

PHYSICAL SCIENCES

CORRECTED SPECIAL THEORY OF RELATIVITY³⁵

Antonov Alexander Alexandrovich

*PhD, HonDSc, HonDL, ResProf., H.ProfSci
Independent researcher, Kiev, Ukraine*

Abstract

This article shows that the version of the special theory of relativity (STR) presented in all physics textbooks is incorrect, since relativistic formulas obtained therein are incorrect. They are incorrectly explained using the wrong principle of non-exceeding the speed of light and have led to incorrect conclusions about the physical unreality of imaginary numbers and the existence in nature of only our visible universe. This version of the STR proved to be in demand only because its authors were not able to explain physical sense of imaginary numbers. The article provides three proofs of physical reality of imaginary numbers and explains their physical sense in the theory of linear electric circuits, relativistic physics and astrophysics. This made it possible to obtain corrected relativistic formulas, from which appropriate conclusions were drawn.

Keywords: Special theory of relativity, imaginary numbers, Multiverse, dark matter, dark energy

1. Introduction

The special theory of relativity (STR) [1]-[3] created in the 20th century has been deservedly considered one of the most significant achievements of modern physics, since it introduced the principle of relativism into science. This is why STR is now taught in all university physics textbooks. However, the relativistic formulas obtained in this theory turned out to be incorrect due to the lack of experimental knowledge in physics of the 20th century necessary to complete their derivation. What is the physical meaning of named imaginary numbers and now is not explained in any textbook. Therefore, a postulate was introduced in STR, called the principle of not exceeding the speed of light, which allowed the physical meaning of imaginary numbers not to be explained, since nothing supposedly corresponds to them in nature.

This is how the STR has still been studied in physics textbooks.

2. The current version of the STR is incorrect

For a newly created scientific theory, this is pardonable, since such a theory must be developed. Therefore, over time, something in it must be refuted and corrected. The author of the concept of an open society, Sir Karl Raimund Popper, argued [4] that "... the struggle of opinions in scientific theories is inevitable and is a prerequisite for the development of science."

And in STR there are already a lot of such denials [5]-[54]. This is the existence of shock oscillations - tsunamis, music of pianos and other musical instruments, bell ringing in Christian churches and even swinging swings in playgrounds. This is the modern theory of resonance under the influence of not only sinusoidal oscillations of constant amplitude, but also damped sinusoidal oscillations, and even under the influence of exponential pulses. And this is even radio

engineering created earlier by STR, since STR and radio engineering mutually refute each other.

But the authors of physics textbooks, not being able to challenge these refutations, nevertheless, still do not take them into account [55]-[63].

3. The corrected version of the STR

Therefore, the corrected version of the STR [64] is in demand. In its incorrect principle of light speed non-exceedance STR denying physical reality of imaginary numbers is replaced by the principle of physical reality of imaginary numbers proven experimentally.

Let us show how, for example, this can be done by correcting the Lorentz-Einstein's formula

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

where m_0 is the rest mass of a moving body (for example, an elementary particle);

m is the relativistic mass of a moving body;

v is the velocity of a body;

c is the speed of light.

It can be seen from the graph (see Fig. 1a) that the function $m(v)$ has a discontinuity at $v = c$. It corresponds to real numbers for argument values $v < c$, while for argument values $v > c$ it corresponds to imaginary numbers that were discovered in the 16th century and whose physical sense remained unexplained until the 20th century. And since we have proved the physical reality of imaginary numbers, in this situation it is necessary to explain their physical meaning. But on the graph of the function $m(v)$, its branch at the values of the argument $v > c$ corresponds to a physically unstable process that cannot exist in nature. Therefore, the Lorentz-Einstein formula cannot be explained. Hence, it is incorrect.

³⁵ This is reprint of the paper "Antonov A. A. The Corrected Version of the Special Theory of Relativity. European Journal of Applied Sciences. Services for Science and Education. United Kingdom. 11 (5). 68-83. 2023. DOI:10.14738/aivp.115.15474

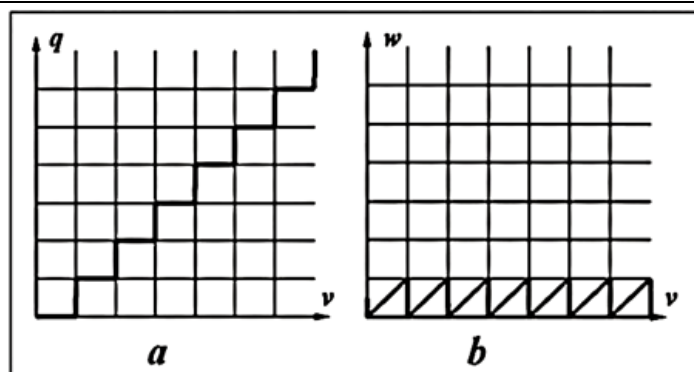


Fig. 1. Graphs of the function $m(v)$ corresponding to the generally recognized but incorrect and corrected versions of STR in the subluminal $v < c$ and hyperluminal $v > c$ range

And the graph of the Lorentz-Einstein formula, which can be explained (see Fig. 1b), on the range $v > c$ should be similar to the graph of this function (see Fig. 1a) on the range $v < c$. Thus, the corrected Lorentz-Einstein's formula can be written as follows

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

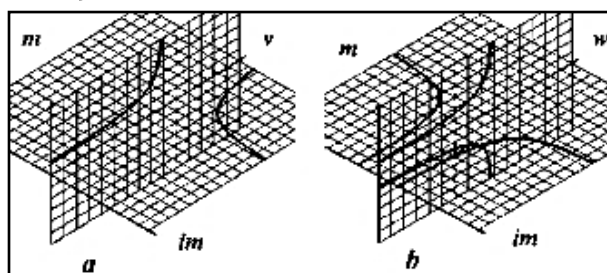


Fig. 2. Graphs of functions $q(v)$ and $w(v)$ illustrating the meaning of the 'floor' function of discrete mathematics

