

# Could the Universe be a gravitational field?

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## **Abstract:**

Scientists have explained the phenomenon of redshift in the universe by using the viewpoint of cosmic expansion, while the phenomenon of blueshift has perplexed academic circles for a long time. To solve this problem, the author conducted a thought experiment. The focus of the experiment was to let an elevator box at high altitude fall along a track and then compare the results observed by a person inside the box with the phenomena of redshift and blueshift observed by people on Earth. The results show that redshift and blueshift in the universe can be simulated above the Earth, indicating that cosmic space may have the features of a gravitational field. Thus, the author assumed that cosmic space is a gravitational field, analysed the movement pattern of celestial bodies in this context, and gave reasonable explanations for Earth's rotation deceleration, Venus's abnormal auto-rotation and global warming. Based on further association, the author argues that the continuous increase in the Ground's gravity may be the cause for the largest animal on the Earth becoming progressively lighter, and this derivation can be verified by correlated detection.

**Key words: Cosmic gravitational field; Ground gravity increase; Abnormal rotation of Venus; global warming**

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## **Introduction**

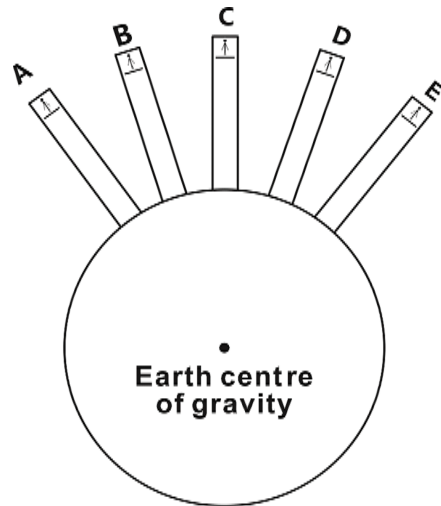
The Big Bang theory has been published for more than half a century and has had a profound influence. However, with the passage of time, it has become apparent that many phenomena in the Universe cannot be reasonably explained by this theory

or are even incompatible with it. For example, NASA reported discovering a 14.4-billion-year-old celestial body in the Omega star cluster of our galaxy, while the previously estimated cosmic age was merely 13.8 billion years old. If NASA is correct, then the cosmic age was wrongly estimated. Since the Big Bang theory was used as a reference in estimating the cosmic age, the accuracy of this theory is therefore disputable. In addition, the 3 K radiation detected in space has been proven to conform to the prediction of the Big Bang theory. However, some scholars have proposed that the 3 K radiation may be Planckian radiation (1), and it cannot be proven that this radiation is the trace left by the birth of the Universe. The literature indicates that the Big Bang theory has been debated by many scholars since its formulation, including Hubble. Of course, challenges themselves do not prove that the theory is wrong, but in fact, some challenges are worthy of consideration. Given this, the author thinks it is necessary to rethink the origin and operation law of the Universe. This paper aims to analysis regarding the nature of the Universe from the perspective of the Earth.

## **1. The gravity field possesses necessary conditions for the occurrence of redshift and blueshift**

In 1929, Hubble observed a phenomenon in the universe through a telescope, namely, the spectrum of light emitted by fixed stars far away from us is shifted towards the red end of the electromagnetic spectrum. This phenomenon is called the "Hubble redshift", and it was concluded that the farther a galaxy is from us, the faster it is moving away from us. This discovery astonished the scientific community at that time and was regarded as strong evidence for the idea of cosmic expansion. However, later scientists found that Andromeda in our local group of galaxies is approaching the Milky Way galaxy because the light emitted by Andromeda is shifted to the blue end of the electromagnetic spectrum; this phenomenon is called the "blueshift". Through continuous observation, scientists have found that the blueshift phenomenon is not unusual in the universe. Some information has shown that the phenomenon has appeared more than 100 times to date, but this evidence conflicts with the view of cosmic expansion.

To determine the precise cause of redshift and blueshift, the author conducted a thought experiment. The experimental results showed that the space above the Earth also possesses necessary conditions for the occurrence of redshift and blueshift, that is to say, the object movement mode corresponding to the two phenomena can also be simulated in the sky above the Earth. If there is no error, this discovery will change the understanding of cosmic space. Now, the author describes the experimental process as follows: first, it is assumed that there are transparent elevators with heights of 100 km at five points on the ground, and there is a person in the top of each elevator, as shown in the figure below:



These five elevators are denoted by A, B, C, D and E. Then, suppose that the cars of elevator D and E fall simultaneously, the car of elevator C falls one minute later, then one more minute later, the cars of elevator A and B fall simultaneously. In the falling process, the person in elevator A picks up a telescope to observe that elevator D and E move faster away from him than elevator C. Then, he sees that elevator D and E are drawing near each other.

