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Abstract: Through a brief analysis of the basic principle of relativity, it is found that there is a contradiction in principle between general relativity and special relativity in solving the specific problem of the clock moving around the earth, and one of them must be wrong. Through comparative analysis of five physical phenomena and experiments, it is proved that there are serious problems in the space concept of relativity theory and classical physic. At the same time, the different concept of absolute airspace is further expounded and demonstrated, and the related space-time physical phenomena and experiments are perfectly explained by this concept. According to this idea, a new time transformation relation is deduced and its correctness is demonstrated. It is proved that the principle of special relativity and special relativity are wrong, and a series of physical laws and physical explanations generated by special relativity may also be wrong, and a series of amendments or new interpretations need to be made.

Keywords: absolute airspace; principle of relativity; reference system; Spatiotemporal Transformation Effect

1. Space-time concepts and basic principles of relativity

The concept of time and space is the core basic concept of classical physics and relativity, and also the most essential difference between these two theoretical systems.

Classical physic holds that space and time are universally absolute, and that their spatial reference systems are universally absolutely stationary. And relativity says that there is no absolute space-time, there are no absolutely stationary spatial reference frames, and all (inertial) reference frames are relative and equal rights. And, due to the difference in velocity (acceleration) and gravity between inertial reference frames produces a spatio-temporal transformation effect. Such as time timing and space size measurement different and so on, and bring a series of physical law adjustment and new physical interpretation.

According to relativity, space-time is one. Therefore, this paper takes the time transformation effect as the main line, and makes a brief analysis of the basic principle of relativity.

1.1. Basic principles of the time transformation effect of special relativity

The basic principle of the time transformation effect of special relativity can be simply described as: An inertial reference frame that moves uniformly in a straight line   than one that is relatively stationary reference frame, the time delay effect will occur, that is, the time measure will slow down. Its basis mathematical expression is:

$$d t=d t_0(1-v^2/C^2)^{1/2} \tag{01}$$

Where: t_0 is the relatively static clock time; t is the clock time of relative motion; v is the relative linear uniform speed of the moving clock relative to the stationary clock; C is the speed of light. There's always $d t < d t_0$, Its time meaning and logical relationship are, If the relative motion clock time is go by one second, the relative stationary clock time will go by more than one second; That is, clock time in relative motion runs slower than clock time at relative rest.

1.2. Basic principles of the time transformation effect of general relativity

The basic principle of the time transformation effect of general relativity can be simply described as: Due to the change of static gravity of the reference frame; And according to the equivalence principle of general relativity, the "equivalent gravity" caused by the accelerated motion of the reference frame (hereafter referred to as "equivalent gravity") will produce a change in the speed of time measurement.

In order to facilitate the analysis, this paper simplifies the time transformation effect problem of general relativity to the clock problem moving around the earth's equator as a specific analysis object. The mathematical theoretical analysis adopts the results of Professor Duan Yishi's book General Relativity and Gauge Theory of Gravitation [1]. There are two basic formulas for mathematical:

$$t_1 = t(1 - 2GM/C^2R - R^2\omega^2/C^2)^{1/2} \qquad (02)$$

$$t_2 = t[1 - GM/C^2R + gh/C^2 - R^2\omega^2/2C^2 - R^2\omega^2h/C^2R + v(v + 2(R+h)\omega)/2C^2]^{1/2} \qquad (03)$$

In the formula, t_1 is the time of the ground relatively stationary clock on the equator; t_2 is the time of a clock moving in a constant circle around the Earth, high above the equator h; t is the coordinate time difference from the beginning to the end of the event; G is the universal gravitation constant; M is the mass of the Earth; R is the radius of the Earth; $g = GM/R^2$; ω is the angular speed of the earth's rotation; C is the speed of light. v is the speed of the moving clock relative to a reference object on the Earth's surface, moving east takes a positive number and moving west takes a negative number.

Formulas (2) and (3) are understood from basic principles and contain three time transformation relationships.

First is the coordinate time difference t from the beginning to the end of the event, and its time transformation relation is 1.

The second is the time effect produced by the change of static gravity. In formula (2), the time effect relationship is the term $2GM/C^2R$ in the root sign; In formula (3), the time effect relationship is $GM/C^2R + gh/C^2$ in the root sign.

The third is the time effect caused by the equivalent gravity caused by centripetal acceleration when doing uniform circular motion. In formula (2), the time effect relationship is the $R^2 - \omega^2/C^2$ term in the root sign; In formula (3), the time effect relationship is $R^2\omega^2/2C^2 - R^2\omega^2h/C^2R + v(v + 2(R+h)\omega)/2C^2$ in the square root.

