

PHYSICAL SCIENCES

PLANET EARTH IS DESIGNED MUCH MORE COMPLEX THAN IS EXPLAINED BY MODERN SCIENTIFIC KNOWLEDGES

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Abstract

The article argues that, in accordance with the corrected version of the special theory of relativity (STR), the planet Earth is much more complex than this is explained by modern scientific knowledge. The Earth is probably a three-dimensional spiral structure in four-dimensional space. You can verify this by traveling round-the-world trip by plane. Such flights make time travel into the past and into the future possible. This will allow, for example, to anticipate and prevent disasters, bring back to life people who died as a result of accidents and crimes, and also solve many other problems. However, the version of STR taught in all physics textbooks denies the feasibility of time travel for people on Earth. And therefore no one has made such journeys before.

Keywords: special theory of relativity; relativistic formulas; physical reality of imaginary numbers; Multiverses; universes and antiuniverses; anti-time; external and internal time; time zones on Earth; time travel

1. Introduction: fundamental mistake of the authors of special theory of relativity

Created the 20th century by Joseph Larmor [1], Nobel laureate Hendrik Anton Lorentz¹⁶ [2], Jules Henri Poincaré [3], Nobel laureate Albert Einstein¹⁷ [4], and other talented scientists, the special theory of relativity (STR) are rightly considered the outstanding scientific achievement of the 20th century due to their use of principle of relativism. However, at the beginning of the twentieth century, science lacked much of the knowledge necessary to create STR. Because of this, the missing knowledge had to be replaced with postulates that turned out to be partially incorrect. Therefore, this STR itself turned out to be largely incorrect [5]-[9].

And most importantly, all the relativistic formulas obtained in it turned out to be incorrect

$$m = \frac{m_0}{\sqrt{1 - (v/c)^2}} \quad (1)$$

$$\Delta t = \Delta t_0 \sqrt{1 - (v/c)^2} \quad (2)$$

$$l = l_0 \sqrt{1 - (v/c)^2} \quad (3)$$

and others, in which m_0 is the rest mass of a moving body;

m_0 is the relativistic mass of a moving body;

Δt_0 is the rest time of a moving body;

Δt is the relativistic time of a moving body;

l_0 is the rest length of a moving body;

l is the relativistic length of a moving body

The creators of STR made this fundamental mistake without understanding that the argument v in formulas (1)-(3) according to Newton's first law is the fourth¹⁸, in addition to length, width and height, spatial dimension [10]-[21]. Albert Einstein also failed to use the concept of four-dimensional space in STR. But he managed to preserve the special theory of relativity, introducing into it the principle of not exceeding the speed of light. Although, as it turned out later, this postulate turned out to be incorrect. But in the process of searching for truth in science, this is acceptable.

2. The special theory of relativity taught in physics textbooks is incorrect.

From the principle of not exceeding the speed of light, which is in fact a postulate, that this STR drew the conclusion that imaginary numbers are physically unreal. But a postulate is merely an assumption. Consequently, a conclusion drawn from a postulate is also merely an assumption, which has no evidential value. Therefore, the assertion regarding the physical unreality of imaginary numbers could simply have been called a postulate. However, the authors of the version of the STR, taught in textbooks, ignored this fact, as they needed to explain the relativistic formulas in some way. And to do so, they had to at least give the impression that the principle of not exceeding the speed of light had been proven. And since these textbooks are still used in the educational process, it follows that the goal was achieved.

Therefore, further in the article we will continue to explain that the version of STR studied in textbooks is incorrect. [22]-[54]. Let us recall that the problems of the authors of STR began from the very beginning due to their inability to explain the relativistic formulas (1)-(3) published in 1905. After all, no one would need a

¹⁶ Who received his Nobel Prize in Physics in 1902 for explaining the Zeeman effect.

¹⁷ Who received his Nobel Prize in Physics in 1921 for his services to theoretical physics and especially for his research into the photoelectric effect.

¹⁸ Not to be confused with the fourth dimension in four-dimensional space-time (Minkowski space).

theory that even its creators could not explain. And relativistic physicists have still not been able to explain these formulas, since all the quantities $m(v)$, $\Delta t(v)$, $l(v)$ in these formulas in the hyper-light range of speeds $v > c$ took on values measured by imaginary numbers incomprehensible to physicists. Therefore, as not to explain relativistic formulas in the superluminal range of speeds, the principle of the non-exceeding of the speed

of light was used in the STR.

However, yet in 1897, Charles Proteus Steinmetz published [55] a theory of linear electrical circuits of alternating current, in which the imaginary resistances $-j/\omega C$ of capacitors and $+j\omega L$ ¹⁹ of inductors were de facto recognised as physically real. This provided experimental proof of the physical reality of imaginary numbers.

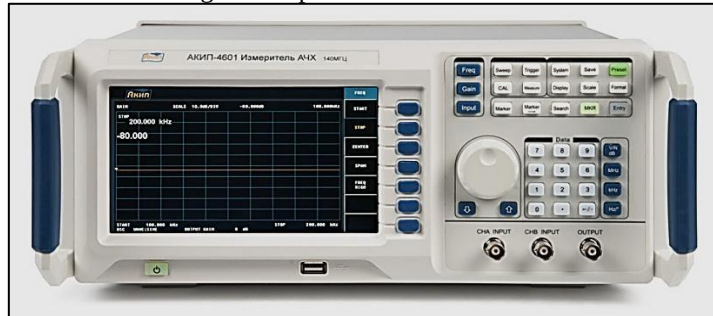


Fig. 1. In any radio engineering laboratory there are devices called frequency response meters, which already by their very existence prove the physical reality of imaginary numbers

Therefore, for more than half a century, the radio industry has been mass-producing frequency response meters²⁰ (Fig. 1), which by their very existence prove the physical reality of imaginary numbers, since you can only measure what actually physically exists. And such devices measured frequency characteristics, mathematically described using imaginary numbers.

