of direct and reflected waves. The length of the standing wave is described by the formula:

$$\lambda_{st} = \vec{\lambda} \cdot \overleftarrow{\lambda} / (\vec{\lambda} + \overleftarrow{\lambda})$$

Length of the standing wave depends on the speed and angle of orientation to the direction of motion. Dependence is as follows:

$$\lambda_{st} = \frac{c}{2\nu} \cdot \frac{1-\beta^2}{\sqrt{1-\beta^2 \sin^2\theta}} \qquad \beta = V/c$$

Parallel to the direction of movement the orientation angle is zero. Dependence becomes:

$$\lambda_{st} = \frac{c}{2\nu} \cdot (1-\beta^2)$$

In the perpendicular direction angle is 90 °. Dependence has the form:

$$\lambda_{st} = \frac{c}{2\nu} \cdot \sqrt{1-\beta^2}$$

Michelson interferometer

What happens with the standing waves and the interferometer?

Dependence of the number of standing waves in the arm on the choice of speed and size cuts:
V = 0 and V = 200 000 km/s

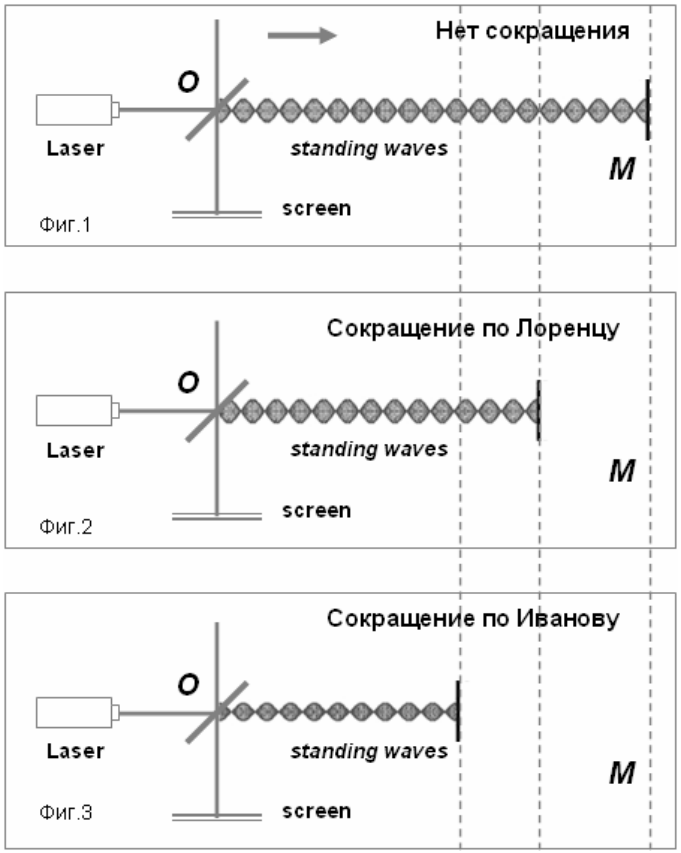


Fig.1 The arm length OM is always the same. Increasing speed leads to appearance of a rate of "extra" standing waves caused by the contraction. But no one saw the emergence of additional standing waves even when measuring the standard of length with an interferometer. This may mean that the synchronous compression of standing waves equally reduces the size of the interferometer.

Fig. The arm length OM is shortened by Lorentz. "Superfluous" standing waves continue to appear; the reduction is not sufficient. To save the hypothesis and to remove excess standing waves it is necessary to introduce the concept of "slow time." And this is another hypothesis: that the laser frequency should depend on the speed of the system. Existence of a plurality of hypotheses led Lorenz to question the approach of the Michelson interferometer.

Fig.3 Following the principle of minimal sufficiency author rejects the hypothesis of time dilation, and instead places the principle of size reduction of the interferometer on all axes: x, y and z. To find one justification is easier than two!

The basis of the study is the dependence of standing wave length on the speed in the ether and the assumption of the wave nature of the interactions between the elements of matter in condensed matter. Therefore, when turning the interferometer by 90°, the shear bands are not observed, then the reason is that it changed its physical size so that the number of standing waves in the arms remained constant.

Comparisons of size reductions:

Galileo	Lorentz	Ivanov
$l_x = l_0$	$l_x = l_0\sqrt{1-V^2/c^2}$	$l_x = l_0\left(1-V^2/c^2\right)$
$l_y = l_0$	$l_y = l_0$	$l_y = l_0\sqrt{1-V^2/c^2}$
$l_z = l_0$	$l_z = l_0$	$l_z = l_0\sqrt{1-V^2/c^2}$
$\Delta t = \Delta\,?$	$\Delta t = \Delta t_0 / \sqrt{1-V^2/c^2}$	$\Delta t = \Delta t_0$

$$\boxed{\Delta t_0 = 2l_0 / c}$$

Michelson interferometer

What happens with the standing waves and the interferometer?

Compare the options: 1) Size and pace of time do not depend on the velocity (Fig.1), 2) the pace of time is constant, the size in x depends on the speed according to Lorentz (Figure 2) and 3) the size and pace of time change according to Lorentz (Figure 3), 4) the pace of time is constant, the size for x, y, z depends on the speed according to Ivanov (Figure 4).