At this time, the person in elevator D also lifts a telescope to observe that elevators A and B are moving faster away from her than elevator C and that elevators A and B are approaching each other.

The above experiments show that the phenomena of redshift and blueshift in the Universe can also be simulated with a gravitational field; alternatively, it can be proved that cosmic space may be a gravitational field.

In addition, the cosmonauts in the space station observed that a drop of water falling in the capsule tended to float and present a spherical shape. These observations also apply to flames in outer space. If a drop of water falls above the Earth or a lighted candle in a box is dropped from a height, the water drop and the flame both present a spherical shape in mid-air. These commonalities also suggest that cosmic space may be a gravitational field. The reason why the cosmonauts cannot feel the water drop falling may be that they are simultaneously falling with the water drop and all the reference systems.

## **2. The revolution and rotation phenomenon of celestial bodies can be found correspondence in the gravity field**

It is known that according to the Big Bang theory, the accelerated movement of galaxies or celestial bodies is the result of the accelerated expansion of the universe, and the reason for cosmic accelerated expansion is the Big Bang at the singular point.

However, the author believes that if the movement of celestial bodies is truly driven by the shock wave of the big bang, then all the driven celestial bodies should manifest rotational movement. However, the Earth is not only exhibiting rotational (auto-rotation) movement but also rotating around the Sun, which is obviously inconsistent with the theory of the shock wave of the Big Bang driving objects. Hence, in this way, the Big Bang theory is incompatible with objective facts.

Then, are the auto-rotation and revolution of celestial bodies isolated and independent? The answer is no. It is known that in the Earth's gravity field, when an object falls from a high altitude, it will perform rotational movement. For example, the reader can refer to the video of an Austrian cosmonaut jumping from an altitude of 39,000 m in 2012. When a cosmonaut jumps from an aircraft, his body begins to fall while rotating, and the rotation speed increases gradually until parachute deployment. Additionally, the example of microscopic matter moving in a gravity field can be cited here, such as the spinning of particles, the movement mode of which is similar to the auto-rotation of celestial bodies. In addition, electrons also rotate around atoms in a similar mode to planets rotating around the Sun. The above examples show that the correspondence of auto-rotation and revolution of celestial bodies in the Universe can be found in gravity fields as well, which further suggests that cosmic space may be a gravitational field.

### **3. Analysis of the causes of speed reduction of the Earth's rotation**

Scientists believe that the Earth's auto-rotation is slowing down, and the evolution trend is approximately as follows (2) : by counting the number of carbon-calcium stripes growing on coral shells, it was found that in the Cambrian, which was 570 million years ago, it took 20.47 hours for the Earth to rotate around its axis; in the early Ordovician, which was 500 million years ago, it took 21.4 hours for the Earth to rotate around its axis; in the mid-Devonian, which was 370 million years ago, it took 22 hours for the Earth to rotate around its axis; in modern times, the Earth takes 23 hours and 56 minutes to rotate around its axis.

The above data indicates that the Earth's auto-rotation is indeed gradually slowing down. Scientists have explained that this phenomenon is caused by friction from Earth-Moon tides. Specifically, viscosity couples the sea water on Earth and the gravity of the Moon or Sun, and such viscosity brakes the Earth's auto-rotation. Through year after year of influence, the Earth's auto-rotation speed has gradually declined. However, this viewpoint violates the theory of gravity. It is known that gravity applies only centripetal force on all things and does not produce special physical interaction with water bodies. Hence, the tidal phenomenon on Earth can be related only to the movement of the Moon. It cannot be concluded that the tidal phenomenon is related to the gravity of the Moon, not to mention that the water

bodies can exert a viscous effect on gravity. Therefore, the author suggests that the existing explanations are not satisfactory.