But even if any of the relativist physicists were to learn that Charles Proteus Steinmetz had already proven the physical reality of imaginary numbers, this would not save the STR. For it turns out that the relativistic formulas are not correct, since, in the superluminal speed range $v > c$, function (1) describes a physically unstable process that cannot exist in nature. Therefore, relativistic physicists did not really need any proof of the physical reality of imaginary numbers. On the contrary, in order to refuse to explain their relativistic formulas in the hyperluminal speed range $v > c$, they needed the principle of not exceeding the speed of light. And this is precisely why proof of the physical unreality of imaginary numbers was needed. Which, however, do not exist in nature.

This is why Albert Einstein continued to work on developing available for use version of the STR. He therefore argued that there is no known physical process in nature that is described using imaginary numbers. On this basis, he introduced into STR a postulate known as the principle of the non-exceeding of the speed of light. From this, it was concluded that there was no need to explain formulas (1)–(3) in the superluminal range of velocities $v > c$. And when Cherenkov radiation [56] was discovered, refuting the claim that there is no known process in physics in which anything moves at a speed exceeding the speed of light, the STR was saved by the clarification that the principle of the

non-exceeding of the speed of light referred to processes in a vacuum.

And later, at the Large Hadron Collider (costing \$10 billion), the widely publicised OPERA [57] experiment was conducted over 15 years²¹ (between 2003 and 2018), involving over a hundred of the most eminent physics professors, the aim of which was to prove the physical reality of imaginary numbers. In 2011, the OPERA collaboration even announced the successful completion of this experiment. But six months later, at the same Large Hadron Collider, the OPERA experiment was refuted by the ICARUS experiment. This created the impression that the principle of the non-exceeding of the speed of light is irrefutable. And it is in this form that the generally accepted version of STR is now presented in all physics textbooks in all countries.

However, articles [58]–[75] have been published, including five articles in 2008–2010²² [58]–[62], containing descriptions of radio engineering experiments that successfully proved the physical reality of imaginary numbers. Moreover, these publications also contain descriptions of well-known physical processes²³ – a tsunami, the ringing of bells, music created by a piano, and even a swing swinging on the playground after a push from parents – proving the physical reality of imaginary numbers.

Thus we live not only in the visible and tangible world described by real numbers, but also in existing invisible and intangible world – one far less familiar to us – described by imaginary, complex and hypercomplex numbers.

3. A corrected version of the special theory of relativity.

3.1. Corrected relativistic equations

¹⁹ In radio engineering and electrical engineering, the imaginary unit is conventionally denoted by the letter j , as the letter i is used to denote electric current

²⁰ Also called frequency response analyzers

²¹ And for any radio engineering experiment proving the physical reality of imaginary numbers, one day is more than enough for one engineer

²² That is, even before the publication in 2011 of the message about the supposedly successful completion of the OPERA experiment

²³ Contrary to Albert Einstein's assertion that there are no processes in nature that can be described using imaginary numbers,

Since we have just have proven the physical reality of imaginary numbers in the most indisputable manner, we shall now explain formulas (1)–(3) in full. And since people tend to understand visual information better, Fig2a,b,c show the graphs of formulas (1)–(3). As can be seen, these graphs in the sub-light speed range $v < c$ differ significantly from the graphs in the hyper-light speed range $v > c$. It therefore becomes clear that the same processes cannot occur in the sub-light and hyper-light speed ranges v . And for the same processes to occur in these ranges, the graphs of formulas (1)–(3) must be identical, as shown in Fig2d,e,f. To achieve this, since the velocity v in formulas (1)–(3) is the

fourth spatial dimension, the factor²⁴ i^q must be introduced

$$m(q) = \frac{m_0 i^q}{\sqrt{1 - (v/c - q)^2}} = \frac{m_0 i^q}{\sqrt{1 - (w/c)^2}} \quad (4)$$

$$\Delta t(q) = \Delta t_0 i^q \sqrt{1 - (v/c - q)^2} = \Delta t_0 i^q \sqrt{1 - (w/c)^2} \quad (5)$$

$$l(q) = l_0 i^q \sqrt{1 - (v/c - q)^2} = l_0 i^q \sqrt{1 - (w/c)^2} \quad (6)$$

where $q(v) = [vq/c]$ – the “floor” function from discrete mathematics defined for

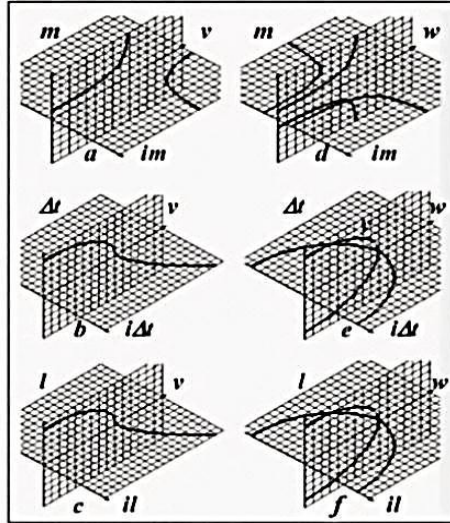


Fig. 2. Graphs of the functions $m(v)$, $\Delta t(v)$ and $l(v)$ corresponding to the existing and corrected versions of the STR in the subluminal $v < c$ and superluminal $v > c$ velocity ranges

the argument vq/c which constitutes the fourth spatial dimension;

$w = v - qc$ – the velocity that is local to all universes.