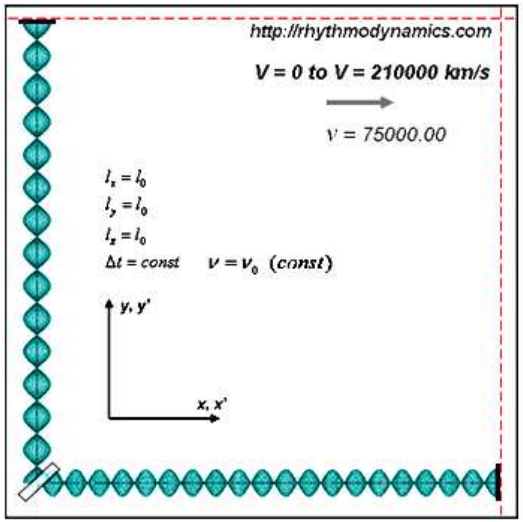


Fig.1 the lengths of the interferometer arms are unchanged (by Galilee). By increasing the speed of the system, the arms have additional standing waves in unequal proportions: the arm in x has more than the arm in y.

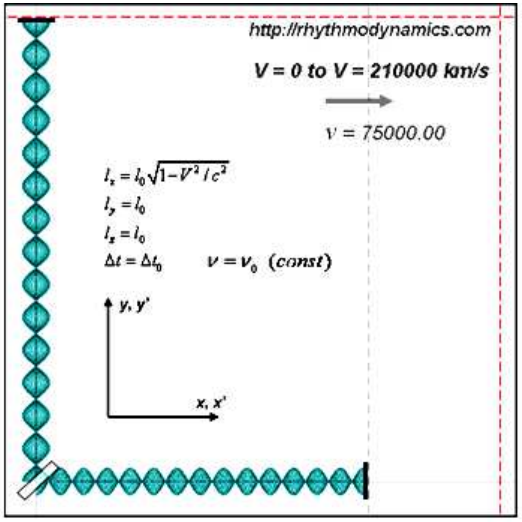


Fig.2 the size of arm depends on the speed (by Lorentz). The frequency of the wave source is unchanged. By increasing the speed of the system in both arms more standing waves will appear simultaneously and equally.

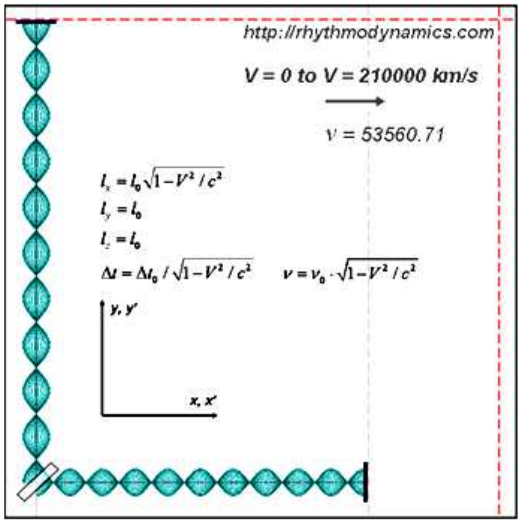


Fig.3 The arm length, the time and frequency depend on the speed of the system (according to Lorentz). Additional standing waves do not appear in the arms, as their length, and therefore the amount of shift depend on the frequency of the wave source and the speed of the wave in the medium.

The situation for V> 0. When V = const and the interferometer is turned at 90° (Fig.1) there will be a change of the proportion of standing waves in his arm, so that appear compensatory interference fringes on the screen. In similar situations, in the cases 2 and 3, the interference fringe shift will not occur.

Michelson interferometer

What happens with the standing waves and the interferometer?

Compare the options: 1) Size and pace of the time do not depend on the velocity (Fig. 1), 2) the pace of time is constant, the size in x depends on the speed of the Lorentz (Figure 2) and 3) the size and pace of time change according to Lorentz (Figure 3), 4) the pace of time is constant, the size for x, y, z depends on the speed according to Ivanov (Figure 4).

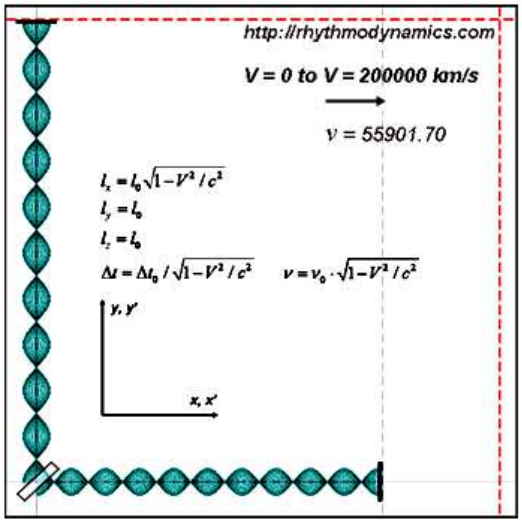


Fig.3 The arm length, the time and frequency depend on the speed of the system (according to Lorentz). Additional standing waves do not appear in the arms, as their length, and therefore the amount of shift depend on the frequency of the wave source and the speed of the wave in the medium.

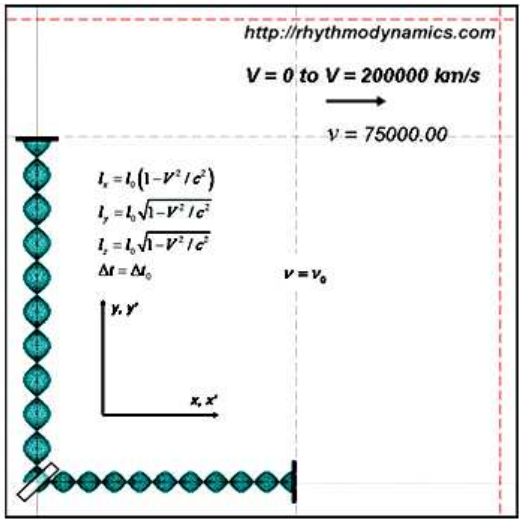


Fig.4 Pace of time and frequency of the wave source remain unchanged. The arm length depends on the speed of the system (by Ivanov). Additional standing waves do not appear.