Therefore, at $q = 0$ the formula (2) should be written as (1), and at $v > c$ it should be written as follows

$$m(v) = \frac{im_0}{\sqrt{1-(v/c - 1)^2}} = \frac{im_0}{\sqrt{1-(w/c)^2}} \quad (3)$$

The graph of the function $m(v)$ in Fig. 1b shows that the value $q = 1$ corresponds to a fragment of this function on the interval $c \leq v < 2c$. Those on this interval $c \leq v < 2c$ it corresponds to universe adjacent to our universe. And this other universe is already invisible to us, as it is located beyond the event horizon. Therefore, for definiteness, we call it tachyon universe. Our visible universe will then be called tardion universe. The value $q = 2$ corresponds to an invisible tardyon antiverse, for which $2c \leq v < 3c$. The value $q = 3$ corresponds to an invisible tachyon antiverse, for which $3c \leq v < 4c$. Etc.

Therefore, it follows from the corrected Lorentz-

where $q = \lfloor v/c \rfloor$ is the 'floor' discrete function of the argument v/c (see Fig. 2a);

$w = v - qc$ is the local velocity that in each universe takes values in the range $0 \leq w < c$ (see Fig. 2b).

Einstein formula that the statement contained in physics textbooks about the existence in nature of our only visible universe is incorrect. In fact, we are in the Multiverse, which, due to the mutual invisibility of the universes in it, we will call the hidden Multiverse. But to make sure that the invisible universes really exist, we need an appropriate experiment that made it possible to see them.

4. Corollaries of the corrected version of the STR

4.1. How to see invisible universes

In order to understand what this experiment can be, first of all, it is necessary to understand that in Formula (2) the parameter q is an additional spatial dimension in which mutually invisible parallel universes³⁶ somehow drift relative to each other. They touch each other and even slightly penetrate into each other generating respective passages through which their matter content is exchanged. These passages are commonly referred to as portals [65], [66] or stargates [67]. And the entrances to them are presumably at least some of the anomalous zones, of which there are a lot on Earth [68]-[71].

³⁶ Since, despite their infinity, they do not intersect

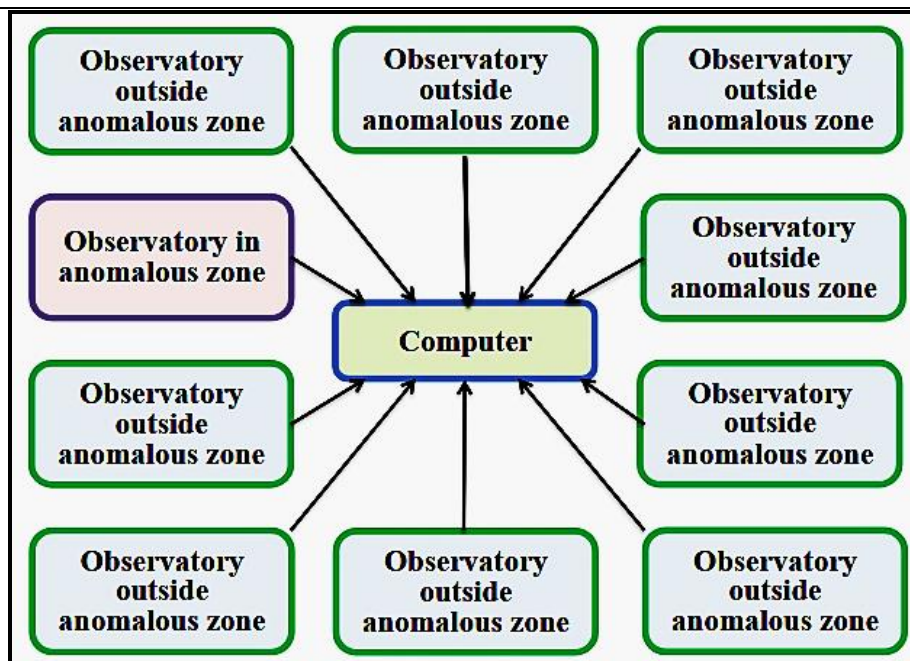


Fig. 3. Scheme of an astronomical complex for the detection of invisible universe

And since in other universes the constellations in the sky inevitably differ from the constellations in our earthly sky, then when moving through the portals from the Earth to any neighboring universe, the map of our starry sky will gradually be transformed into a map of the starry sky of the neighboring universe. And if a telescope is placed in such a portal, then by comparing the position of the stars in the sky in the portal and outside the portal (see Fig. 3), changes in the position of the stars can be detected. These other constellations in the starry sky in the portals will be the desired experimental evidence [72]-[77]. The corresponding experiments³⁷ is very low-cost and easily implemented. Moreover, some observatories are already in anomalous zones. As, 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, Kiev, in the Goloseyevsky forest.

4.2. The need geophysical research of portals

Naturally, the farther the telescope is placed in the portal, the more the constellations in its starry sky will differ from the constellations observed outside the portals. And the more convincing will be such astronomical observations. In addition, as a result of such astronomical observations, it will be possible to determine how many different neighboring invisible universes are located next to our visible universe [78]-[88].

But the great value of such observations lies not only in this. And also in the fact that the study of the geophysical characteristics of portals will make it possible to create artificial portals, with the help of which it will be possible to move from our universe to other currently invisible to us, and therefore unknown universes. That will accelerate the transformation of human civilization into a super-civilization.

However, people now avoid any visit to the portals, as the portals are invisible labyrinths in which it is impossible not to get lost. Therefore, in order to make visiting portals safe, it is necessary to create means of portal orientation that will allow invisible portals to be seen in the same way that a compass allows navigators to see the invisible magnetic field of the Earth. And this is quite possible to do if we use the fact that the intensity of the electromagnetic radiation of terrestrial radio stations decreases as we dive into the portals. And when it reaches the neighboring universe, this radiation will disappear completely. After all, on Earth there is no such electromagnetic radiation from neighboring universes.