And since the fourth spatial dimension v is a vector quantity, the formulas (4)–(6) must be revised once again. To this end, three factors i^q , i^r and i^s must be introduced into formulas (4)–(6)

$$m(q, r, s) = \frac{m_0 i_1^q i_2^r i_3^s}{\sqrt{1 - [v/c - (q + r + s)]^2}} \quad (7)$$

$$\Delta t(q, r, s) = \Delta t_0 i_1^q i_2^r i_3^s \sqrt{1 - [v/c - (q + r + s)]^2} \quad (8)$$

$$l(q, r, s) = l_0 i_1^q i_2^r i_3^s \sqrt{1 - [v/c - (q + r + s)]^2} \quad (9)$$

where $q(v) = [v_q/c]$ – the “floor” function in discrete mathematics of the argument v_q/c , which

is one of the orthogonal coordinates q of the fourth spatial dimension v ;

$r(v) = [v_r/c]$ – the “floor” function of discrete mathematics of the argument v_r/c , which is the other orthogonal coordinate r of the fourth spatial dimension v ;

$s(v) = [v_s/c]$ – the “floor” function of discrete mathematics of the argument v_s/c which is yet another orthogonal coordinate s of the fourth spatial dimension v ;

v_q, v_r, v_s – projections of the velocity vector v onto the orthogonal co-ordinates q, r, s (see Fig. 3).

²⁴ In the theory of functions of a complex variable, the function i^q is defined only for integer values of the argument q . However, his definition can be extended as follows. For integer values of the argument ... -2, -1, 0, +1, +2, +3, +4, +5, ... the function i^q is equal to ... -1, -i, +1, +i, -1, -i, +1, +i, ... But for the same integer values of the argument ... -2, -1, 0, +1, +2, +3, +4, +5, ... the same values ... -1, -i, +1, +i, -1, -i, +1, +i, ... is also equal to the function $e^{iq\pi/2}$, which, in accord-

ance with Euler's formula $e^{iq\pi/2} = \cos(q\pi/2) + i\sin(q\pi/2)$, is defined also for non-integer values of the argument q . Therefore, definition of the function i^q can be extended to any values of the argument q by the formula $i^q = \cos(q\pi/2) + i\sin(q\pi/2)$, analogous to Euler's formula. The resulting formula will allow the value of the function i^q to be determined for any values of the argument q , including non-integer values. And it will be required in astro-geophysical studies of portals, which will be discussed further on.

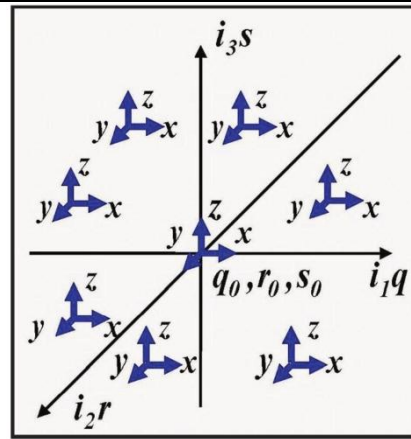


Fig.3. The six-dimensional space of the hidden Multiverse, where q, r, s are the coordinates of mutually invisible parallel universes and anti-universes, and x, y, z are the coordinates of the material content of these parallel universes and anti-universes

This formula i^q (as well as the formulas i^r and i^s) in formulas (7)–(9), which defines the nature of each universe, for integer values of the argument $q(v)$, equal to ... 0, 1, 2, 3, 4, 5, ..., successively takes the values ..., +1, +i, -1, -i, +1, +i, ... and so on. Its value²⁵ $q(v) = 0$ in formulas (7)–(9) for the sublight speed range $v < c$ corresponds (since $i^0 = 1$) to our visible universe, which we shall call, for the sake of clarity, the tardion²⁶ universe. The value $q(v) = 1$ in the superluminal speed range $2c > v > c$ corresponds (since $i^1 = i$) to some other, already invisible universe, as it lies beyond the event horizon. For the sake of clarity, we shall therefore call it the tachyon²⁷ universe. Then the value $q(v) = 2$ in the velocity range $3c > v > 2c$ will correspond (since $i^2 = -1$) to an invisible tachyon anti-universe. The value $q(v) = 3$, in the velocity range $4c > v > 3c$, will correspond (since $i^3 = -i$) to an invisible tachyon anti-universe. The value $q(v) = 4$ in the speed range $5c > v > 4c$ will correspond (since $i^4 = +1$) to another (and therefore also invisible) tardion universe. The value $q(v) = 5$ in the velocity range $6c > v > 5c$ will correspond (since $i^5 = +i$) to another tachyon universe. And so on.