Conclusions:

The dependence of standing waves in the system on the system's speed in the wave medium is the main reason not only for reducing the size of the moving bodies, but also for the lack of interference fringe shift in the Michelson.

Reducing the size of the moving bodies is an assumption that is supported by the hypothesis of the wave nature of relations between the elements of bodies and the representation of bodies in a package of standing waves. The movement of the wave packet through the environment inevitably leads to compression of standing waves, reducing the distance between the elements and, consequently, reducing the size of bodies.

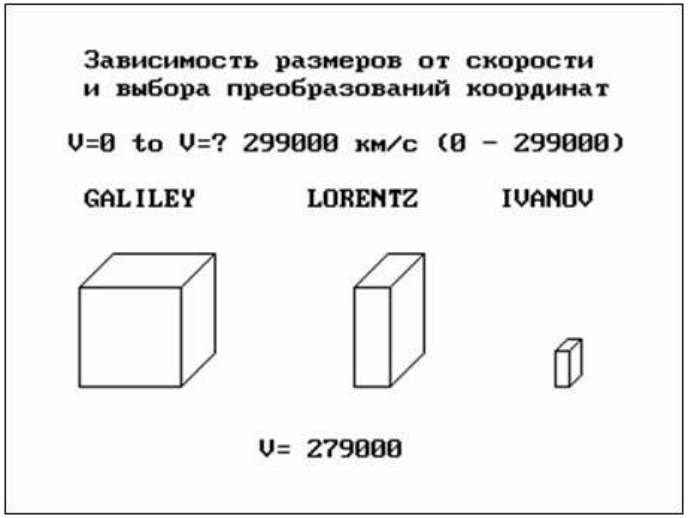
If we allow the real-time dependence of the pace of speed, the size reduction will occur according to Lorentz.

If we admit no relationship between pace and rate of time, the reduction in the size of the moving bodies will be on all the axes.

The treatment of the physical phenomena leads to the specific reasons for which the Michelson interferometer can not be the instrument for detecting the wave movement in the medium and can not be used for the objective measurement of the length of the waves propagating in the arms. Models and calculations prove the premature reckless failure of the TV and the need not only to check the current situation in science, but also for a radical revision of the foundations of modern physics. Particularly for states where the average speed of light in moving is wrongly institutionalized unchanged (c = const) in all circumstances. In this case, none of the disciples of Einstein have ever made any experiment to measure the speed of light in one direction.

Michelson interferometer

Dependence of body size on the speed



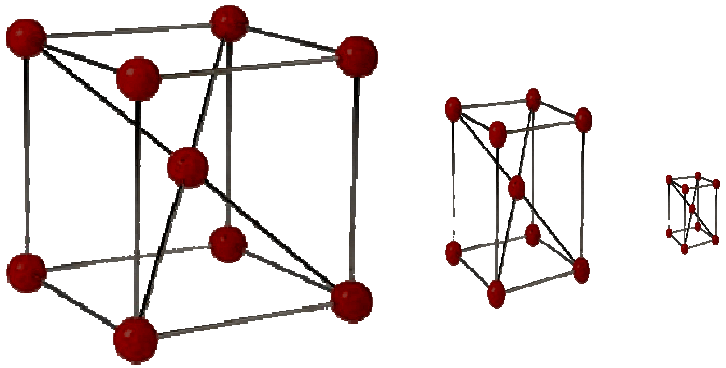
Conclusion:

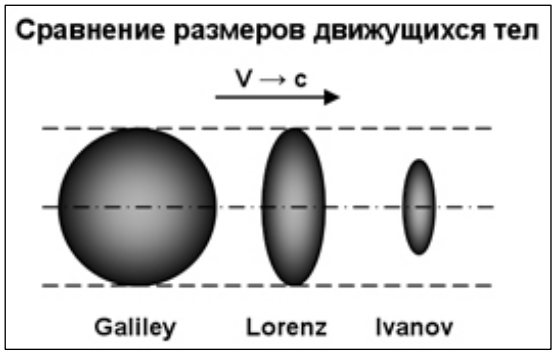
We can not detect the change by measuring one variable with another of the same kind.

If in a moving, compression of standing waves and size reduction of bodies occur simultaneously and in equal proportions, when measured by their difference, the impression is of no change. Stability of this "absence" shows the common nature of the changes.

Another conclusion. The results of Michelson show the same changes, which creates the illusion of lack of dependence of the size of the system in its high-speed mode.

If correct, comparson of differences manifest themselves between inertial systems.

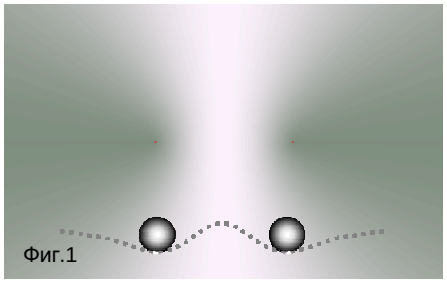


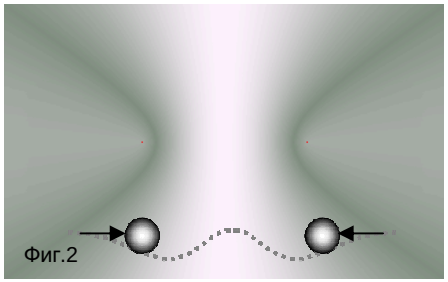


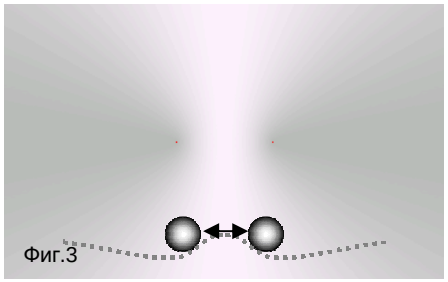
About the electrodynamics of moving bodies