4.3. Dark matter, dark energy

Having proved the existence of mutually invisible parallel universes, we need to find out their location in the hidden Multiverse, or, in other words, the structure of the hidden Multiverse.

We also need to understand the meaning of dark matter and dark energy called as such because of their incomprehensibility and because no chemical elements have been found therein, as well as because they neither absorb nor emit nor reflect nor refract electromagnetic radiation. However, they account for more than 95% of the whole mass-energy in space. More precisely, according to the data obtained by the WMAP spacecraft [89], the mass-energy of our visible universe (actually, the hidden Multiverse) consists of 4.6% of baryonic matter, 22.4% of dark matter and 73.0% of dark energy. And according to more recent data obtained by the Planck spacecraft [90], the entire universe (actually, again, the entire hidden Multiverse) consists of 4.9% of baryonic matter, 26.8% of dark matter and 68.3% of dark energy.

Therefore, the truth and completeness of knowledge in modern physics, which cannot explain

³⁷ They are analogous to the experiment of Sir Arthur Stanley Eddington in 1919.

the phenomena of dark matter and dark energy, raises serious doubts. And since it was proved above in the most indisputable way that in nature there is not the Monoverse, but the Multiverse, then in addition to searching for the clues to the nature of the phenomena of dark matter and dark energy at the Large Hadron

Collider in the microcosm, it is also necessary to search for their clues in the macrocosm of our hidden Multiverse. After all, Albert Einstein himself said: *"Insanity: doing the same thing over and over again and expecting different results"*.

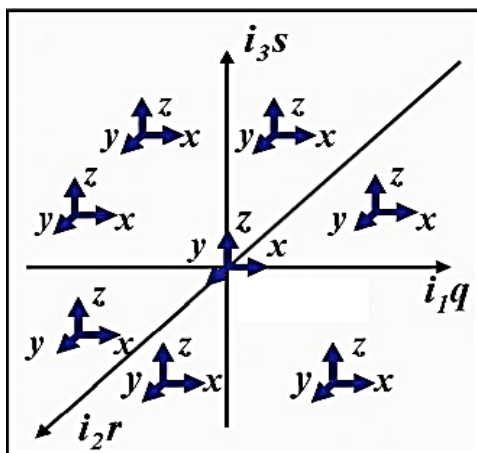


Fig. 4. The six-dimensional space of the hidden Multiverse, in which q, r, s are the coordinates of invisible parallel universes, and x, y, z are the coordinates of the material content in each such parallel universe

The search for a solution to this problem in the hidden Multiverse allows us to assume that [91], [92]:

- dark matter and dark energy are evoked by invisible parallel universes of the hidden Multiverse, creating a kind of its own gravitational shadow in our visible universe;
- dark matter is evoked by invisible universes of the hidden Multiverse adjacent to our visible universe;
- dark energy is evoked by the rest of the universes of the hidden Multiverse, except for our visible and adjacent invisible universes;
- chemical composition of dark matter and dark energy cannot be determined because they are just images.

Thus:

- the whole hidden Multiverse should consist of $100\% / 4.6\% = 21.8$ parallel universes according to

the experimental data obtained by the WMAP spacecraft, and of $100\% / 4.9\% = 20.4$ parallel universes according to the data obtained by the Planck spacecraft;

- the whole hidden Multiverse should consist of $100\% / 4.6\% = 21.8$ parallel universes according to the experimental data obtained by the WMAP spacecraft, and of $100\% / 4.9\% = 20.4$ parallel universes according to the data obtained by the Planck spacecraft;

• dark matter should consist of $22.4\% / 4.6\% = 4.9$ parallel universes according to the experimental data obtained by the WMAP spacecraft, and of $26.8\% / 4.9\% = 5.5$ parallel universes according to the data obtained by the Planck spacecraft;

- dark energy should consist of $73.0\% / 4.6\% = 15.9$ parallel universes according to the experimental data obtained by the WMAP spacecraft, and of $8.3\% / 4.9\% = 13.9$ parallel universes according to the data obtained by the Planck spacecraft.

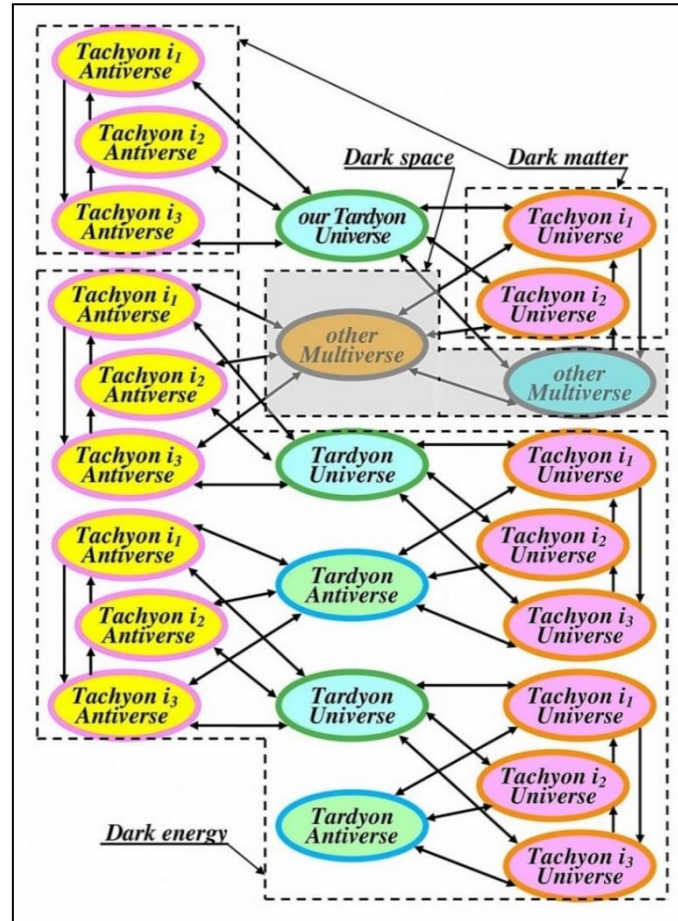


Fig. 5. Possible structure of the hidden Multiverse

Such an explanation of the phenomena of dark matter and dark energy provides important information about the structure of the hidden Multiverse. Indeed, given that mutually invisible universes of the hidden Multiverse are interconnected by numerous portals through which they exchange their matter content it can be argued that their mass-energy has significantly averaged over billions of years of their existence.