Consequently, nature contains not only our visible universe—which, as stated in the generally accepted version of STR, corresponds to equations (1)–(3) but also a multitude of other mutually invisible²⁸ universes and anti-universes that correspond to equations (7)–(9). And these mutually invisible universes and anti-universes, together with our visible universe, form an invisible Multiverse [76]–[84], which we have therefore called the hidden Multiverse.

3.2. Explanation of the phenomena of dark matter and dark energy by the existence of universes and antiuniverses of the hidden Multiverse

Therefore, having explained the meaning of the basic concepts we need, it would seem time to clarify the structure of the hidden Multiverse. However, at present, no explanation of the structure of the Multiverse can be considered convincing unless it explains the

phenomena of dark matter and dark energy [85]–[90], discovered in the XX century. Which are so named because they are so obscure, as not a single chemical element has been detected in them, and also because they do not emit, absorb, reflect, or refract electromagnetic radiation and, therefore, are invisible. The persistent search for dark matter and dark energy, which account for more than 95% of all mass-energy contained in the hidden Multiverse, at the Large Hadron Collider exclusively in the microcosm of our only visible universe also seems inconsistent with common sense.

A more logical assumption is that dark matter and dark energy [85]–[90] are everything except our visible universe, mutually invisible universes and antiuniverses, the hidden Multiverse. In this case, dark matter is neighboring to our visible universe invisible universes and anti-universes, and dark energy - the remaining invisible universes and anti-universes of the hidden Multiverse. Therefore, the phenomena of dark matter and dark energy will be a gravitational shadow²⁹ on our visible universe from the remaining mutually invisible universes and antiuniverses included in the hidden Multiverse. This assumption explains all the incomprehensibility of the phenomena of dark matter and dark energy simply and clearly. That's why we will use it.

Then, assuming that over the billions of years of its existence, the mass-energy of all universes and anti-universes of the hidden Multiverse, due to the presence of a huge number of portals between them according to the law of communicating vessels, has been largely averaged, it becomes possible, using the data obtained by the WMAP and Planck spacecraft, to determine the structure of the hidden Multiverse. And according to data obtained by the WMAP spacecraft [96], the mass-energy of our visible universe (actually, our hidden Multiverse) consists of 4.6% baryonic matter, 22.4% dark matter and 73.0% dark energy. And according to more recent data obtained by the Planck spacecraft [97], the mass-energy of our visible universe (again, ac-

²⁵ If we start counting the value of q from our visible universe.

²⁶ The term "tardion universe" is borrowed from Isaac Asimov's short story "Take a Match."

²⁷ The term "tachyon universe" is borrowed from Isaac Asimov's short story "Take a Match."

²⁸ Because they are all beyond the event horizon

²⁹ And therefore, like our shadow on a sunny day, they do not contain a single chemical element..

tually, our hidden Multiverse) consists of 4.9% baryonic matter, 26.8% dark matter and 68.3% dark energy. As you can see, these data differ little from each other, which proves their truth. Therefore, it is permissible to assert that:

- our hidden Multiverse according to data obtained by the WMAP spacecraft, it consists of $100\% / 4.6\% = 21.8^{30}$ parallel universes and antiuniverses, and according to data obtained by the Planck spacecraft, it consists of $100\% / 4.9\% = 20.4$ parallel universes and antiuniverses;
- dark matter, according to experimental data obtained by the WMAP spacecraft, consists of $22.4\% / 4.6\% = 4.9$ parallel universes and antiuniverses, and according to data obtained by the Planck spacecraft, it consists of $26.8\% / 4.9\% = 5.5$ parallel universes and

antiuniverses;

- dark energy, according to experimental data obtained by the WMAP spacecraft, consists of $73.0\% / 4.6\% = 15.9$ parallel universes and antiuniverses, and according to data obtained by the Planck spacecraft, it consists of $8.3\% / 4.9\% = 13.9$ parallel universes and antiuniverses;
- and our visible universe, of course, is only one.

3.3. The structure of the hidden Multiverse

Fig. 4 shows an example, corresponding to the results of calculations of the possible structure of the hidden Multiverse. In this structure of the hidden Multiverse, the distribution of material content in each invisible universe and antiuniverse will be determined by some func-