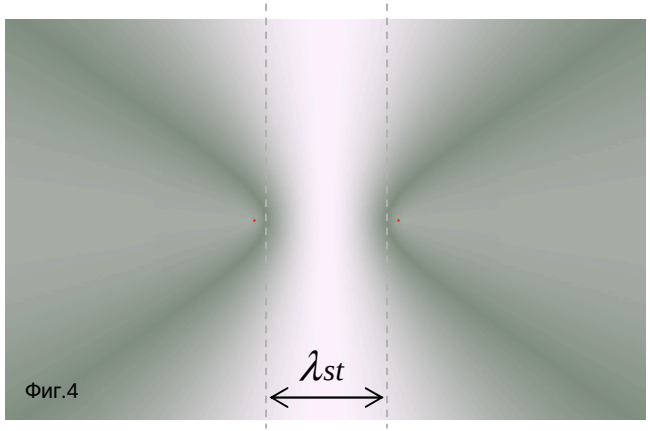
Elementary system and the basis of self-organization

Let the system consist of two oscillators with equal frequency, and distant from each other by the length of the standing wave. At rest in the wave medium (V = 0) the phase shift between the vibrations is zero. Distribution of wave energy between the oscillators will look like Figure 1. If you increase or decrease the distance between the oscillators (Figure 2 and Figure 3), the distribution of power is changing, in the first case it will lead to the attraction of oscillators to the zone of equilibrium, and in the second to the repulsion.


Фиг.1


Фиг.2


Фиг.3



Фиг.4

Nodes - place where the forces on the oscillators are compensated. Nodes - a kind of a trap set up by the same oscillators through their own standing wave (Fig. 4). That's precisely a protosystem, the relationship between the elements by the own wave.

About protosystem behavior in a different presentation: Recall that the chemical bonds in materials are electromagnetic in nature, and R.Boskovich described as early as in the 18th century how the elements of matter behave in such fields. If we consider the body as a package of standing waves with atoms in the nodes, the cause of body size based on the speed of the ether is similar because of the compression of standing waves. Therefore, a variable can not be measured by the effect of another and similar variable.

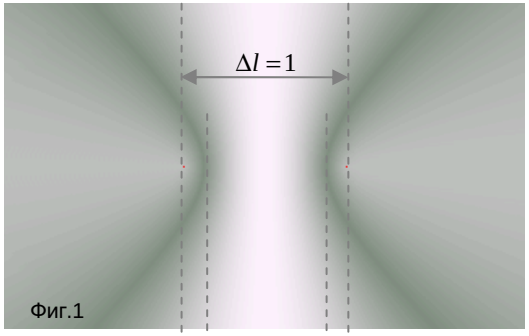
About the electrodynamics of moving bodies

In the absence of phase shift between the oscillations a system of oscillators (Figure 1) is not free (by inertia) to move in the environment. The relationship between the speed and the phase shift is very specific and strict:

$$V = c / \pi \cdot \Delta\varphi$$

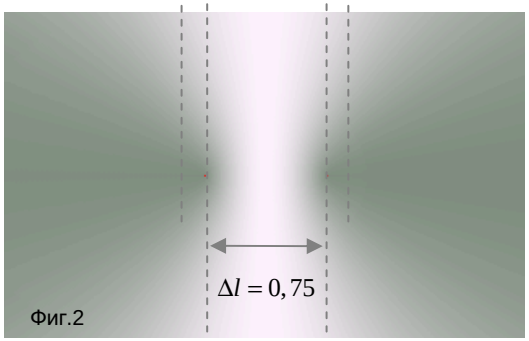
But we know that the length of the standing wave depends on the speed, ie the higher the speed, the smaller the distance between the nodes. If oscillator systems consist of areas of stable equilibrium, the oscillators have to strive to such areas and thus come closer to each other.

Consider an example. Let the phase shift of the oscillator system correspond to a velocity V = 0,5 of its displacement in a wave medium. Let the distance between the oscillators be the same as for V = 0, i.e. not decreased (Figure 1). We see that the zone of stable equilibrium does not coincide with the position of the oscillators. If the oscillators have kept a small phase shift, but the same size, then they are in the gradient field of wave energy, which forces them to move to the nodes (Figure 2). This is the reason of mechanical size reduction.



Фиг.1

$\vec{V} = 0,5c$
$\Delta\varphi = 120°$



Фиг.2

$\vec{V} = 0,5c$
$\Delta\varphi = 90°$

A simpler explanation I could not find. The impression is that there is no other explanation!

TOTAL:

The first part presented the specific phenomena and effects that make the experience of Michelson and Morley with the interferometer meaningless and useless for his first destination. Does it mean that the results of experiments with the use of the interferometer can not bring evidence of the lack of ether? This question is fundamental, since the choice of the relationship to the ether concerns both directions: the scientific research and the development of engineering and technology.

