

THE EXPERIMENT OF PARALLEL CONDUCTORS

ABSTRACT

The purpose of the experiment of the parallel conductors is to prove in a very simple way that the Theory of Relativity is utterly false.

In essence, this experiment rests on the same rationale as experiments (19), (18) and (16) described on www.tsolkas.gr.

The experiment of the parallel conductors is a very important, simple and low-cost experiment that can be easily performed by university students.

Performing the experiment

As is well-known, the Special Theory of Relativity is predicated upon the following two postulates:

Postulate I: The laws of physics are the same in all inertial reference frames (equivalence of inertial reference frames).

Postulate II: The speed of light c in a vacuum is always constant for all observers.

On the basis of the parallel conductors' experiment described below, we will demonstrate in a very simple way that Postulate I of the Special Theory of Relativity is utterly false.

Proof:

Let us assume Fig. 1(a) that there are two copper conductors of length L_1 and L_2 , ($L_1 = L_2$) and cross-section D , lying parallel to one another at a distance r , ($L_1, L_2 \gg r$).

The two copper conductors L_1 and L_2 are in a horizontal position and fixedly supported by two props of height h_0 , on a laboratory table.

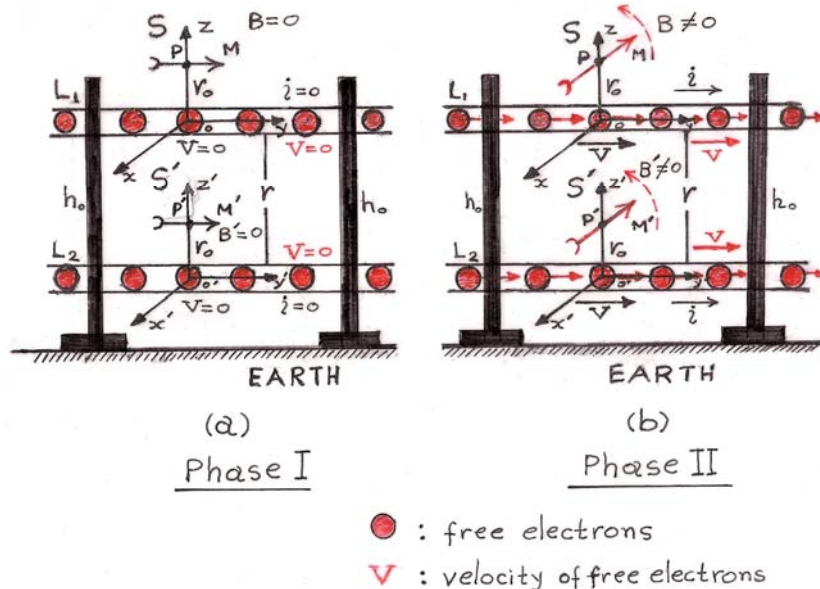


Fig. 1

Now, we carry out the parallel conductors experiment in two phases (Phase I and II), as follows:

Phase I: Let us assume (Fig. 1(a)) that no electric current flows through the two copper conductors L_1 and L_2 ($i = 0$).

We define an inertial reference frame $o.xyz$ (S) which is at rest relative to conductor L_1 and an inertial reference frame $o'.x'y'z'$ (S') which is at rest relative to conductor L_2 .

Apparently, in this case, the two inertial reference frames S and S' are at rest relative to the Earth and therefore they will be also at rest with respect to the Earth's Ethersphere.

Given, however, that the two inertial reference frames S and S' are at rest relative to the Earth and the two conductors L_1 and L_2 are not flown by an electric current, the following occur:

- 1) The relative velocity V' between the two inertial reference frames S and S' will be $V' = 0$.
- 2) The free electrons of conductor L_1 will be at rest relative to inertial reference frame S and to inertial reference frame S'.
- 3) In the same way, the free electrons of conductor L_2 will be at rest relative to inertial reference frame S' and inertial reference frame S.

Then, at a point P along the oz axis of the inertial reference frame S, and at a distance r_0 , we affix a magnetic needle M.