How to identify the truth is a problem worth considering. According to the previous thought experiment, the author assumes the Universe to be a gravitational field and reflects on the impacts on the Earth's auto-rotation in this context. The thought process is as follows: if the Universe is a gravitational field, then the Sun will inevitably descend increasingly fast. If the speed of the fall is directly proportional to the speed of overturning (referring to the high-altitude falling process of cosmonauts), then the Sun's overturning (auto-rotation) will be accelerated as well. This will inevitably lead to accelerated rotation of planets around the orbit of the Sun. Affected by this, the time of the Earth's yearly revolution around the Sun will also be shortened. What does this have to do with the slowing auto-rotation of the Earth? The answer may be found from an experiment conducted by the author. The experiment is as follows: first, a container filled with water was prepared; then, a vortex was created in the container, and a wood ball was placed beside the vortex. At this time, it could be observed that the wood ball revolved around the vortex and simultaneously performed auto-rotation. Next, the vortex was accelerated, and it was observed that the wood ball accelerated its revolution, while its auto-rotation slowed down. The author believes that the increased kinetic energy from the revolution of the wood ball offsets some of the kinetic energy from the auto-rotation of the ball.

If we put this experiment into the solar system to find a corresponding one, then the Earth will be like the wooden ball in the experiment, and the Sun's rotation will be like the kinetic energy driving the vortex. Therefore, when the Sun's rotation accelerates, the Earth's revolution will accelerate, while its rotation will decelerate. According to this principle, we can also deduce that as the Earth's rotation slows down gradually, the speed of the Moon around the Earth will slow down gradually, but its rotation will accelerate.

#### **4.The relationship between the increase in space-time curvature on the ground and global warming**

Global warming is a high-profile issue. Scientists believe (3) that from the early 20th century to approximately 2015, the average temperature on the Earth's surface has increased by approximately 0.6 °C. Over the past 40 years, the average temperature has risen by approximately 0.2-0.3 °C. According to the analysis of previous data, the temperature of the Earth is rising at an increasing rate. Scientific consensus is that the following factors affect Earth's climate change: CO2 emissions, solar radiation, general atmospheric circulation and volcanic activity. Including, CO2 emissions are considered to be the dominant factor of the temperature rise over the past 100 years. Is it possible that there are other important factors? Enlightened by

the viewpoint that the universe may be a gravitational field, referring to the latest gravity theory, the author thinks that there may be more important factors that lead to global warming, especially the influence brought by the continuous increase in space-time curvature on the ground. The analysis is as follows:

A new gravity theory holds that (4) the momentum of a moving body is directly proportional to its surface gravity. This viewpoint differs from the traditional viewpoint that the mass of a substance determines its gravity. The key idea is that gravity is the geometric effect of curved space-time, and the degree of space-time curvature is determined by momentum. Specifically, a moving body curves space-time through movement. The greater the momentum of the moving body, the more curved the space-time is. When the moving body curves space-time, the effect is one of spherical potential energy moving towards the centre of the surrounding areas. This potential energy is gravity. All of the above quotations aim to derive a possible fact, that is, if the Universe is a gravitational field, all the celestial bodies would accelerate their fall, and their momentum would progressively increase as well. According to the explanation given by the new gravity theory, the space-time field around the celestial body becomes more curved with increasing momentum of the celestial body, and the Earth is no exception. However, the general theory of relativity holds that the motion path of light is affected by curved space-time; hence, if the space becomes increasingly curved, theoretically, the path of light will also become increasingly curved. However, the new theory argues that the curved path is reflected by the volatility angle of light, which is different from the phenomenon of a gravitational lens. In specific: if the light path in vacuum is a straight line, then it is a continuous meander line with a large angle in a weak gravitational field or a continuous meander line with a small angle in a strong gravitational field. Refer to Fig. 2.

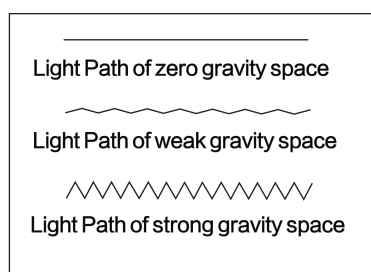


Fig. 2

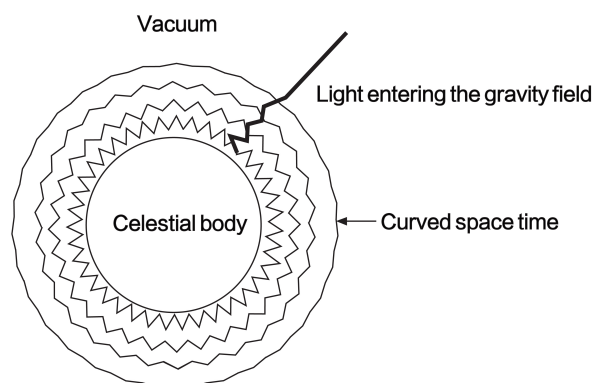


Fig. 3

Next, see Fig. 3 on the right. This is a conjecture figure of curved space influences the light path, which expresses that the light path becomes more curved with the deepening of space curvature. If the figure represents reality, then it can be