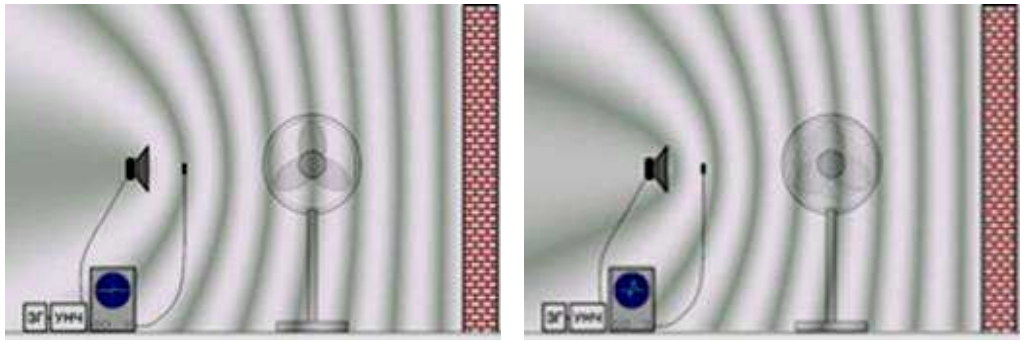
As for evidences of the ether, there are more than enough; the problem is only in the desire to draw attention to them. It can be proved by other means, for example, predicting new effects and properties that do not arise from the institutionalized physical ideas. One of these predictions is a way of moving in space with support of radiation and without polluting substances. But more about that in the next part.

Conclusion and announcements

1. Compression of standing waves is a phenomenon discovered by the author in 1981 under the geometric analysis of the wave in a Michelson interferometer. The essence of the phenomenon in the standing wave length depends on the speed of the "source-mirror" in the wave medium. The phenomenon was confirmed in experiments (1990) with the acoustic waves. In experiments with electromagnetic waves the phenomenon is not observed because the ether approach indicates a dependence of the size of the moving bodies on their speed in the ether. In the moving equal and simultaneous compression of standing waves, size reduction of the bodies and the absence of faster-than-light method for transmitting information and event registration, make it impossible to detect phenomena and effects in experiments of Michelson - Morley.
2. Condensed body packages of standing waves with atoms in the nodes, this is the only possible assumption to explain the reason for the dependence of body size on the speed in the ether and thus to create conditions for the return of ether to science.
3. Dimensions, with body velocity approaching the speed of light, tend to a point, at least in theory. Nature and reason for that are more logical than if these bodies were turned into flying pancakes. The reason for uniform and accelerated motion of bodies in the ether is reduced to consideration of changes in the wave packet (in the body at the level of its elements) and the identification of phase and frequency mismatch between the elements that contribute to it and support a particular speed limit. (Refers to the 2nd part of the presentation)
4. The reason for the fall of bodies to the earth is reduced to consideration of the influence of the gravitational field on the mismatch of the phase and frequency parameters of the interacting elements of the body. In the first part the nature of the gravitational field and the way it impacts on the elements can not be considered. (Refers to the 2nd part of the presentation)

Addition

Request to make an experiment in which you can observe the compression of standing waves in the transverse direction and which can be put in a normal school laboratory, or even at home (Figure 14). For the experiment you need: a sound generator, power 1W, speaker, oscilloscope, piezo and relatively powerful fan.



a b

Figure 1 The appearance of the air flow between the speaker and the wall (a thread is created fan) leads to deformation of the interference pattern and the displacement of the control node in the direction of the wall. Package of standing waves is compressed.

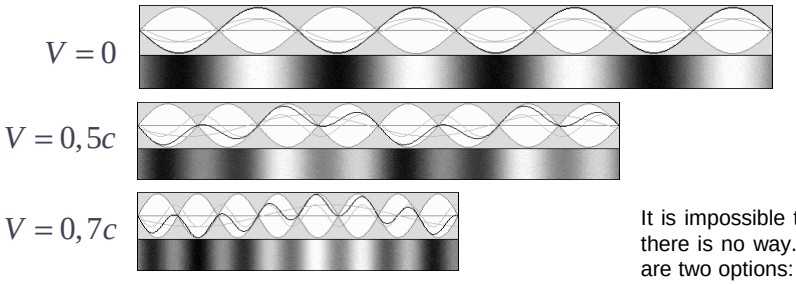
The procedure of the experiment is as follows:

Connect in series sound generator, power amplifier and speaker.
Set the frequency of the sound generator, for example, 3 kHz.
Push the speaker at 2 - 2.5 meters from the concrete wall.
Turn on the amplifier and the ear to make sure that in the gap between the speaker and the wall there was a standing wave.
Piezo connected to the oscilloscope. With the help of a piezoelectric element should identify the zone of silence, which is a node of the standing wave.
Dead spot on the oscilloscope looks minimum burst running dot.
Found using a piezoelectric element a node located as close as possible to the speaker and mechanically secure the sensor in place.
Mark on the oscilloscope amplitude traveling points (on a digital oscilloscope the amplitude of the signal will be expressed in figures)
Set fan at 1.5 - 2 meters from the conventional shortest line between the speaker and the wall, send it to the side of the line and on.
After turning on the fan readings on the oscilloscope will change in a big way.
Move carefully the sensor in the direction from the speaker to the wall to find a new shifted position of the focus (because of the small effect of the procedures to move the sensor should be conducted with the help of a micrometer screw.)
The offset of the node toward the wall shows that the air flow from the fan changed the metric parameters of the standing wave.

Conclusion: there was compression of standing waves!

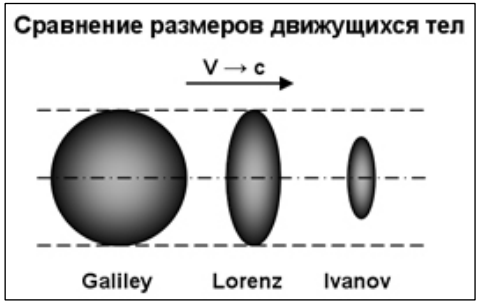
Addition

Reference wave length and speed of energy flow



In the reference the number of standing waves is always the same, i.e. it does not depend on the speed of the air, or on the orientation of the source to the direction of movement!

In the reference system the number of traveling waves is always constant and equal to the number of standing waves.