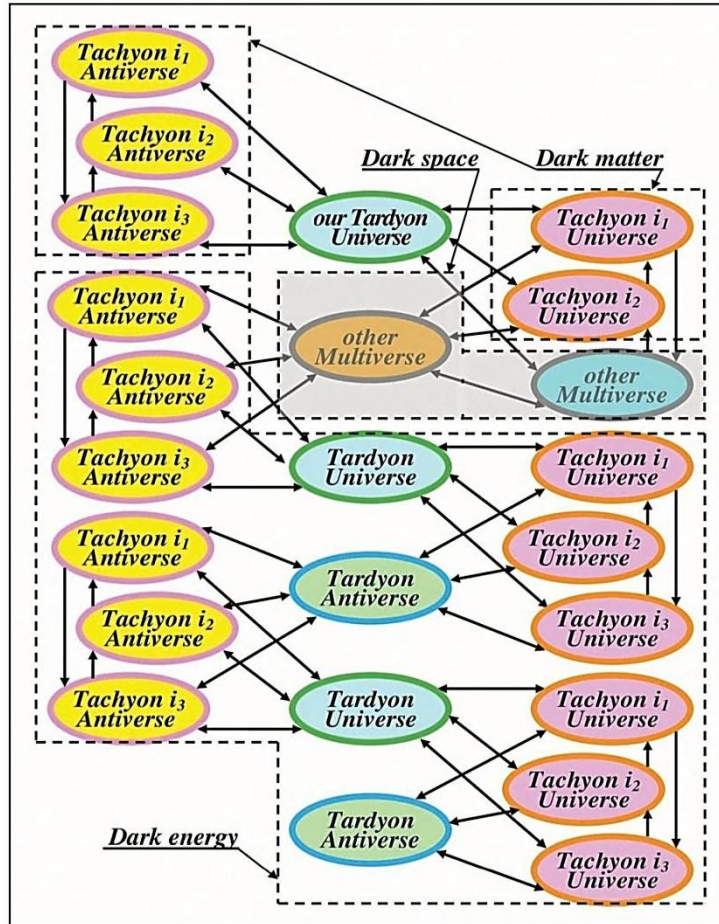


Fig. 4. An example of the structure of the hidden Multiverse, corresponding to the principle of physical reality of hypercomplex number

tion $f_{q,r,s}(x, y, z)$, and the coordinates of these universes will be determined by the quantities $i_1 q, i_1 r, i_3 s$. Those. such a hidden Multiverse will be six-dimensional and it will be described by the quaternion $f_{q,r,s}(x, y, z) + i_1 q + i_1 r + i_3 s$, in which the imaginary units i_1, i_2, i_3 are related by the relations [98]-[100]

$$i_1^2 = i_2^2 = i_3^2 = -1 \quad (10)$$

$$i_1 i_2 i_3 = i_2 i_3 i_1 = i_3 i_1 i_2 = -1 \quad (11)$$

$$i_1 i_3 i_2 = i_2 i_1 i_3 = i_3 i_2 i_1 = 1 \quad (12)$$

This is exactly what Lisa Randall predicted³¹: “We may be living in a three-dimensional pocket of higher-dimensional space.”

³⁰ Naturally, the number of universes and antiuniverses is an integer, and a non-integer number was obtained only due to experimental errors, including due to failure to take into account unknown factors influencing the result of the experiment.

³¹ Lisa Randall is a professor in the Department of Physics at Harvard University and a member of the American Academy of Arts and Sciences and also the National Academy of Sciences of the United States.

From formulas (10)-(12) it follows that such a hidden Multiverse has a helical structure, and its mutually invisible universes and antiuniverses (in addition to our visible universe) form dark matter and dark energy. In this case, it is possible to move into the tardion antiuniverse from the tardion universe and into the tardion universe from the tardion antiuniverse in various, but not arbitrary, ways, but only in such a way (see Fig. 4), in which the value of i^q will successively take the values $\dots +1, +i_1 \oplus +i_2 \oplus +i_3, -1, -i_1 \oplus -i_2 \oplus -i_3, +1, \dots$ and etc., where $\oplus$ is the symbol of the logical operation of discrete mathematics 'exclusive OR'. In this case, different trajectories of movement from one universe (or antiuniverse) to another can differ only due to the replacement of some tachyon universes from i_1, i_2, i_3 with others and some tachyon antiuniverses from i_1, i_2, i_3 with others. Consequently, tachyon universes i_1, i_2, i_3 in the hidden Multiverse are located parallel to each other. Tachyon antiuniverses i_1, i_2, i_3 are also located parallel to each other for the same reasons. And therefore, in the hidden Multiverse, when transitioning from any tardion universe to a tardion anti-universe and then to another tardion universe, parallel universes and antiverses must alternate in the following sequence - 'tardion universe', 'one of the tachyon universes', 'tardion anti-universe', 'one of the tachyon anti-universes', 'tardion universe', 'one of tachyon universes', etc.

Moreover, portals in such a structure of the Multiverse are not only bidirectional, corresponding to formula (10) and shown by two-way arrows, but also unidirectional, corresponding to formulas (11), (12) and shown by one-way arrows. And since the structure of our hidden Multiverse, as shown in Fig. 4, is open in some places, then in these places it is connected to other Multiverses through the corresponding portals. And all together they collectively form the Hyperuniverse.

3.4. How can we be convinced of the real physical existence of invisible universes and antiuniverses?

However, in science, any evidence, even the most seemingly impeccable one, can be trusted only if it is confirmed experimentally. And such experimental evidence of the existence of invisible parallel universes³² and antiuniverses shown in Fig. 4 adjacent to our visible universe can be two hundred thousand anomalous zones [101]-[104], existing on Earth, serving as entrances to portals leading to planets of various star systems. Most of the portals probably lead to astronomical objects in our universe and even in our solar system. A smaller number of portals connect us with other universes and anti-universes of the hidden Multiverse. And, perhaps, some portals even connect us with astronomical objects in other Multiverses of the Hyperverses. All these possible options in Fig. 4 are shown. The classification of anomalous zones after astro-geophysical studies of the corresponding portals will help determine where each portal leads.

And the possible distrust of the claim that anomalous zones are entrances to portals can presumably be

eliminated by astronomical observations [105]-[122] of the star sky in anomalous zones. This would require comparing on computer of maps of the starlit sky observed in anomalous zones and somewhere outside of anomalous zones. Moreover, some observatories are already in anomalous zones. For example, the Main Astronomical Observatory of the National Academy of Sciences of Ukraine, which is located 12 km from the center of its capital, Kyiv in Goloseyevo Forest. And if such differences are found, it is evidence that the corresponding portal to this anomalous zone leads to another planet in our solar system or further afield. After all, the starry sky is different for every planet.