However... these results are inconsistent with the formula (2), since according to the WMAP and Planck spacecraft data, five-six rather than two invisible universes should be adjacent to our visible universe. Therefore, the relativistic formula (2) must be corrected again as follows:

$$m(q, r, s) = \frac{m_0(i_1)^q(i_2)^r(i_3)^s}{\sqrt{1 - [\frac{v}{c} - (q + r + s)]^2}} \quad (4)$$

where \mathbf{v} is the velocity measured from our tardyon universe;

\mathbf{c} is the speed of light;

i_1, i_2, i_3 are the related imaginary units [51], wherein

$$i_1^2 = i_2^2 = i_3^2 = -1 \quad (5)$$

$$i_1 i_2 i_3 = i_2 i_3 i_1 = i_3 i_1 i_2 = -1 \quad (6)$$

$$i_1 i_3 i_2 = i_2 i_1 i_3 = i_3 i_2 i_1 = 1 \quad (7)$$

4.4. Antimatter, anti-time, anti-space

Therefore, the hidden Multiverse has a quaternion

structure in six-dimensional space (Fig. 4). For example, shown in Fig. 5, a helical structure in which adjacent to our visible tardyon universe is five invisible tachyon universes and anti-universes that evoking phenomenon of dark matter, as well as sixteen other invisible universes evoking phenomenon of dark energy. Thus, such a hidden Multiverse contains twenty-two invisible universes, which is consistent with the mathematically analyzed data obtained by the WMAP and Planck spacecraft. In addition, this structure is connected to two other universes that are outside the hidden Multiverse and form, together with the hidden Multiverse, the Hyperverses. And some invisible universes located in the Hyperverses outside the hidden Multiverse, as shown in Fig. 5 could presumably be adjacent to our visible universe. And then they can be discovered and studied by astronomical and geophysical research in portals.

From such a structure of the hidden Multiverse it also follows that in its cosmic antipodes of universes/antiuniverses there are matter/anti-matter, as well as time/anti-time and space/anti-space [93]-[101].

4.5. Deja vu phenomenon

The corrected version of STR allows explaining another unusual phenomenon – déjà vu. It is so unusual that until now only medical scientists have tried to explain it. Translated from the French 'déjà vu', it means 'already seen'. And this term describes an allegedly psycho-emotional phenomenon corresponding to the state of a person in which it seems to him that he had already

been in exactly the same situation. Moreover, psychologists say that up to 97% of all people were in this state at least once in their lives.

And although a large number of hypotheses have been proposed to date to explain the phenomenon of déjà vu, it's all not clear here. As in the phenomena of dark matter and dark energy. And all the déjà vu hypotheses are not very convincing. They do not explain

why almost all people sooner or later find themselves in this state, regardless of place of residence, age, gender and other factors. If it is an infection, how is it spread? Why, in spite of everything, almost all of humanity is infected? And if it is an infection, then why without any consequences and complications? And if not an infection, then why did the phenomenon of déjà vu hit so many people? But why not everyone?

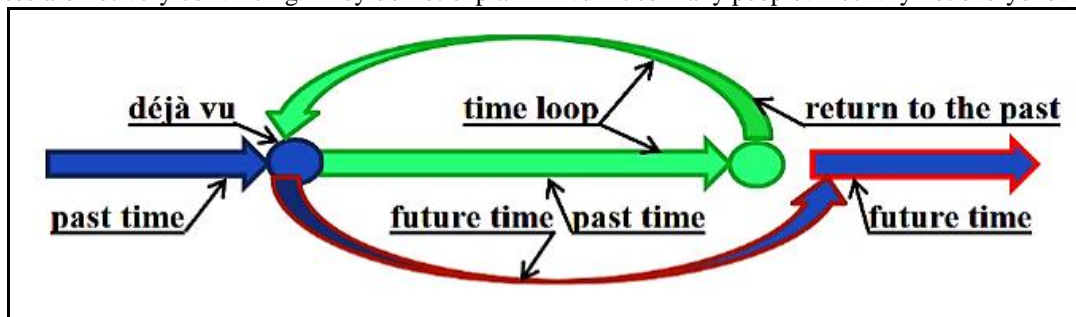


Fig. 6. Explanation of the 'déjà vu' phenomenon, which is created as a result of the intersection of the time branch 'return to the past' and the time branch 'past time' with the formation of a 'time loop'

Therefore, we propose another hypothesis - a physical one. Very unusual, but explaining everything. However, explaining in a different way than it is now customary in science to explain, using only the knowledge gained in the past. And we will explain using knowledge that is expected to be obtained in the future. Those suppose that in the future a highly developed human civilization, possessing extremely perfect computers, will be able to calculate any hypothetical situations in its development both in the past and in the future. Let's also assume that the inhabitants of these super-civilizations will be able to travel to their past. Then, the inhabitants of these super-civilizations, traveling into the past and making some changes to it, will be able to correct their future as well (see Fig. 6). And people who are exposed to such an impact, being in a time loop, from some point in time in their past further in the future will live in a different branch of time. And they will forget their previous life in the time loop, as the memories of everything that happened to them from their memory will somehow be erased. So this hypothesis really explains everything.

But a very important circumstance follows from it – the whole life of all people on Earth is currently under the control of aliens from the future and is recorded in the memory of their supercomputers. Therefore, they know everything about us. And they try not to interfere in our lives because it can change their future. And then they will not be able to return to their future to their relatives and friends. Nevertheless, sometimes they still find such situations in the past on their supercomputers, which correct their future in a favorable way, not excluding the possibility of returning to their relatives and friends. And these options are being implemented.