derived that the time spent by a beam of light to pass through space of the same scale is affected by the degree of space curvature, that is to say, the more curved the space is, the longer the time spent by the light during transit, which is equivalent a longer residence time of the light in space. Therefore, if the time and intensity of solar radiation remain unchanged, greater curvature of the space above the ground corresponds to a higher temperature. Thus, the increase in the space-time curvature above the ground may be a constant factor of continuous global warming.

## **5.The position of the Earth in the universe and a guess for the reason for reaching the universe**

If someone asks about the position of the Earth in the universe and where the Earth came from, first the author would like to ask, is the vacuum recognized at present truly a complete vacuum? To obtain the answer, it is necessary to learn how light moves in a vacuum. Scientists have discovered that light can fluctuate mildly when propagating in a vacuum. According to the explanation provided by the new theory of gravity, the fluctuation of light is likely to be the embodiment of space curvature, and the latter is the cause of gravity. Therefore, the author believes that the so-called vacuum is not absolute vacuum but a space with microgravity. If this conclusion is correct, then cosmic space is indeed a gravity field. When considering the degree of space curvature, it should be said that the Earth is far from the gravity centre of the universe. That is, the outer space of the Earth is probably that of the universe (refer to matter here). To strengthen this concept, a scene can be simulated to facilitate understanding: suppose that there is a micro Earth in the space station, where lives a group of intelligent creatures. One day the creatures fly off the atmospheric layer of the micro Earth; they may think that they have reached a vacuum space, but in fact they are located in the Earth's gravity field, that is, the micro Earth's outer space is actually the outer space of the Earth.

After that, the author puts forward the next proposition, namely, where does the Earth come from? As a guess, the author believes that there may be a universe outside the present universe, or the present universe is inside a larger universe, just as the Earth is in the solar system. Hence, the Earth is likely to come from an unknown cosmic space. It may be the debris from the explosion of some huge object that has burst into the present universe, or it may have entered the present universe for some other reasons.

## **6.Analysis of the causes of Venus' abnormal auto-rotation**

Before explaining the phenomenon of Venus' abnormal auto-rotation, first consider the possibility that the substances in the present cosmic space may come

from outside the universe and that these substances may be the debris from the explosion of some huge object. On this basis, the author analyses and concludes that the rotation direction of these debris is related to the position of the explosive shock wave acting on them. Taking Venus as an example, if Venus is a fragment of some huge object after explosion, when the shock wave acts on the left side of Venus or the force applied on the left side is larger than that on the right side, Venus will rotate from left to right; otherwise, it will rotate from right to left. This can explain why some celestial bodies in the universe rotate from left to right, while others do the opposite. In addition, the various magnitudes and positions of the explosive force acting on the debris can affect the rotate speed of the celestial bodies. Then, why are the fragments from the explosion spherical? This is because these fragments flipped regularly in a weightless environment after the kinetic energy of the explosive shock wave was exhausted, and the rotational movement in the weightless environment can make the fluid spherical. With regard to this, the shapes of water droplets and flames in outer space can serve as a reference. That is, the current celestial bodies may be originally semi-fluids of extremely high temperature, rather than hard debris, but after a long time of cooling and rotation, they assume their present appearance.

## **7.The relationship between the increase of gravity on the ground and the change in animal body types**

Palaeontologists suggest that the weight of the largest animals on Earth is becoming progressively lighter, and the evidence is as follows: in the Jurassic Period, which was approximately 208 million to 144 million years ago, there was a kind of dinosaur called *Amphicoelias fragillimus* in the Western Hemisphere, and its body weight was estimated to be 130 to 220 tons. Approximately 145.5 million years ago and in the Cretaceous Period, *Bruhathkayosaurus* was the largest land animal that lived in India, and its body weight was approximately 130 tons. Mammoths lived 15 million to 5 million years ago, and their body weight was approximately 30 tons. However, ten thousand years ago, the body weight of mammoth dropped to 12 tons or so. At present, the largest animal on land is the African elephant, with an adult weight of approximately 8 tons.