4. Time Travel on Earth

4.1. Where are the anti-matter and the anti-time located?

And now we can explain the problem that is inexplicable in the version of STR studied in textbooks - where exist antimatter, the existence of which this version of STR does not deny. It is clear that she cannot be in our hidden Multiverse, because her annihilation with matter would make our universe no longer exist.

However, it exists. In 1995 CERN performed a sensational experiment that produced nine antihydrogen atoms lasting about 40 billionth parts of second. And just one gram of such an antihydrogen would have cost \$662.5 trillion. So the existence of antimatter has even been proven experimentally. But where does it exist then? After all, in all physics textbooks it is claimed that nature has our only visible universe. Therefore, the experiment at CERN can also be considered as proof that the version of the STR studied in textbooks is incorrect.

And in accordance with formulas (7)-(9) of the corrected version of STR, anti-matter in nature exists in the invisible tardyon and tachyon antiuniverses of the hidden Multiverse. Moreover, in these invisible tardyon and tachyon anti-universes, anti-time and anti-space [105]-[122] also exist.

4.2. Time Travel on Earth, Inner Time and Outer Time

The existence of antitime makes it possible, in accordance with formulas (8) and (9), due to travels in space, also travels in time. But since the portals, the universes and anti-universes of the hidden Multiverse, are still unexplored, time travel in space is now inaccessible to us. Therefore, further we will consider only the possibility of time travel on Earth [10]-[21]. As the presence of time zones on Earth also makes time travel possible due to space travel.

However, although official modern science admits the possibility of time travel in some exotic situations in the special³³ and general³⁴ theories of relativity, as well as in quantum physics³⁵, it still claims that time travel of people on Earth, either now or in the distant future, will never be possible.

Nevertheless, time travels by people on Earth are now already carried out by airplane flights, since, upon landing at any airport, millions of air passengers

³² I.e. such that do not intersect

³³ For example, in the "twin paradox"

³⁴ For example, in the ultra-high gravity region of a black hole's event horizon

³⁵ For example, as a result of teleportation of not information, but of physical objects.

Table 1.

Examples of business jet characteristics that can be used for time travels

Aircrafts	Maximum range	Cruising speed	Hourly rates	Seats
Citation Latitude	5 300 km	815 km/h	3 500 €/hour	8
Citation Longitude	7 400 km	910 km/h	5 000 €/hour	12
Challenger 300	5 700 km	850 km/h	4 900 €/hour	8
Challenger 350	5 926 km	850 km/h	4 000 €/hour	9
Challenger 600	5 500 km	850 km/h	4 600 €/hour	12
Challenger 3500	6 297 km	985 km/h	5 500 €/hour	10
Falcon 20	4 200 km	987 km/h	3 900 €/hour	8
Falcon 50/50EX	5 600 km	850 km/h	4 900 €/hour	8-10
Global 5500	10 927 km	900 km/h	8 000 €/hour	16
Gulfstream G150	5 200 km	850 km/h	3 900 €/hour	6-8
Gulfstream G200	5 000 km	870 km/h	6 200 €/hour	8
Hawker 850 XP	4 800 km	750 km/h	3 400 €/hour	6-8
Hawker 900XP	5 400 km	865 km/h	3 700 €/hour	6-8
Hawker 4000	5 280 km	890 km/h	5 400 €/hour	10
Learjet 70	3 815 km	967 km/h	3 500 €/hour	7
Legacy 450	5 370 km	860 km/h	3 300 €/hour	8
Praetor 600	7 400 km	850 km/h	6 000 €/hour	12

Table 2.

The value of external time at different latitudes

Location of departure and arrival airfields	Geographic coordinates of the airfield	Size of 24 time zones for a round-the-world flight	Size of one time zone.
Santiago de Chile	33,45° S.	33422 km	1393 km
Buenos Aires	34,60° S.	33021 km	1375 km
Melbourne	37,82° S.	31339 km	1306 km
New York City	40,72° N.	30456 km	1269 km
Reykjavík	64,15° N.	17616 km	734 km
Murmansk	69,58° N.	14424 km	601 km
Kirkenes	69,73° N.	14376 km	599 km
Longyearbyen (Spitsbergen, Norway)	78,13° N.	8184 km	341 km
Alert, (Canada)	82,5° N.	5230 km	218 km

always change their watches to a local time other than time at the airport of departure. Thus confirming time travel. And refuting the erroneous statements of the incorrect version of STR studied in textbooks.

And when explaining time travels on Earth, it is necessary to take into account the existence in nature, in addition to internal time, which we always use, also of external time, which we have never used before. And which are generated by different circumstances and have different peculiarities. Internal time can be called

biological human time, since one second is one contraction of the human heart. And it cannot flow backwards. A person cannot return to his youth. But external time is generated by the rotation of the Earth around its axis. One revolution of the Earth is 24 time zones. Therefore, by changing the direction of our movement in space, we can move both into the past and into the future external time. Consequently, time travel is always movement only in external time.