5. Conclusion

Thus, the article proves that the version of the special theory of relativity studied in the educational process of all universities - even the most prestigious ones - is incorrect. And the corrected version presented in the article has convincing experimental evidence and al-

lows many inexplicable things to be explained. Therefore, in the existing physics textbooks, the presentation of the special theory of relativity must be corrected.

Acknowledgments

The author gratefully acknowledges the insights, comments, and assistance of Olga Ilyinichna Antonova.

Conflict of Interest

Nobody has anything to do with this research.

References

1. Einstein A. 1920. Relativity: The Special and General Theory. H. Holt and Company. NY.
2. Bohm D. 2006. The Special Theory of Relativity. Routledge, Abingdon-on-Thames.
3. Penrose R. 2010. The Nature of Space and Time. Princeton University Press. Princeton.
4. Popper K. R. 2002. Conjectures and Refutations. The Growth of Scientific Knowledge. Routledge. London.
5. Antonov A. A. 2008. Physical Reality of Resonance on Complex Frequencies. European Journal of Scientific Research. 21(4). 627-641. <http://www.eurojournals.com/ejsr.htm>
6. Antonov A. A. 2009. Resonance on Real and Complex Frequencies. European Journal of Scientific Research. 28(2). 193-204. <http://www.eurojournals.com/ejsr.htm>
7. Antonov A. A. 2010. New Interpretation of Resonance. International Journal of Pure and Applied Sciences and Technology. 1(2). 1-12. http://doi.org/10.17686/sced_rusnauka_2010-888
8. Antonov A. A. 2010. Oscillation processes as a tool of physics cognition. American Journal of Scientific and Industrial Research. 1(2). 342-349. doi:10.5251/ajsir.2010.1.2.342.349
9. Antonov A. A. 2010. Solution of algebraic quadratic equations taking into account transitional processes in oscillation systems. General Mathematics Notes. 1(2). 11-16. http://doi.org/10.17686/sced_rusnauka_2010-88

10. Antonov A. A. 2013. Physical Reality of Complex Numbers. *International Journal of Management, IT and Engineering*. 3(4). 219-230. http://doi.org/10.17686/sced_rusnauka_2013-898
11. Antonov A.A. 2014. Correction of the special theory of relativity: physical reality and nature of imaginary and complex numbers. *American Journal of Scientific and Industrial Research*. 5(2). 40-52. doi:10.5251/ajsir.2014.5.2.40.52
12. Antonov A. A. (2015). The principle of physical reality of imaginary and complex numbers in modern cosmology: the nature of dark matter and dark energy. *Journal of Russian Physical and Chemical Society*. 87(1). 328-355. (in Russian). http://doi.org/10.17686/sced_rusnauka_2015-1119
13. Antonov A. A. 2015. Physical reality of complex numbers is proved by research of resonance. *General Mathematics Notes*. 31(2). 34-53. http://www.emis.de/journals/GMN/yahoo_site_admin/assets/docs/4_GMN-9212-V31N2.1293701.pdf
14. Antonov A. A. 2015. Ohm's law explains astrophysical phenomenon of dark matter and dark energy. *Global Journal of Physics* 2(2). 145-149. http://gpcpublishing.com/index.php?journal=gjp&page=article&op=view&path%5B%5D=29&path%5B%5D=pdf_14
15. Antonov A. A. 2015. Adjustment of the special theory of relativity according to the Ohm's law. *American Journal of Electrical and Electronics Engineering*. 3(5). 124-129. doi: 10.12691/ajeec-3-5-3
16. Antonov A.A. 2016. Physical Reality and Nature of Imaginary, Complex and Hypercomplex Numbers. *General Mathematics Notes*. 35(2). 40-63. http://www.geman.in/yahoo_site_admin/assets/docs/4_GMN-10932V35N2.31895146.pdf
17. Antonov A.A. 2016. Ohm's Law is the general law of exact sciences. *PONTE*. 72(7) 131-142. doi: 10.21506/j.ponte.2016.7/9
18. Antonov A.A. 2016. Ohm's Law explains phenomenon of dark matter and dark energy. *International Review of Physics*. 10(2). 31-35 <https://www.praiseworthyprize.org/jsm/index.php?journal=irephy&page=article&op=view&path%5B%5D=18615>
19. Antonov A.A. 2016. Ohm's law refutes current version of the special theory of relativity. *Journal of Modern Physics*. 7. 2299-2313. <http://dx.doi.org/10.4236/jmp.2016.716198>
20. Antonov A.A. 2017. The physical reality and essence of imaginary numbers. *Norwegian Journal of development of the International Science*. 6. 50-63. <http://www.njd-iscience.com>
21. Antonov A. A. 2018. Physical Reality and Essence of Imaginary Numbers in Astrophysics: Dark Matter, Dark Energy, Dark Space. *Natural Science*. 10(1). 11-30. doi:10.4236/ns.2018.101002
22. Antonov A. A. 2019. The special theory of relativity in the 20th century was not and, moreover, could not be created. *Journal of the Russian physical and chemical society*. 91(1). 57-94. (In Russian) <http://www.rusphysics.ru/files/Antonov.91-1.pdf>
23. Antonov A. A. 2020. Albert Einstein was ahead of his time: the existing version of the special theory of relativity was not completed by him due to the lack of experimental data obtained only in the 21st century. *Journal of the Russian physical and chemical society*. 92(1). 39-72. (in Russian) http://www.rusphysics.ru/files/Antonov_Albert_92-1.pdf
24. Antonov A. A. 2021. The special theory of relativity presented in physics text-books is incorrect. 77 International scientific conference of Eurasian Scientific Association "Theoretical and practical issues of modern science". Moscow. ESA. 11-15. (in Russian)
25. Antonov A. A. 2021. Version of the special theory of relativity that is studied in all physics text-books is incorrect. *Österreichisches Multiscience Journal (Innsbruck, Austria)*. 43(1). 17-22. <http://osterr-science.com>
26. Antonov A. A. 2021. Generally accepted version of the special theory of relativity contained in physics textbooks is incorrect. *The scientific heritage*. (Budapest, Hungary). 73(2). 39-43. DOI: 19.24412/9215-0365-2021-73-2-39-43
27. Antonov A. A. 2021. Special theory of relativity, which is studied in physics textbooks, is incorrect. *German International Journal of Modern Science*. 16, 49-53. DOI: 10.24412/2701-8369-2021-16-49-53
28. Antonov A. A. 2021. Special theory of relativity, which is studied in all physics textbooks, is incorrect. *Danish Scientific Journal*. 51(1). 31-35. <http://www.danish-journal.com>
29. Antonov A. A. 2021. Special theory of relativity taught in all physics textbooks is incorrect. *Annali d'Italia*. 22(1). 39-44. <https://www.anditalia.com/>
30. Antonov A. A. 2021. Special theory of relativity presented in physics textbooks is wrong. *Norwegian Journal of development of the International Science* 68(1). 3-7. DOI: 10.24412/3453-9875-2021-68-3-7.
31. Antonov A. A. 2021. In all physics textbooks an erroneous version of special theory of relativity is given. *International independent scientific journal*. 31. 34-39. <http://www.iis-journal.com>
32. Antonov A. A. 2021. Special theory of relativity taught in physics textbooks is wrong. *Journal of science*. Lyon. 23. 47-52. <https://www.joslyon.com/>
33. Antonov A. A. 2021. All physics text-books study incorrect special theory of relativity. *Sciences of Europe*. (Praha, Czech Republic). 79(1). 30-35. DOI: 10/24412/3162-2364-2021-79-30-35
34. Antonov A.A. 2021. Experimental proofs of falsity of the version of the special theory of relativity presented for study in physics textbooks and truth of its alternative version. 80 International scientific conference of Eurasian Scientific Association "Development of science and education in the context of global instability". Moscow. ESA. 8-17. (in Russian) <https://esa-conference.ru/sborniki/?y=2021>
35. Antonov A. A. 2021. The fallacy of the STR version studied in physics textbooks proved experimentally. *Österreichisches Multiscience Journal (Innsbruck, Austria)*. 45(1). 17-26.