1.3. Differences in basic principles between the time transformation effects of special relativity and general relativity

The first is that the clock movement mode that produces the time transformation is different; The condition for special relativity is that clocks move uniformly in a straight line; The equivalent gravity of general relativity holds only if the clock is accelerating.

Second, the basic principle of producing time transformation is different; Special relativity is based on two basic principles, using mathematical geometry to derive the time effect transformation relationship, But it is quite certain that uniform motion in a straight line does not produce an equivalent gravitational effect. The fundamental physical principle behind the time effect of general relativity is the variation of static and equivalent gravitation.

Third, formulas (02) and (03) derived according to general relativity, there is obviously space-time anisotropy caused by the rotation of the earth. That is, clocks with the same other parameters have different timing speeds due to different directions of movement or latitudes. Formula (01) of special relativity is completely free of the anisotropy of Earth's space-time.

In other words, there is a principled contradiction between general relativity and special relativity when it comes to clocks moving around the Earth's equator. It means that one of them must be wrong.

2. Physical phenomena and experiments on space-time problems

There are many physical phenomena and experiments on the space-time problem, but the author believes that there are five main representative ones:

2.1. Stellar aberration phenomenon

The phenomenon of stellar aberration shows from the physical principle that there is an absolutely static space in the universe. From the current theoretical results, relativity can not deny this phenomenon from the physical principle to prove the existence of absolute rest space.

2.2. Michelson-Morley experiment

It is now widely believed that the Michelson-Morley experiment denies the existence of aether and universal absolute space. However, from a rigorous logical point of view, the above conclusion is not unique (discussed later).

2.3. Electromagnetic induction phenomenon

Electromagnetic induction is an important basis for demonstrating the establishment of the principle of relativity [2]. Einstein believed that there is only relative motion in this phenomenon, and that the relative motion between magnetic and electric fields is equivalent. This view is also open to other interpretations (more on this later).

2.4. Geosynchronous geostationary orbit satellite problem [3]

A geostationary satellite in geostationary orbit has no theoretical change in motion from any stationary reference on the Earth's surface. The physical properties of the motion are described according to the spherical space coordinate reference system with the earth's center of mass as the center of the circle and absolute rest relative to the earth's rotation, which fully conforms to the relevant laws of Newtonian mechanics. It is clearly incompatible with the inertial frame of reference of relativity.

2.5. Haffeler-Keating experiment [4][5]

In 1971, in the United States, J.C. Haffele and R.E. Keating flew around the world twice, once east and once west, on regular commercial flights with four cesium atomic clocks. Based on the actual path of each flight, a theoretical prediction was made that the flight clock should be 40±23 nanoseconds (ns) slower for the eastbound flight and 275±21ns faster for the westbound flight compared to the reference clock of the United States Naval Observatory. The actual results of the experiment showed that the flight clock was 59±10ns slower for the eastbound flight and 273±7ns faster for the westbound flight. This experiment will be referred to as the Hafele-Keating Experiment.

The experiment was intended to test general relativity, and the results were in good agreement with the theory. But there are two serious problems.

First, it is obviously verified that there is anisotropy in geophysical space-time (east-west clocks with the same speed and clocks at different latitudes are not the same time); The absence of anisotropy in geophysical space-time is a prerequisite for the establishment of the principle of relativity [6].

Second, the theoretical prediction of the experiment adopts a spherical coordinate system with the Earth's center of mass as the center of the circle and is absolutely stationary relative to the Earth's rotation [1][4][5]. This is obviously different from the relativistic concept of space and is a negation of its concept of space.

To sum up, among the five physical phenomena and experiments, only the Michelson-Morley experiment and electromagnetic induction phenomenon can constitute a limited support for the relativistic space concept, and the verification results of these two experiments and phenomena are not unique, and there are other possibilities. The other three phenomena or experiments support the existence of absolute stationary space reference systems. Therefore, the physical and experimental basis of the relativistic space concept is insufficient, and the contradiction between the five physical phenomena and the experiment cannot be explained, and there must be serious problems.

3. Elaboration of different spatial concepts

According to the previous discussion and analysis, the theory of relativity has problems in the concept of space, which cannot explain the contradiction between the five physical phenomena and the experiment, and its concept of space needs to be revised.

In the paper "Discussion on Physical Space Problems" [3], the author put forward the concept of "absolute airspace". The so-called "absolute airspace" means that every star (or matter) has a circular centered on its center of mass, local, with relatively independent physical properties, spherical absolute (only relative to the star or matter) stationary space coordinate reference system. This paper calls it local absolute space or absolute airspace.