Fig. 5. One of the business jets

Time travels can be very useful, since traveling into the future will allow, for example, to recognize and avoid unforeseen disasters, accidents, natural disasters, etc. in advance. And traveling to the past will allow the same situations in the present to be corrected by visiting the past. Even, for example, to bring back to life people

who died as a result of an accident, a terrorist attack³⁶ or for other reasons [141]-[151].

And although time travel on Earth is not currently used due to the fact that it always occurs together with long-distance travel, this problem is completely solvable. To do this, the aircraft must make a round-the-world trip around the north or south pole and land after 24 hours of outside time at the same airfield from which the journey began. Thus eliminating the unnecessary factor of space in time travel.

And there are many aircraft models suitable for use in time travel. They are called business jets³⁷ (see Fig. 5). There are currently 22,000-24,000 business jets in operation on Earth. Table 1 shows the flight performance characteristics of some business jets. And Table 2 shows airfields quite close to the North Pole³⁸ that can provide the shortest routes for round-the-world flights.

Moreover, time travel can be accomplished not only on airplanes. Time travel on airplanes is only needed if a person needs to travel to the past or future. And if it is necessary to transmit information to the past or future, then radio communications can be used, like airplane flights, using round-the-world communication lines³⁹

4.3. The structure of planet Earth differs significantly from the structure corresponding to modern scientific knowledge

Thus, time travel on Earth is physically possible and currently appears to be technically feasible [152]-[162], since suitable aircraft and acceptable flight routes exist. However, neither they nor other aircraft ever made the round-the-world flights we needed, because there was no need for them. Indeed, any airfield farthest from the airfield from which the plane took off is located where the antipodes live, i.e. at a diametrically opposite point on Earth. And this is only half of a trip around the world. The distance to other airfields is shorter. Therefore, the possibility of a round-the-world flight still needs to be confirmed by actually carrying out such a flight.

As we cannot make such a flight, let's take a round-the-world air trip in our minds. Let's start with the initial situation, i.e. from a completely understandable trip around the world, during which two identical planes will simultaneously take off from the same airfield in two opposite directions - one to the west, the other to the east. If they fly at the same speed, then, provided that the Earth does not rotate, everything will be clear. They will arrive at the same airfield from which they departed at the same time. But if we take into account that the Earth rotates, then these planes will not arrive at their airfields at the same time. One of them will fly through

$$T_1 = 2\pi R / (V + \Delta V) \text{ hours,} \quad (13)$$

and the other through

$$T_2 = 2\pi R / (V - \Delta V) \text{ hours,} \quad (14)$$

where R is the radius of the circle on the Earth's surface at the latitude at which airplanes will fly in a swarm;

V – aircraft flight speed relative to the stationary Earth;

ΔV is an increase or decrease in the flight speed of aircraft relative to the surface of the Earth due to its rotation around its axis.

From formulas (13) and (14) it follows

$$(T_2 - T_1) = 4\pi R \Delta V / (V^2 - \Delta V^2) \quad (15)$$

Consequently, both planes will be able to arrive at the same airfield from which they departed simultaneously only if $\Delta V = 0$, i.e. when the Earth does not rotate around its axis. And since the Earth always rotates, the planes in the experiment under consideration will inevitably arrive at their airfields in the same internal time, but at different external times. Those, to different spaces. And not to the airfield from which the planes took off. All three of these airfields will be different. Moreover, all these airfields and the settlements surrounding them are inhabited. All these airfields and near them will have their own life, repeating our life in the very recent past and future. And all these airfields, settlements and everything else exist, regardless of whether you flew into them or not. Therefore, when you fly into the past or future, you will be able to meet yourself.

But such flights to twin airfields will allow for quasi-round-the-world flights, providing time travel, since these airfields differ slightly.

So where are they located? Naturally, on the same Earth as you and me. Only the Earth, it turns out, is not structured like a globe, as we always assumed. A is a three-dimensional (i.e., volumetric) spiral-shaped structure. Using most likely the same fourth spatial dimension that was mentioned at the beginning of the article. But in order to fully know and understand all this, serious scientific research will naturally be needed. But to fully know and understand all this will require serious scientific research.

5. Conclusion

Thus, the actually existing physical world is largely turned out to be different from the way it is explained in the version of STR studied in physics textbooks. But although over the past hundred years since the creation of this STR, much has been demonstrably refuted, the content of the sections of physics textbooks that present it has not essentially changed.

And main difference STR from classical physics is its use of the ingenious principle of relativism. But all the relativistic formulas obtained in this STR using the principle of relativism turned out to be incorrect. And even the creators of this theory themselves could not explain them. Moreover, these formulas were not explained until very recently, since their explanation given in textbooks using an incorrect postulate, called

³⁶ Perhaps President Kennedy could have been saved in a similar way after the assassination attempt.

³⁷ A business jet is a small private jet aircraft for transporting a limited number of passengers (usually from 6 to 20) on an individual order for businessmen, officials and VIPs; it is characterized by a higher level of comfort, the ability to take

off/land from small airfields and high speed, allowing you to quickly get to anywhere in the world

³⁸ Since the existing airfields are further from the south pole. But, probably, such airfields can be created in Antarctica.

³⁹ But also with its transmission around the north or south pole.

the principle of not exceeding the speed of light, is incorrect.