It is impossible to measure the length of the electromagnetic wave traveling along the route, there is no way. But the moving system can measure the length of the standing wave. Here are two options: either abandon the wave medium and take c = const in all circumstances (as in SR), or save the medium and recognize that in a moving system standing waves are the result of wave addition on the basis of the harmonic mean:

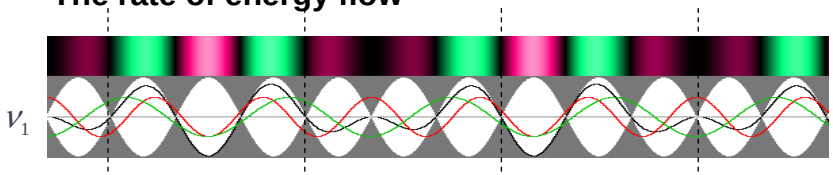
$$\lambda_{st} = \vec{\lambda} \cdot \bar{\lambda} / \left(\vec{\lambda} + \bar{\lambda} \right)$$

.

Now we understand why the length of the standing wave can not be judged following the lengths of the interfering waves. There is only one particular case (V = 0), where the length of the opposing waves are equal to each other as well as twice the length of the created standing wave.

This "medical" fact can not be well refuted, except that, sorry, if rejected hooting and stamping feet. That is how some of the "students" were protesting the speeches of G.Lorentsa when he exposed an evidence-based critique of the theory of relativity. Probably the type of persons from here who trust authority and not the facts!

The rate of energy flow



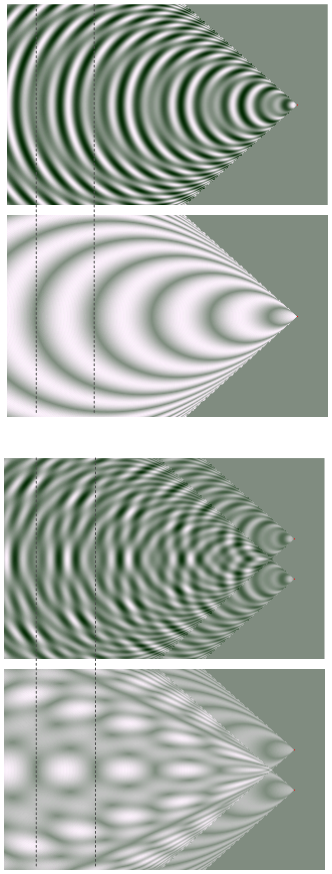
$$\nu_1 > \nu_2$$

$$V_E = c \cdot \Delta\nu / \sum\nu$$

To verify the dependence of the rate of energy flow (VE) on the frequency difference, run rg_03.exe and play with small frequency difference. Displacement nodes and loops can be observed in experiments with electromagnetic waves. But you need the proper equipment. Use the program rhythm1.exe, and set the source at different frequencies (and 90000gts 88000gts). Nodes and antinodes will slowly move toward the source of the lower frequency. Then click in the box "ISO speed" and you will be in the moving system, in which the energy flow is not due to a flow rate equal power and speed of the system in the medium. This is one example of relativity in Nature! Not difficult to see that this type differs from Einstein's relativity.

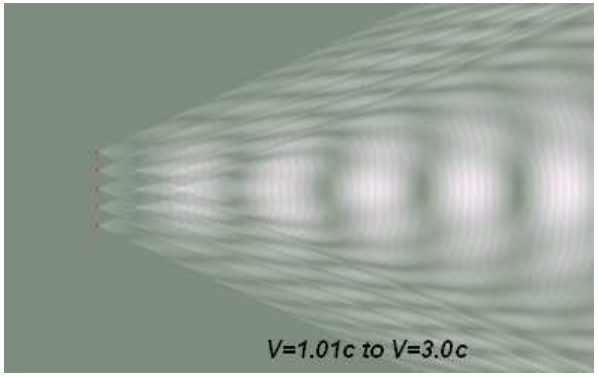
Addition

Standing waves in supersonic motion



A little known fact: the interference in the form of standing waves takes place in the case of sources moving at a rate exceeding the rate of wave propagation in the medium. This raises the image of interferences (standing waves) moving after a source with the same speed.

In gas environments where there are technics of supersonic speed of expulsion, there are standing waves too. For example: gas turbine and jet engines.



Dialogue from the Internet:
- Judging by the fact that the picture of this stable "banding" here is a standing wave?
- Probably, and I may say so. But this structure is explained by the superposition of emerging flame with shock waves from the elements of the structure in the nozzle. Relative to the nozzle and steady fronts of shock waves are static. Therefore, the way it looks!

Here is the dependence of the distribution of wave energy in a cone of a supersonic speed of the system of oscillators.

Perhaps, and stop on this!

Addition

Who and why?

Sometimes it is useful to ask: who and why is all this necessary? And here I recall a case in the "Titanic", when, 20 minutes before the collision with the iceberg two men wanting to earn extra money, tried to sell richly an inflatable rubber boat for about $ 1000 (huge money at that time). A polished gentleman rugged the indignant arrogance of the seamen and made a fuss. He ran to help, but the men managed to escape. I wonder if the gentleman regretted that he refused to buy? The sailors too were not in the list of victims. And in science - a lot is unknown in advance, and therefore can not be rejected prematurely, like "to throw out children with the bath water." There are also the generations to come, and who will have to pay for our "after us the deluge".

Analyzing the contemporary notions it is not hard to see that they do not explain many fundamental phenomena, such as electricity, charge, field, energy, mass, movement, etc. Knows about this has every good researcher. But the task of the author is not to expose the modern physical paradigm in its inability to offer solutions to problematic issues and to show the ways and means to approach them on a new basis. It was on that basis that we were involved.