The physical properties of substances that move in absolute airspace (see [3] for the determination of the extent of absolute airspace) can only be accurately described by the absolute airspace reference system. All so-called (inertial) reference systems cannot exist independently of the corresponding absolute airspace, and cannot be equal rights to the absolute stationary reference system of absolute airspace. But the absolute stationary reference systems between different absolute airspace are equal rights, and their physical laws are the same.

The concept of absolute airspace also shows that space and matter are inseparable objective existence, and the space reference system cannot be separated from the corresponding star (or matter), and is absolutely stationary relative to the star (matter). Stars move with each other (matter with matter); Therefore, space is the coexistence of absolute stillness within absolute airspace and relative motion between absolute airspace. Described as a whole, it is the coexistence of absolute and relative.

The astrospace as a whole is still a huge absolute airspace, but its physical properties are not uniform, each local absolute airspace within the scope of its physical properties have considerable independence, the space is a collection of all kinds of absolute airspace and the relative relationship between them.

The idea of absolute airspace and its corollary The absolute airspace of the Earth is clearly formed by gravitation. The conclusion that other forms of distant forces (such as electrostatic force, magnetic force, etc.) can also form the corresponding absolute airspace can perfectly explain all kinds of contradictions and phenomena about the physical properties of space.

4. Explanation of several physical phenomena and experiments

4.1. Explanation of stellar aberration

According to the concept of absolute airspace proposed by the author, the space is a collection of all kinds of absolute airspace and their relative relations, and the astrospace as a whole is still a huge absolute space, but its physical properties are not uniform. If we ignore the disequilibrium of the local physical properties of the astrospace, the astrospace as a whole can still be regarded as an absolutely static space. Therefore, under the concept of absolute airspace, the phenomenon of stellar aberration can be explained and understood.

4.2. Interpretation of the Michelson-Morley experiment

Due to the relative independence of the physical properties of the Earth's absolute airspace, the solar absolute airspace has little influence on the physical properties within the range of the Earth's absolute airspace, so the experiment cannot detect.

Why couldn't the Michelson-Morley experiment detect the effects of the Earth's rotation? The main reason is that the required precision cannot be achieved. The maximum linear speed of the earth's rotation is about 0.46km/s, The Earth orbits the sun at a speed of 30km/s, which is 70 times the linear speed of the Earth's rotation and more than 4000 times the square speed. Even if the experimental device is only amplified one hundred times, it needs a flat field with a diameter of three kilometers, and the equipment must be able to rotate horizontally, which is difficult to do in reality.

The reason why the Haffeler-Keating experiment was able to detect the anisotropy of the Earth's space-time is because of the long distance of the aircraft (thirty to forty thousand kilometers), the time is also very long (forty to fifty hours), and the accuracy of the cesium atomic clock is very high (10^{-10}s).

4.3. Explanation of electromagnetic induction phenomenon

Because magnetic and electric forces, like gravity, are forces at a distance. According to the corollary of the absolute airspace concept, the magnetic or electric forces form an absolute airspace. Therefore, the motion between the magnetic field and the electric field is not relative, but an absolute motion relationship within a certain range (local).

As for the geostationary orbit satellite problem and the Haffeler-Keating experiment, they are in complete agreement with the absolute airspace concept and are the most direct and powerful proof of the absolute airspace concept, so there is no need to explain it any further.

The space concept of classical physics and relativity can not perfectly explain the five space-time physical phenomena and experiments, and can not eliminate the contradictions between them, so there are bound to be problems. The space concept of absolute airspace can be explained satisfactorily and completely eliminate all existing contradictions. Therefore, the space concept of absolute airspace is more scientific and reasonable, and should also be correct.

5. Adjustment and analysis of the time transformation relation of special relativity

5.1. Adjustment of the time transformation relation of special relativity

According to the local absolute rest coordinate reference system of absolute airspace, it is assumed that there is a time t_s with absolute velocity of zero in the absolute space of the earth, and the time of the earth surface relative to the rest clock of the surface object is t_0, Its absolute velocity is v_0 (the linear speed at which the Earth rotates). A moving clock is timed t, and its absolute velocity in the corresponding absolute spatial space is $\mathbf{v}$. According to the basic relation (1) of the time transformation in special relativity, the following follows:

$dt_0/dt_s=(1-v_0^2/C^2)^{1/2}$；

$dt/dt_s=(1-\mathbf{v}^2/C^2)^{1/2}$；

$$dt/dt_0=[(C^2-\mathbf{v}^2)/(C^2-v_0^2)]^{1/2} \tag{04}$$

Thereinto:

$$v_0=\omega R\cos\theta \tag{05}$$

ω is the angular speed of the earth's rotation; R is the radius of the earth at which the relative stationary clock is located; θ is the latitude of the Earth relative to the stationary clock.

$$\mathbf{v}=\mathbf{v}_r+\mathbf{v}_{r0} \tag{06}$$

$\mathbf{v}_r$ is the relative speed vector of the motion clock; $\mathbf{v}_{r0}$ is the linear velocity vector of the Earth's rotation at the position of the motion clock.