- <http://osterr-science.com>
36. Antonov A. A. 2021. Experimental evidences for the fallacy of the STR version in the physics textbooks. *European Journal of Applied Sciences. Services for Science and Education. UK.* 9(6). 349-364. DOI:10.14738/aivp.96.11304.
37. Antonov A. A. 2021. If the STR version in physics textbooks were true, we would never have heard the music of the piano and the bell ringing, there would be no television, no cellular telephony, no radar or GPS navigation, we would not even be aware of the existence of resonance and Ohm's law as interpreted by Steinmetz, and our children could not swing on the swings. *The scientific heritage (Budapest, Hungary).* 78(2). 41-50.
DOI: 10.24412/9215-0365-2021-78-2-41-50
38. Antonov A. A. 2021. Experimental refutations of the STR version contained in physics textbooks and confirmations of the truth of its alternative version. *German International Journal of Modern Science.* 22. 52-61. DOI: 10.24412/2701-8369-2021-22-52-61
39. Antonov A. A. 2021. The STR version in physics textbooks must be corrected, because if it were true, there would be no tsunamis or Indian summer in nature, we would be never have heard piano music, engineers would be not have been able to create television, cell phones, GPS trackers, and even children would not be able to swing on swings. *Danish Scientific Journal.* 54(1). 29-38. <http://www.danish-journal.com>
40. Antonov A. A. 2021. Experimental evidence of the incorrectness of the STR version studied in physics textbooks. *Annali d'Italia.* 25(1). 32-41. <https://www.anditalia.com/>
41. Antonov A. A. 2021. The incorrect-ness of the STR version presented in physics textbooks proven experimentally. *Norwegian Journal of development of the International Science* 74(1). 3-7. DOI: 10.24412/2453-9875-2021-74-53-62.
42. Antonov A. A. 2021. Experimental refutations of the generally accepted version of the SRT studied in physics textbooks. *International independent scientific journal.* 34(1). 23-32.
<http://www.iis-journal.com>
43. Antonov A. A. 2021. Experimental refutations of the SRT version in the physics textbooks. *Journal of science. Lyon.* 26(1). 29-37. <https://www.joslyon.com/>
44. Antonov A. A. 2021. Experimental evidences for the fallacy of the STR version in physics textbooks. *Sciences of Europe (Praha, Czech Republic).* 82(2). 19-28.
DOI: 10.24412/3162-2364-2021-82-2-19-28
45. Antonov A. A. 2021. The version of the STR stated in physics textbooks is incorrect, since it denies the existence of radio engineering. 82 International Scientific Conference of the Eurasian Scientific Association "Scientific results in theory and practice". Moscow. ESA. 11-15. (in Russian). <https://esaconference.ru/sborniki/?y=2021>
46. Antonov A. A. 2022. The version of STR presented in physics textbooks is incorrect, since it follows from it that radio engineering should not exist. *European Journal of Applied Sciences. Ser-vices for Science and Education. UK.* 10(1). 440-445.
DOI://doi.org/10.14738/aivp.101.2022
47. Antonov A. A. 2022. The existence of radio engineering refutes the physics textbooks' version of STR. *The scientific heritage. (Budapest, Hungary).* 83(1). 19-22.
DOI: 10.24412/9215-0365-2022-83-1-19-22
48. Antonov A.A. 2022. The fundamental Ohm's law in radio engineering as interpreted by Steinmetz, which proves the physical reality on imaginary capacitive and inductive reactances, refuted the version of the STR presented in physics textbooks even before its creation. *German International Journal of Modern Science.* 26. 50-53. DOI: 10.24412/2701-8369-2022-26-50-63
49. Antonov A.A. 2022. The version of STR stated in physics textbooks is refuted by the existence of radio engineering. *Danish Scientific Journal.* 56. 56-59. <http://www.danish-journal.com>
50. Antonov A.A. 2022. The version of STR presented in physics textbooks is incorrect because it denies the possibility of the existence of Ohm's law as interpreted by Steinmetz and, consequently, the existence of radio engineering. *Annali d'Italia.* 28(1), 43-47. <https://www.anditalia.com>
51. Antonov A.A. 2022 The version of STR stated in physics textbooks is refuted by the existence of radio engineering. *Norwegian Journal of development of the International Science.* 78(1). 63-67. DOI: 10.24412/3453-9875-2022-78-63-66.
52. Antonov A.A. 2022. If the physics textbook version of STR were true, then Ohm's law should not exist in nature, and therefore all radio engineering would not exist. *International independent scientific journal.* 36. 16-19. <http://www.iis-journal.com>
53. Antonov A.A. 2022. If the version of STR in physics textbooks were true, then there would be no radar, no television, no radio navigation, no telecommunication and many other things. *Journal of science. Lyon.* 28. 76-79. <https://www.joslyon.com/>
54. Antonov A.A. 2022. The version of STR set out in physics textbooks is incorrect because it states that Ohm's law as interpreted by Steinmetz does not really exist, and therefore radio engineering does not exist either. *Sciences of Europe (Praha, Czech Republic).* 87(1). 54-57.
DOI: 10.24412/3162-2364-2022-1-54-57
55. Antonov A.A. 2022. Why the physics textbooks teach an incorrect version of the special theory of relativity which denies the existence of radio and electrical engineering. *Proceedings of the III International Scientific and Practical Conference "Challenges and problems of modern science"*. London. UK. 78-86. DOI <https://doi.org/10.5281/zenodo.7486814>
56. Antonov A.A. 2023. Why is the incorrect version of the special theory of relativity still being studied in physics textbooks, despite all its experimental refutations. *European Journal of Applied Sciences. Services for Science and Education. UK.* 11(2). 61-71.
DOI: <https://doi.org/10.14738/aivp.112.1412>
57. Antonov A. A. 2023. Why is the incorrect version of the special theory of relativity, being studied in physics textbooks, refuted by the existence of radio and