This presentation reviewed and disclosed a small but important part of the reason why physics should legitimize a new approach, and without any conditions. After all, no one, especially in science, can claim to reach absolute truth. Truth needs no proof of its truth, and in its own recognition. TRUE is either or is not. And if the proposed framework reflects at least one of the faces of truth, nature will reveal us some of her secrets. These principles will be discussed in the presentation, but you can not wait to know them here: Rhythmodynamics of NATURE.

With regard to education, Presentation focused primarily on the younger generation. But here the situation is hard-hitting. On the one hand the younger generation hopes that the elders will give them the correct knowledge, but in reality there are hard institutions designed for maintenance of the existing system.

However, not all the "broken" system pressures and controls her education, because it there is hope to improve the situation.

Application

Recommended for review

Scientific standard of non-obvious reality

N.Nevesskogo preface to "Rhythmodynamics 2007"

Self-organizing systems (A.Shlyapnikov)

Whether there is a dependence of mass on velocity?

On the question of new ways of moving in space

Quantum reality in the phenomena of the macrocosm

The film "GRAVITY"

The author thanks N.I.Bakumtseva, V.V.Bushueva, D.N.Kozhevnikova, A.G.Malygina, M.A.Timchenko, A.A.Shlyapnikova for active participation in the discussion of the presentation materials.

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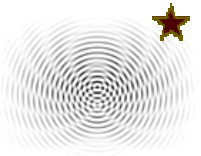

I like the lack of meaningless noise
Yu. Ivanov

Rhythmodynamics of Nature

Part 2
START: self-organization, movement,
gravitation, energy flow

2012

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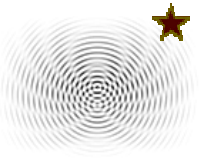


The second part covers the basic knowledge without which it is impossible to talk about fundamentally new solutions in engineering and technology.

Yuri Ivanov

2012

About aims and Rhythmodynamics

The presentation will address the following questions:

1. How exactly do the individual elements self-organize into simple and complex systems?
2. What specific processes ensure the movement of bodies in space?
3. What specific processes ensure the attraction of bodies to each other?
4. What exactly is an energy current and on what does depend the flow rate?

Let's start with the geometry. If the axiom of Euclid is the base of a system of axioms, which was always meant, but was only formalized in 2007, the geometry becomes another tool for solving complex applications.

Foundation axiom: There is a base substrate as a carrier for the construction (display) of points, straight lines, planes, circles, flat and three-dimensional figures. Points, straight lines, circles, planes, plane and solid figures can not be displayed without a carrier, even an imaginary one.

The evidence of the axiom is that the display of something always needs a support, such as a sheet of paper. If the carrier is not present, it can not display anything.
The next step is a system of assumptions (postulates).
Assumptions and postulates are a necessary measure, since there is no reliable knowledge about the origin of matter and its properties.
Rhythmodynamics is no exception.

Assumptions and postulates

Wave geometry – Basis of Rhythmodynamics (RD), the postulates of rhythmodynamics are adequate principles of wave geometry

Axioms of wave geometry		Rhythmodynamics postulates	
1.	A point is an oscillator, source of spherical waves.	1.	The oscillator of infinitely small siz has the property to be source of periodic oscillations in form of pulses
2.	Waves move in the carrier of constructions respecting it without deforming it at constant speed.	2.	The wave medium converts the oscillator pulses to diverging spherical waves and provides them with a constant speed relative to the perturbation itself.
3.	Any number of points can generate waves.	3.	When there is more than one oscillator, it is a system

Question: - What is not considered in the carrier of construction and wave medium? – « Mass », the main attribute of reality is not accorded to the single source. Weight, as the ability to resist to external action appears with the system of sources. Shown on models, weight is the property of the system, not of its individual components.

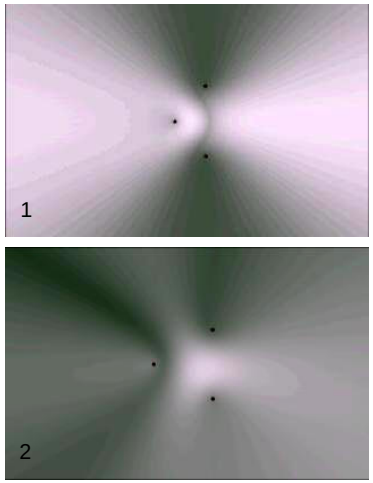
Part 2. To Table 1

Rythmodynamics and quantum-mechanical interpretation of the formulas of classical mechanics

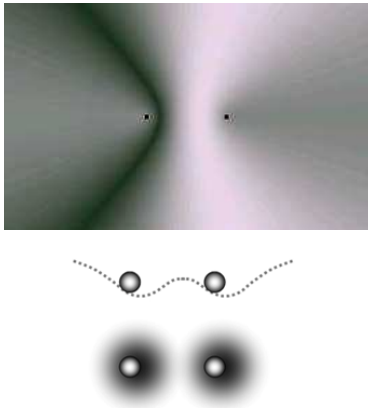
I managed to find the algorithm and combine classical mechanics, electrodynamics and quantum mechanics; this merger will allow replacing the existing mathematical formalism with the real physical meaning and the real processes that are basic precursors of natural phenomena and their properties. The known formulas of classical mechanics (1) found rhythmodynamic (2) and quantum-mechanical (3) interpretations. The important thing is that in the new formulas of classical mechanics appeard fundamental universal constants (the speed of light and Planck's constant), and attributes of electrodynamics and quantum mechanics (phase, frequency, wave pulse). The formulas are summarized in table1.