5.2. The main difference between Formula (04) and formula (01) after adjustment

Although formula (04) comes from formula (01), there is an essential difference between the two because of the different concept of space.

First, the coordinate reference system is different; Formula (04) can only use the local absolute coordinate reference system of absolute airspace; Formula (01) can adopt any inertial coordinate reference system that conforms to the principle of special relativity.

Second, the speed parameters of the clock are essentially different. The formula (04) can only use the absolute velocity in the local absolute coordinate reference system of absolute airspace. Formula (01) can take the relative velocity in any inertial coordinate reference system that conforms to the principle of special relativity.

Third, the calculation results of formula (04) and formula (01) will be different, and this difference will vary with the rotation speed of the star (matter) forming absolute airspace, and when the rotation speed is very large (such as high-speed rotating neutron stars, etc.), the difference will be very large.

Fourth, formula (04) can reflect the anisotropy of the time and space of the earth (or other rotating stars); However, formula (01) does not have the anisotropy of Earth's space-time.

5.3. Comparison and argument of Formula (04) and formula (01)

First, formula (04) comes from the spatial concept of absolute airspace, as long as its spatial concept is correct, formula (04) should also be correct. In Section 4, this paper proves that the space concept of absolute airspace is more scientific and reasonable. In Formula (02) and Formula (03) of general relativity, the absolute stationary reference frame with the Earth's center of mass as the center of the circle has been obviously applied in practice, which is completely consistent with the space concept of absolute airspace, and its theoretical calculation results have been verified by the Haffeler-Keating experiment. Therefore, the space concept of absolute airspace is correct, and the formula (04) should also be correct.

Second, the earth (or other rotating stars) space-time anisotropy; This is an objective fact that has been verified by the general relativity theory and the Haffeler-Keating experiment. However, formula (01) does not exist the anisotropy of the earth's time and space, which proves that formula (01) cannot fully reflect the objective facts and is wrong.

Third, formula (04) cannot accept the principle of special relativity, The laws of physics can only have equal right in local stationary coordinate reference systems of different absolute airspace. The correctness of formula (04) and the error of formula (01) mean that the principle of special relativity is wrong.

Fourth, the correctness of formula (04) and the error of formula (01) also mean that special relativity is wrong, and a series of physical laws and physical interpretations generated by special relativity will also have corresponding errors. It is necessary to use the space concept of absolute airspace and formula (04) to make corresponding adjustments and explanations.

6. conclusion

6.1 Through the analysis of the basic principles of relativity, it is found that there is a contradiction in principle between general relativity and special relativity in the question of the clock moving around the earth's equator. It means that one or the other must be wrong.

6.2 Through the analysis of five physical phenomena and experiments, it is proved that the physical and experimental basis of the relativistic space concept is insufficient, and the contradiction between the five physical phenomena and experiments cannot be explained, so there must be serious problems.

6.3 The different spatial concepts of absolute airspace proposed by the author are further elaborated. The space concept of absolute airspace is different from the space concept of classical physics and relativity, and can perfectly explain the five physical phenomena and experiments and eliminate the contradictions between them. It shows that the space concept of absolute airspace is more scientific and reasonable, and should be correct.

6.4 According to the space concept of absolute airspace, the time transformation relation of special relativity is deduced and adjusted, and a new time transformation relation is obtained. And its correctness is proved from many angles.

6.5 demonstrates that the principle of special relativity and special relativity are false and may lead to corresponding errors in a series of physical laws and interpretations resulting from special relativity.

Relativity and quantum mechanics are the two foundations of modern physic. If the foundation is wrong, it will inevitably bring a series of physical problems. Therefore, for a series of possible errors in physical laws and interpretations resulting from errors in special relativity, It is necessary to revise or make new explanations with correct or more scientifically reasonable theories. The project is enormous, and its description, analysis, and demonstration require a great deal of effort. The author will make unremitting efforts, but also hope that interested colleagues work together to expand the results.

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