In the same way, at a point P' along the $o'z'$ axis of the inertial reference frame S' and at a distance r_0 , we affix another magnetic needle M'.

Note: In this experiment, axes oz and $o'z'$ are perpendicular to conductors L_1 and L_2 and are found on the same plane as conductors L_1 and L_2 .

Given, however, (as mentioned above) that no electric current flows through conductors L_1 and L_2 ($i = 0$):

- 1) Magnetic field B created by both conductors L_1 and L_2 at point P will be $B = 0$.
- 2) In the same way, magnetic field B' created by both conductors L_1 and L_2 at point P' will be $B' = 0$.

In other words:

$$\left. \begin{array}{l} B = 0 \\ B' = 0 \end{array} \right\} \quad (1)$$

Yet, since the magnetic field resulting from both conductors L_1 and L_2 at points P and P' equals zero (relation (1)), **the two magnetic needles M and M' will not rotate but will remain at all times at rest in the initial position in which they were placed.**

All the above occur in Phase I of our experiment.

End of Phase I

Phase II: Let us assume (Fig. 1(b)) that a direct current of intensity i ($i \neq 0$) flows through the two copper conductors L_1 and L_2 .

In this case, the free electrons of conductors L_1 and L_2 will move relative to the Earth (and thus relative to conductors L_1 and L_2) at the same velocity V.

As is well-known, velocity V is given by the following relation:

$$\boxed{V = \frac{i}{n \cdot D \cdot e}} \quad (2)$$

where: i = the intensity of the direct current

D = the cross-section of copper conductors L_1 and L_2

e = the electron's electric charge, $e = 1,6 \cdot 10^{-19}$ Cb

$n = 0,84 \cdot 10^{23}$ electrons / cm^3 (for copper)

If, for example, during the performance of the experiment $i = 100$ Ampere and $D = 0,01\text{cm}^2$, then according to relation (2), velocity V of the free electrons of conductors L_1 and L_2 will be:

$$V = \frac{100}{0,84 \cdot 10^{23} \cdot 0,01 \cdot 1,6 \cdot 10^{-19}} \Rightarrow$$

$$\boxed{V = 7,4 \text{ mm/s}} \quad (3)$$

Now, we move simultaneously the two inertial reference frames S and S', at the same constant velocity $V = 7,4$ mm/s, relative to the Earth.

In this case, as it can be observed, the following apply:

- 1) The relative velocity V' between the two inertial reference frames S and S' equals zero ($V' = 0$), **(just like in phase I).**
- 2) The free electrons of conductor L_1 are at rest relative to inertial reference frame S and to inertial reference frame S' **(just like in phase I).**
- 3) In the same way, the free electrons of conductor L_2 are at rest relative to inertial reference frame S' and inertial reference frame S **(just like in phase I).**

Now, let us assume (Fig. 1) that distance $r = 20$ cm and distance $r_0 = 5$ cm.

In this case, the magnetic field B created by both conductors L_1 and L_2 at point P is:

$$B = \frac{1}{10} \cdot \frac{2i}{r_0} + \frac{1}{10} \cdot \frac{2i}{r + r_0}$$

$$B = \frac{1}{10} \cdot \frac{2 \cdot 100}{5} + \frac{1}{10} \cdot \frac{2 \cdot 100}{20 + 5}$$

$$B = 4,8 \text{ Gauss} \quad (4)$$

Similarly, the magnetic field B' created by both conductors L_1 and L_2 at point P' is:

$$B' = \frac{1}{10} \cdot \frac{2i}{r_0} + \frac{1}{10} \cdot \frac{2i}{r - r_0}$$

$$B' = \frac{1}{10} \cdot \frac{2 \cdot 100}{5} + \frac{1}{10} \cdot \frac{2 \cdot 100}{20 - 5}$$

$$B = 5,38 \text{ Gauss} \quad (5)$$

In other words, from relations (4) and (5) it results that:

$$\left. \begin{array}{l} B = 4,8 \text{ Gauss} \\ B' = 5,3 \text{ Gauss} \end{array} \right\} \quad (6)$$

Consequently, in phase II, magnetic needles M and M' will rotate away from their initial position, due to the existence of magnetic fields B and B', given by relation (6).