The new interpretation offers a new angle to look at the phenomenas and properties, i.e. not formally as is usually done and through the processes involved in the formation of these phenomena and properties. This is a new approach, a new depth of understanding of physical phenomena

We emphasize that there are objects in nature endowed with innate driving force such as liquid or gas diatomic molecules, composed of close isotopes of atoms: $H_2O={}^{1}H+{}^{1}H+{}^{16}O$, $H_2O={}^{2}H+{}^{1}H+{}^{17}O$, $O_2={}^{16}O+{}^{17}O$, $N_2={}^{14}N+{}^{15}N$, etc; Intuitively, these molecules are asymmetric energy and therefore must either dissolve or react and move away from the asymmetry, for example through uniform or accelerating self-motion.



Examples of the distribution of energy in the internal and external space.
1 – The sources are shifted in frequency,
2 – The sources are shifted in phase.
In the first case, the system is expected to move forward, in the second, to totate.



The phase shift is the result of a shift of the potential wells from the installation position of the sources.
The origin of the wave field is action. So their natural reaction will be to offset the potential wells.

« The movement is implemented through the desire of the elements to their natural plaes. »

Aristoteles

Table 1

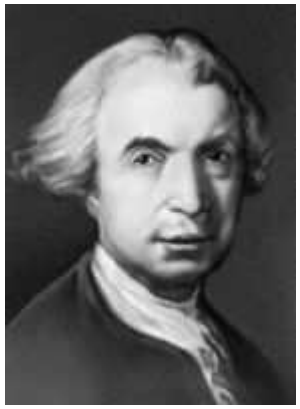
Basic parameter concept	Classical mechanic (CM)	Rhythmodynamics (RD)	New formulas
0	1	2	3
Speed	$V = s/t$	$V = c/\pi \bullet \Delta\varphi$	$V = c/\pi \bullet \Delta\varphi$
Acceleration	$a = dV/dt$	$a = 2c \cdot \Delta\nu$	$a = 2c^2 \bullet \Delta p/h$
Acceleration of gravity	$g = dV/dt$	$g = 2c \cdot \Delta\nu$	$g = 2c^2 \bullet \Delta p/h$
Force	$F = ma$	$F = 2mc \cdot \Delta\nu$	$F = 2\nu \bullet \Delta p$
Gravitational force	$F_g = mg$	$F_g = 2mc \cdot \Delta\nu$	$F_g = 2\nu \bullet \Delta p$
Linear momentum, impulse	$P = mV$	$P = mc \cdot \Delta\varphi/\pi$	$p = h/2\lambda_{st}$
Kinetic energy	$W_k = mV^2/2$	$W_k = \frac{mc^2}{2} \cdot \left(\frac{\Delta\varphi}{\pi}\right)^2$	$W_k = \frac{h\nu}{2} \cdot \left(\frac{\Delta\varphi}{\pi}\right)^2$
Potential energy	$W_p = mV^2/2$	$W_p = \frac{mc^2}{2\pi^2} \cdot (\Delta\varphi)^2$	$W_p = \frac{h\nu}{2\pi^2} \cdot (\Delta\varphi)^2$
Centrifugal force	$F_\omega = mV^2/r$	$F_\omega = \frac{mc^2}{r} \cdot \left(\frac{\Delta\varphi}{\pi}\right)^2$	$F_\omega = \frac{h\nu}{r} \cdot \left(\frac{\Delta\varphi}{\pi}\right)^2$
Work	$A = F \cdot s = W_{k2} - W_{k1}$	$A = \frac{mc^2}{2\pi^2} \cdot \left(\Delta\varphi_2^2 - \Delta\varphi_1^2\right)$	$A = \frac{h\nu}{2\pi^2} \cdot \left(\Delta\varphi_2^2 - \Delta\varphi_1^2\right)$
Energy flow rate	Not existant	$V_E = c \cdot \Delta\nu/\Sigma\nu$	$V_E = c \cdot \Delta\nu/\Sigma\nu$

About interaction force

Precursors

Ruger Josip Boskovic. (05/18/1711, Ragusa, now Dubrovnik, Croatia - 02.13.1787, Milan), Croatian physicist, mathematician and astronomer.

In his main work "Theory of Natural Philosophy, reduced to a single law forces existing in nature" (1758), he first developed the theory of the structure of matter, based on the concept of unextended, indivisible identical material points, the forces acting between them, obeying the universal law. At small distances between points there is a repulsive interaction force, constantly increasing in their further approach, with increasing distance between the points the force of interaction is zero and changes sign: there is attractive force, which first increases and then with increasing distance several times passes through zero and changes its sign. At large distances, the Boscovich law goes into Newton's law of gravitation.



This is just an excerpt of Boscovich. More information can be obtained from the Internet or the passage of the book by Jacques Bergier, "The Secret masters of time."

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Application

On the question of measuring the speed of light in one direction

In the 1980s D.Torr and P.Kolen carried out a series of experiments to measure the relative variations of the speed of light with a single passage of a line. [8] These experiments compared the phase of two rubidium frequency standards, separated by a distance of 500 m, in order to detect the possible anisotropy of the speed of light in one passage of the track. The experiment revealed large diurnal variations in the speed of light, of the order of 10^{-3}-10^{-2} for different hours, whereas the approach of hours of such variations were observed. An analysis of accuracy shows that the proposed experiments can reliably detect motion of the solar system in the plane of the Galaxy at a sufficiently long-term accumulation of data. The experimental results Torr-Kolen reveal a violation of the principle of relativity that we can not detect absolute motion of the Earth in absolute space (ether). Recognition of the results of experiments S. Marinova (and D.Torra and P.Kolena) that are more consistent with the theory of absolute space-time of Lorentz and reveals a violation of Einstein's principle of relativity, will most likely prevent a psychological barrier of the scientific community, the "horror of absolute space "[1].

1. Torr D.G., Kolen P. An experiment to mesure relative variations in the one-way velocity of light / US Dep. Commer. Nat. Bur. Stand. Spec. Publ. 1984.

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