Why did this trend appear? Research suggests that volcanoes on Earth erupted frequently in ancient times, so the climate was warm and humid, and plants grew extensively; hence, ancient animals had very large bodies. However, with changes in the environment, the oxygen content in the atmosphere gradually decreased, and food became less abundant, so the body size of the animals gradually decreased.

The above arguments may sound reasonable, but they are not necessarily consistent with the facts. There are two reasons: first, so far, no experiment has proven that there is a necessary relationship between the oxygen content in the air and



the animal body size; second, a sufficient food amount is not equivalent to the food intake amount. Hence, on closer analysis, these two reasons lack support.

Then, what is the real reason of forming the trend? When thinking about this problem, the author was inspired by the viewpoint that “the Universe may be a gravitational field” and concluded the fact that if the ground gravity in ancient times was much smaller than today, then this trend could be formed. As a matter of fact, the relationship between gravity and stature has been studied at an earlier time. Some records showed that astronauts had different degrees of growth in height after returning to the ground from the space station. However, their height gradually recovered to the original height. Hence, suppose the astronaut is a child; will she grow taller and heavier in the space environment? This idea remains to be evaluated by future experiments.

In addition, studies have shown that gravity has a close relationship with blood circulation in the human body(5). In a zero-gravity environment, body fluid composed of blood and cerebrospinal fluid flows to the brain, so the astronauts' faces becomes swollen and their legs become thinner. This phenomenon is known as the "Charlie Brown effect" or "big-head bird-leg syndrome". In addition, the Charlie Brown effect can cause outer space motion sickness, blurred vision, headache, nausea and other symptoms. All these are due to problems in blood circulation, that is to say, blood circulation is subjected to a downward resistance in a zero-gravity environment, causing excessive blood to stagnate in the upper body and the head. According to this principle, it can be concluded that the reason why people do not suffer from the Charlie Brown effect on the ground is that there is gravity on the ground, namely, gravity can make blood flow downward . Furthermore, it can be deduced that there is a gravity environment most suitable for the human blood circulation system. If gravity is increased on this basis, the upward flow of the blood will be hindered, which will cause insufficient blood supply to the brain. Therefore, supposing that the gravity has increased, in order to avoid the happening of the above situation, humans have to take the following measures:

1. Try to strengthen the cardiac muscle to better transfer blood to the head.
2. Try to reduce the body size so that the heart is closer to the brain and can supply blood flow to the brain more easily. The advantage of short stature is supported by a survey: Chinese geneticists investigated older people aged over 90 in Guangxi, Hunan and some other places and found that the height of those living a long life is between 1.26 and 1.58 m, and their weight is approximately 40 kg. In addition, the American scholar Douce Marlaose investigated 750 deceased men with a height of 1.73 m as the dividing line and found that short men lived nine years longer on average than tall men. The author hypothesizes that the reason why short people live longer may be that they have better blood circulation than tall people.

According to the above analysis, it can be preliminarily concluded that if the gravity on the ground continues to increase, the human genes will start the self-protection mechanism and evolve the human body to smaller size to adapt to the change. Therefore, based on the similarity between animals and humans, it can be believed that if the gravity on the ground increases, the body of animals will inevitably evolve to a smaller size, which may be the primary cause of the largest animals on the earth getting smaller and lighter.

The credibility of the above arguments can be evaluated by some tests. For example, the bone density of dinosaurs and the strength and toughness of their leg joints can be tested to determine whether the dinosaurs could bear a weight of 1,200 tons and run at a certain speed. If the results cannot meet this requirement, it means that the Earth's gravity in ancient times was smaller than that today because the weights of these ancient animals are estimated according to the gravity of the present Earth, and these animals may not have borne those weights in ancient times.

## 8. Conclusions

In this paper, it is proved in multiple ways that the present universe has the nature of gravity field, but this does not mean that these views are absolutely correct; the author simply hopes to provide researchers with a different perspective. Of course, the author hopes that these views will be supported by more observations and experiments, which will require the efforts of many people. Finally, thank you very much for reading this paper.

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## Notes:

- (1) flow downward to the circulation from the liver towards the feet

(2) upward flow to the circulation from the liver towards the brain