The dilemma Fresnel-Einstein. Whether the speed of light dependent by the Earth's motion in space

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Subject: A new experiment who will prove that the principle of relativity of Einstein is wrong!

Introduction

In 1818 Fresnel [1] yield the following equation of speed propagation of light in an optical (transparent) medium

$$u = \frac{c}{n} \pm V\left(1 - \frac{1}{n^2}\right) \qquad (1)$$

where c is the speed of light in vacuum, V is the velocity of the Earth, in space and n is the refractive index.

Formula (1) has been confirmed experimentally by Fizo in 1851. It shows that the speed of propagation of light in an optical medium depends on the speed at which Earth moves in space, i.e. there must be an ether wind. After 1905 Einstein and his followers renounce of the ether as the luminiferous medium ignore the Fresnel formula and argue the opposite, that the speed of propagation of light is constant and does not depend on whether the optical medium is moving or is at rest. Thus is arises the dilemma which point of view is correct, classical of the Fresnel or relativistic of the Einstein

About the experience of Michelson – Morley

Carried out so far, numerous attempts of the Michelson-Morley type and others did not give a definitive answer to centennial dispute there are or not ethereal wind. In interpreting the results of this experiment is arise irreconcilable contradictions and disunity in the physical community.

Our opinion is that in design of the Michelson-Morley experiment is doomed to failure. His theory is built on the idea that between the electromagnetic waves and light has a complete similarity. And this is not so. Between them has a substantial difference. In light wave has principle of Huygens-Fresnel has also refractive index and geometrical optics, while by the electromagnetic waves no principle Huygens-Fresnel no refraction. As shown in our work [2,3] principle of Huygens-Fresnel's is pivot point, which serves to justify the Fresnel formula, without the need to introduce the hypothesis of a change in the density of the ether. Therefore, when is place the experiments to solve the dilemma Fresnel-Einstein, i.e. to look ethereal wind must be based on the formula of Fresnel. For example, if in the experiment of Michelson-Morley be expected to find a ether wind of 30 km / s, then, if the theory of this experiment is in accordance of the Fresnel s formula ether wind should be less of 0, 3 km / s..

Such results and larger have been reported by the Michelson-Morley and all other experimenters.

The new experiment

To solve the dilemma Fresnel-Einstein is needed another decisive experiment. This is the purpose of the experiment described in [4,5]. This experiment is similar to the classic experiment Fizo ot1849. However, while the aim of the experiment of Fizo is to determine the speed of light, there aim is another, to determine whether this speed to change, i.e. whether it depends on the movement of the Earth in space.

The essence of the experiment is as follows. Light from the laser passes through the translucent mirror and is reflected by another mobile mirror. Here instead a toothed wheel between mirrors is placed an optical shutter (modulator) from crystal KDP, which is stimulated by high frequency sinusoidal voltage with a certain frequency. Another difference in terms the experience of Fizo, consists in that instead of air light is passed through an optical fiber. As light passes distance between optical shutter and movable mirrors twice, to is possible the reflected light signal to pass again through the optical shutter is need the time for which the optical signal travels twice the distance between them to is a multiple of the period during which the optical The shutter remains open. The reflected signal comes to the photocathode, which makes it possible to record the resultant signal.

Experience goes like this. At first by displacement of the moveable mirror be sought such position his, wherein in recording device is observed minimum or maximum signal. After it was observed whether over the time this signal is changed.;

- If it is found that in the course of one day this signal remains constant then the truth is on the side of Einstein

- And vice versa if it is established that in the course of one day output signal is changes then must be assumed that the truth is on the side of the Fresnel.

Calculations show that if the optical shutter works at a frequency $6x10^8$ Hz as used in [6,7] to be a successful experiment is necessary an optical path length of 118 km. But because light travels twice this path the total path of the light is 236 km. This creates some difficulties since at this length of the optical path require to use an intermediate optical signal amplifier.