NOTE!!! In phase II, the creation of magnetic fields B and B' (relation (6)), is attributed to the motion of the free electrons of conductors L₁ and L₂ at a velocity V = 7,4 mm/s relative to the Earth, and not to the positive ions of copper Cu⁺ of these two conductors moving at a velocity V = - 7,4 mm/s relative to the inertial reference frames S and S'.

The above is proven by Experiment 19 on www.tsolkas.gr.

All the above occur in Phase II of our experiment.

End of Phase II

CONCLUSIONS DRAWN FROM PHASE I AND PHASE II OF THE EXPERIMENT OF PARALLEL CONDUCTORS

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After everything discussed above (Phase I and II), the following can be observed:

In both phases of the experiment of the parallel conductors:

- 1) Relative velocity V' between the two inertial reference frames S and S' is V' = 0 **(both in Phase I and II)**.
- 2) The free electrons of conductor L₁ are motionless relative to the inertial reference frame S and to the inertial reference frame S' **(both in Phase I and II)**.
- 3) In the same way, the free electrons of conductor L₂ are motionless relative to the inertial reference frame S' and to the inertial reference frame S **(both in Phase I and II)**, and the following notable phenomenon takes place:

In phase I, the magnetic needles M and M' remain motionless and do not rotate. Conversely, in Phase II, the magnetic needles M and M' rotate from their original position, where they were placed.

This is, therefore, the important conclusion that can be drawn from conducting the experiment of the parallel conductors.

As we can see, this conclusion is the total opposite of postulate I of the Special Theory of Relativity cited above, because:

According to the Special Theory of Relativity, in order for postulate I to be valid, the magnetic needles M and M' ought to give the exact same result (both in Phase I and Phase II) in relation to the inertial reference frames S and S'.

Because, according to postulate I, the two inertial reference frames S and S' are considered equal to one another, whether they are motionless (V = 0) in relation to the Earth (Phase I), or moving towards the Earth at a constant velocity V = 7,4 mm/s (Phase II).

Unfortunately, however (as proven by the experiment), since the magnetic needles M and M' do not yield the exact same result in both phases (Phase I and Phase II) relative to the inertial reference frames S and S', this means the postulate I of the Special Theory of Relativity is completely false.
Therefore, after what we discussed above **(and because the magnetic needles M and M' do not yield the exact same result in both phases, Phase I and Phase II),** we come to the following basic conclusion:

Conclusion

Based on the experimental results of Phase I and Phase II of the experiment of the parallel conductors, it is proven experimentally and in a very simple manner that postulate I of the axiomatic foundation of the Special Theory of Relativity is false and, therefore, the Special Theory of Relativity itself must be considered a totally false Theory of Physics.

As we can see, the experiment of the parallel conductors is a very important Physics experiment, whose results (of Phase I and Phase II):

- 1) Classical Physics has failed to interpret, and
- 2) Based on these results (Phase I and Phase II), the Special Theory of Relativity is proven to be a totally false Theory of Physics.

The correct interpretation of the results of Phase I and Phase II of the experiment of the parallel conductors is given only by Electrogravitational Theory, once we accept the existence of Ether in Nature, and on the basis of the fundamental “law of the creation of a magnetic field by an electric charge”, as these are described in the link “Ether and the magnetic field”, and video 02 (The Ether), on www.tsolkas.gr.

DEDICATION...

The experiment of the parallel conductors described above is dedicated to today's “great” Physicists (!!!), in order to prove to them that:

“By a very simple experiment of Physics and with very little expense, we can prove that the Special Theory of Relativity (i.e. the greatest scientific fallacy in the history of Physics) is a totally false Theory of Physics!!!”

Thank you.

WRITER'S COMMENTS

I am certain that the Physicists of the future will laugh at today's "great" Physicists!!!, who are unable to understand the very simple experiment of the parallel conductors (as well as experiments (19), (18), (14), (3), etc, and the cause for the advance of Mercury's perihelion), as these appear on www.tsolkas.gr

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GREECE*