electrical engineering even before its creation. The scientific heritage (Budapest, Hungary). 105. 83-89.

DOI: 10.5281/zenodo.7560145.

58. Antonov A. A. 2023. Why is the incorrect version of the special theory of relativity, that denies the possibility of the existence of radio and electrical engineering, being studied in textbooks of physics? German International Journal of Modern Science. 48. 23-29.

DOI: <https://doi.org/10.5281/zenodo.7541137>.

59. Antonov A. A. 2023. Who needs the incorrect version of the special theory of relativity taught in physics textbooks despite all its experimental refutations? Annali d'Italia. 39. 64-70 DOI: 10.5281/zenodo.7568916

60. Antonov A. A. 2023. Why is the incorrect version of the special theory of relativity, that denies the possibility of the existence of radio and electrical engineering, being studied in textbooks of physics? Norwegian Journal of development of the International Science. 100. 27-33.

<https://doi.org/10.5281/zenodo.7528512>

61. Antonov A. A. 2023. Why is the incorrect version of special relativity still being studied in physics textbooks, which denies Ohm's law for alternating current used worldwide by millions of radio and electrical engineers? International independent scientific journal. 46. 38-44.

<https://doi.org/10.5281/zenodo.7525751>

62. Antonov A.A. 2023. Why the incorrect version of the special theory of relativity, which denies the possibility of the existence of radio engineering and electrical engineering, has not yet been refuted. Journal of science. Lyon. 40. 19-25. <https://doi.org/10.5281/zenodo.7704392>

63. Antonov A.A. 2023. Why the incorrect version of special relativity, refuted by the existence of radio and electrical engineering, is still studied in all university physics textbooks. Danish Scientific Journal. 69. 66-71. <https://doi.org/10.5281/zenodo.7692053>

64. Antonov A.A. 2023. Why is the generally accepted version of SRT, which denies the possibility of the existence of radio engineering and electrical engineering, tsunamis and bell ringing, the physical phenomenon of resonance and Ohm's physical law for alternating current, music created by the piano and even swing swings on the playground, nevertheless, is still considered correct and studied in physics textbooks? Sciences of Europe (Praha, Czech Republic) 112. 44-50.

65. Antonov A. A. 2020. Comparative Analysis of Existing and Alternative Version of the Special Theory of Relativity. Journal of modern physics. 11(2). 324-342. 2020.

66. Antonov A. A. 2012, Earth, portals, parallel universes. American Journal of Scientific and Industrial Research. 3(6). 464-473. doi:10.5251/ajsir.2012.3.6.464.473

67. Antonov A. A. (13 January 2016). How Portals of the Invisible Multiverse Operate. Science PG Frontiers.

<http://www.sciencepublishing-group.com/news/sciencepgfrontiersinfo?articleid=7>

68. Antonov A. A. 2016. Stargates of the hidden

multiverse. Philosophy and cosmology. 6. 11-27. <http://ispcjournal.org/journals/2016-16/Antonov16.pdf> Publishing House.