To avoid this difficulty here is offered experimental setting similar to that of Korolyus-Mitelshtedt in 1928 [8]. Important novelty in this experimental set-up is that instead one optical shutter it is use two such connected to a common oscillation circuit. In this way at the register (photocathode) reaches only reflected light from the mirror and it is easier to monitor. In this

case it is possible the length of optical path to be reduced to 120 km (60 km in one direction and 60 km in the opposite direction) and thus will avoid the use of the intermediate amplifier.

The principle scheme of this experimental set-up is shown in Fig. 1. Light from the laser 1 passes through the optical shutter 3 situated between two crossed polarizers 2 and 4 and then is passed through an optical fiber 6 (entrance in point 5 and exit in point 7) and is reflected by the movable mirror 8. This reflected light passes back through the optical fiber 10 (entrance in point 9 and exit in point 11) it reach to second optical shutter 12 and passes through the polarizer 13 falls in photocathode 14. Here to be excites electric current that is amplified in amplifier 15 is fed to the oscilloscope or recorder 16.

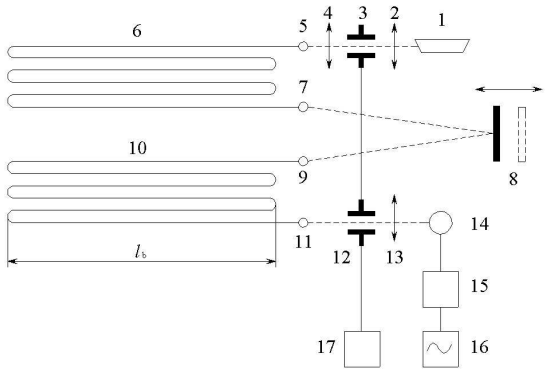

Fig. 1 Scheme of the experimental set-up
1 - laser; 2, 4 and 13 - crossed polarizes; 3 and 12 – optical shutter (modulator) from crystal KDP; 6 and 10 extended coil (antenna) with a length of optical fiber 60 km. each; 5, 7 – inputs and , 9, 11 - outputs of light into the optical fiber; 8 - mobile mirror; 14 - photocathode; 15 - amplifier; 16 - oscilloscope or recorder; 17 - generator;
l_b - length (base) of the extended coils

New experiments in practice

As can be seen the necessary equipment and materials for the realization of the present experiment are available. Optical and electron components (polarizers, optical shutter, light sources, amplifiers, generators, etc.) are use in many of the optical laboratories. The fiber optic technology is now mature enough. The market has fiber optic cables with a different number of optical fibers. There are examples of how such experiments have been carried out [6,7] as well as [8]. Therefore, it can be said that this experiment can be realized even in university .laboratories

You do not have the optical fiber to deploy 60 km. As shown in Fig.1 the active part (antenna) of the optical fiber can be formed as an elongate coil together or separately the two parts 6 and 10. The base l_b is selected depending on the conditions. Its length can be 50, 100 or more meters, and it to do the required number of turns. It can be used optic cable with any more optical fiber and ends of the individual fibers are joined in series. For example, fiber optic cable with a length of 1 kilometer and 120 optical fibers can act as a dual antenna.

Important!

1. The extended coil (antenna) must be placed in the direction east - west, i.e. parallel to the Earth parallel.

2. Movable mirror must be able to move round 15 ÷ 25 cm. With its aid at the beginning of the experiment, two positions be sought on the mirror, which exhibit the maximum or minimum signal and then the mirror are posited in the middle between these two positions. The distance at the mirror where can to observe maximum or minimum signal is;

$$\Delta = \frac{c}{4f}$$

where c is the speed of light and f is the frequency with which work the optical shutter.

At the selected frequency is

$$f = 6\text{x}10^8 \text{ Hz}$$

this distance is 12.5 cm.

Interpretation of the results of the experiment

If at the beginning of the experiment, the movable mirror is placed so that at the oscilloscope or recorder maximum signal is observed and in the course of the day and year this signal does not change, this would mean that the principle of relativity of Einstein is correct!.

And conversely, if in the course of the day and year the output signal is change it would mean that the truth is on the side of Ftenel.

We firmly believe that the truth is on the side of the Fresnel. Therefore, the experiment will prove that the principle of relativity of Einstein is wrong

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