Therefore, Albert Einstein, in his version of STR, in order to make it explainable, had to prove not physical reality, but, on the contrary, the physical unreality of imaginary numbers. And for this it was necessary that this physical unreality of imaginary numbers should follow from something indisputably true. And as such an initial supposedly indisputably true truth, a postulate was used, called the principle of not exceeding the speed of light.

But when creating and using such a chain of reasoning, the fact was ignored that Charles Proteus Steinmetz back in 1897⁴⁰, in his proposed interpretation of Ohm's law, had essentially already proven the physical reality of imaginary numbers. And since then, radio engineers have never had the slightest reason to doubt its truth, since when the frequency of a sinusoidal voltage applied to any electrical LCR circuit changes, the amount of current flowing through it always changes. This fact, which occurs in the practical activities of radio engineers literally at every step, is an extremely simple, absolutely understandable and irrefutable proof of the physical reality of imaginary numbers.

Albert Einstein also ignored the fact that the physical reality of imaginary numbers is also proven by the existence of processes known to everyone in nature - tsunamis, Indian summers, bell ringing, music created by a piano, and even swings swinging on the playground after a push from parents - described using imaginary numbers.

Nevertheless, Albert Einstein still needed to somehow doubt this in his proposed version of STR. Otherwise, it would be necessary to admit that the creators of this version of STR are unable to explain the obtained relativistic formulas in the hyperluminal speed range $v > c$. And then this theory, which even its creators could not explain, would naturally be of no use to anyone. That is why a postulate, was introduced into the STR, called the principle of not exceeding the speed of light, from which a conclusion was made about the physical unreality of imaginary numbers, which was not confirmed by any experiments. This made it possible not to explain relativistic formulas in the hyperluminal speed range $v > c$. Therefore, despite the fact that Albert Einstein was nominated for the Nobel Prize 66 times for the creation of STR, due to the lack of any experimental evidence of its truth, he never received it for his version of this theory.

In order to prove the denial of the physical reality of imaginary numbers in the incorrect version of special relativity, relativistic physicists had to undertake enormous and costly efforts. In particular, to create at least illusion of the impossibility of refuting the STR's assertion of the physical unreality of imaginary numbers, on the Great Hadron Collider (worth ten billion dollars) a collaboration OPERA, which included more than one hundred of the most authoritative professors-physicists, for almost 15 years (2003-2018) was the unsuccessful physical experiment OPERA, which aimed to prove the physical reality of imaginary numbers but failed to do

so. And thereby supposedly proved the impossibility of refuting the assertion about the physical unreality of imaginary numbers. In 2011, it was even announced that the OPERA experiment had been sensationally successful, but then half a year later in 2012, the OPERA experiment was refuted by another ICARUS experiment on the same Large Hadron Collider

Therefore, physicists are still ignoring publications that cite simple and comprehensible radio-technical experiments successfully proving the physical reality of imaginary numbers and explaining that if the imaginary numbers were, as claimed in the incorrect version of STR, physically unrealistic, there should be no radio nor computer technics.

Moreover, because of the assertion of the physical unreality of imaginary numbers and thus of the existence in nature of our only visible universe, it has become apparent that there was no place for antimatter and tachyons in this only visible universe. Although their existence in nature was not denied. And where they are located is explained only by the corrected version of the open source software.

It also transpired that, because of the assertion of the physical unreality of imaginary numbers and therefore of the existence in nature of our only visible universe, the phenomena of dark matter and dark energy had never been and would never be explained, because the dark matter and dark energy are, according to the corrected version of the STR, all reciprocally invisible universes and antiuniverses existing outside our visible universe in the hidden Multiverse.

More than 200,000 anomalous zones have been discovered on Earth, which are entrances of portals to the planets of not only our Solar System, but also other star systems in the hidden Multiverse and even in the Hyperverses. And it also proves the existence of other universes and antiuniverses. Moreover, in the existence of these invisible outside the portals of of universes can be ascertained by astronomical observations of the star sky in portals. But these low-cost astronomical observations, which would allow for sensational scientific discoveries of other universes and anti-stellar ones, are still not being made, probably because of the fear that invisible neighboring universes and antuniverses ones will be discovered. And then the version of the STR studied in textbooks on physics would have to be undeniably disbelieved.

The version of STR taught in physics textbooks also leads to the conclusion that time travel is impossible for humans. Although, in fact, millions of air passengers already make such time travel every day, as evidenced by the fact that passengers of planes reset their clocks to local time after landing. However, since such time travel by air passengers occurs simultaneously with long distances travel, it is currently not used. The article explains how, through quasi-round-the-world flights, time travel may become physically and technically feasible.

Less-expensive radiotelephone time travel is also possible, and once it's in demand, it could be implemented quickly and inexpensively. This would make it

⁴⁰ That is, before the creation in 1905 of the version of STR that is now studied in all physics textbooks

possible to communicate and exchange information with people (including oneself) in the past or future relative to our own time.

And, finally, among other things, such quasi-round-the-world time travel will prove that our Earth is much more complex than is explained by modern science. It is probably a three-dimensional spiral structure⁴¹ in four-dimensional space, the existence of which follows from Newton's first law.

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⁴¹ A one-dimensional spiral is, for example, the well-known Archimedes spiral. A two-dimensional spiral of Archimedes is a medical bandage or medical plaster in three-dimensional

space. And our Earth is a three-dimensional Archimedes spiral made in a similar way in four-dimensional space, the existence of which follows from Newton's first law.

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