69. Chernobrov, V. 2000. Encyclopedia of mysterious places of the Earth. Veche Publishing House. Moscow. (in Russian)

70. Chernobrov, V. 2004. Encyclopedia of mysterious places of Russia. Veche Publishing House. Moscow. (in Russian)

71. Chernobrov, V. 2007. Encyclopedia of mysterious places of the Earth and space. Veche Publishing House. Moscow. (in Russian)

72. Chernobrov, V. 2009. Encyclopedia of mysterious places of Moscow and Moscow region. Publishing House Helios ARV. Moscow. (in Russian)

73. Antonov A. A. 2020. How to See Invisible Universes. Journal of Modern Physics. 11(05), 593-607. DOI: 10.4236/jmp.2020.115039

74. Antonov A. A. 2020. Can invisible universes be seen? International independent scientific journal. 21(2). 51-60. <http://www.iis-journal.com>

75. Antonov A. A. How to discover invisible universes. Norwegian Journal of development of the International Science. 42(1). 36-48. <http://www.njd-iscience.com> (In Russian)

76. Antonov A. A. 2020. Universes Being Invisible on Earth outside the Portals Are Visible in Portals. Natural Science. 12(8). 569-587. <https://doi.org/10.4236/ns.2020.128044>

77. Antonov A. A. 2021. Invisible universes can be seen in anomalous zones. International independent scientific journal. 23(1). 28-44. <http://www.iis-journal.com>

78. Antonov A. A. 2020. Invisible universes can be seen in anomalous zones. Danish Scientific Journal. 43(1). 9-24. <http://www.danish-journal.com>

79. Antonov A. A. 2023. Geophysical exploration of portals will provide new knowledge about space. Proceedings of the III International Scientific Conference. Philadelphia. USA. "The modern vector of the development of science". 85-101. DOI <https://doi.org/10.5281/zenodo.7709801>

80. Antonov A.A. 2023. Geophysical re-searches of portals will allow to discover invisible universes and to explore them. European Journal of Applied Sciences. Services for Sciences and education. UK. 11(2). 370-391

81. Antonov A.A. 2023. The necessity of geophysical researches of portals. The scientific heritage. (Budapest, Hungary). 110. 77-90.

82. Antonov A.A. 2023. Geophysical researches of portals will allow to prove the existence of invisible universes and to explore them. German International Journal of Modern Science. 53. 64-78

83. Antonov A.A. 2023. The relevance of geophysical researches of portals. Danish Scientific Journal. 70. 75-89.

84. Antonov A.A. 2023. Geophysical re-searches of portals will allow to prove the existence of hidden Multiverse and to research it. Annali d'Italia. 42. 71-85.

85. Antonov A.A. 2023. Why geophysical re-searches of portals are necessary. Norwegian Journal of

development of the International Science. 105. 83-96.

86. Antonov A.A. 2023. Geophysical researches of portals will allow to prove the existence of hidden Multiverse and to research it. International independent scientific journal. 49. 23-37.

87. Antonov A.A. 2023. Geophysical researches of portals will allow to discover invisible universes. Journal of science. Lyon. 41. 26-38.

88. Antonov A.A. 2023. Geophysical researches of portals will allow to prove the existence of hidden Multiverse and to research it. Sciences of Europe. 114. 76- 90

89. Hinshaw G., Larson D., Komatsu E., et al. 2013. Nine Year Wilkinson Anisotropy Probe (WMAP) Observations: Cosmological Parameter Results. arXiv:1213.5226 [astro-ph/CO].

90. Adam R., Ade P.A.R., Aghanim N., et al. 2015. Planck 2015 Results. 1. Overview of Products and Scientific Results. arXiv:1502.01582v2 [astro-ph.CO].

91. Antonov A. A. 2015. Quaternion structure of the hidden Multiverse: explanation of dark matter and dark energy. Global Journal of Science Frontier Research A: Physics and Space Science. 15(8). 8-15.

https://globaljournals.org/GJSFR_Volume15/2-Quaternion-Structure-of-the-Hidden.pdf

92. Antonov A. A.(2016. Verifiable Multiverse. Global Journal of Science Frontier Research: A Physics and Space Science. 16(4) 4-12 doi: 10.17406/GJSFR

93. Kantor I. L., Solodovnikov A. S., 1989. Hypercomplex numbers. An elementary introduction to algebras. Springer New York, NY

94. Antonov A. A. 2021. Antimatter, Anti-Space, Anti-Time. Journal of Modern Physics, 12(05), 646-660. DOI: 10.4236/jmp.2021.125042.

95. Antonov A. A. Antimatter, anti-space, anti-time. 2021. 75 international conference of the Eurasian

Scientific Association "Strategies for the sustainable development of world science". Moscow. ESA. 1-4. DOI: 10.5281/zenodo.4926585

96. Antonov A. A. 2021. Do antimatter, anti-time and anti-space exist in nature. Annali d'Italia. 20(1). 14-24. <https://www.anditalia.com/>

97. Antonov A. A. 2021. From the alternative version of the SRT it follows that there is not only antimatter, but also anti-space and anti-time. Norwegian Journal of Development of the International Science. 62(1). 41-51. DOI: 10.24412/3453-9875-2021-62-1-41-51

98. Antonov A. A. 2021. Antipodes in space. German International Journal of Modern Science. 11(1). 15-25. DOI: 10.24412/2701-8369-2021-11- 1-15-25

99. Antonov A. A. 2021. There is not only antimatter, but also anti-space and anti-time. Journal of science. Lyon. 21. 22-30. <https://www.joslyon.com/>

100. Antonov A. A. 2021. Where are antimatter, anti-space and anti-time? Österreichisches Multiscience Journal. (Innsbruck, Austria). 40(1). 34-44. <http://osterrscience.com>

101. Antonov A. A. 2021. Do antimatter, anti-time and anti-space exist in nature? Danish Scientific Journal. 48(1). 64-74. <http://www.danish-journal.com>

102. Antonov A. A. 2021. Antipodes in space. International independent scientific journal. 28. 50-61. <http://www.iis-journal.com>

103. Antonov A. A. 2021. How alternative version of SRT explains the existence of antimatter, anti-space and anti-time? The scientific heritage (Budapest, Hungary). 67(1). 11-21.

104. Antonov A. A. 2021. How alternative version of SRT explains the existence of antimatter, anti-space and anti-time? The scientific heritage (Budapest, Hungary). 67(1). 11-21.

DOI: 10.24412/9215-0365-2021-67-1-11-21