On the Contraction Effect of Objects in the Time Expansion Effect

—Experimental verification

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Abstract: Relativity theory discusses the effects of velocity time expansion and gravity time expansion. This article will verify through experiments that when an object generates the time expansion effect, its volume will undergo all-round contraction simultaneously, that is, the object contraction effect.

Keywords: time dilation effect, object contraction effect

1、 The reasons for the shrinkage effect of objects

According to the principle of relativity, the mass and energy of an object can be converted into each other. When matter collides with antimatter, all of their mass is converted into energy, which means they are all converted into photons. Conversely, photons are the fundamental energy body that makes up matter. When an object experiences a time dilation effect, its time slows down, the photons that make up the object slow down, and the corresponding electron speed slows down. The distance that electrons rotate around the atomic nucleus decreases, and the size of atoms also decreases accordingly. This is reflected in macroscopic objects, where the volume of the object decreases, which is the reason for the contraction effect of the object.

2、 The principle of experimental verification of object shrinkage effect

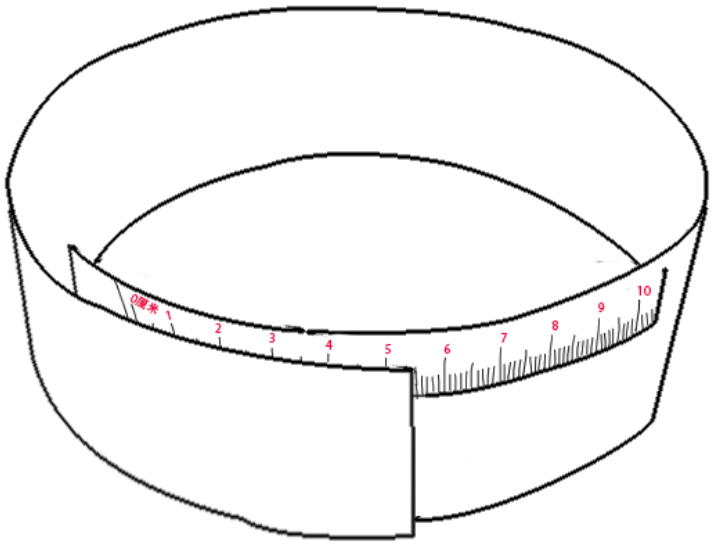
This article verifies the contraction effect of objects through the gravitational time expansion effect. The principle is that the thermal expansion and contraction of objects are formed by the speed of electron motion, and the contraction effect of objects is also formed by the speed of electron motion. Therefore, materials with different expansion coefficients are directly

proportional to the contraction effect at normal temperature. Two materials with different coefficients of expansion undergo volume changes under the same temperature and different gravity environments to demonstrate the contraction effect of the object.

3、 Equipment for testing the contraction effect of objects

Test equipment: one zinc and one iron sheet each measuring 80 centimeters in length, 5 centimeters in width, and 0.2 millimeters in thickness, with one thermometer, one barometer, and one humidity meter each

Overlap and weld two pieces of metal together, bend the composite metal sheet into a circular ring, with the zinc sheet on the outside and the end extending about 5 centimeters beyond the ring. Mark the scale on the end inside the ring, as shown in the figure:



4、 Test methods and data

The experiment was conducted on an aircraft, and after calculation, the time expansion effect caused by the height difference between the aircraft and the ground was much greater than the speed time expansion effect of the aircraft. Therefore, this experiment tests the object contraction effect caused by the gravity time expansion effect.

Bring the circular ring onto the aircraft. One hour after takeoff, the aircraft has an altitude of 9000 meters, a cabin temperature of 28.5 degrees Celsius, a humidity of 33%, and a pressure of 92.65KPa. The end of the circular ring corresponds to a scale of 5.4.

The aircraft landed steadily, with a temperature of 28.5 degrees Celsius, humidity of 33%, air pressure of 102.27 KPa, and a corresponding scale of 5.2 at the end of the circular ring.

Place the ring in the vacuum box and change the air pressure from 89.07KPa to 98.05KPa, 103.55KPa, 106.35KPa. The end scale of the ring remains unchanged.

5、 Experimental results and conclusions

From the experimental data, it can be seen that the height of the metal ring changes, that is, gravity changes, and the metal expands and contracts, while the temperature and humidity remain constant and the air pressure remains unaffected. The expansion coefficient of metal zinc is large, while the expansion coefficient of metal iron is small. When the time expansion effect occurs, the contraction of metal zinc is greater than that of metal iron, which is reflected on the ring, and the scale of the ring changes.

Experiments have shown that when an object experiences a time dilation effect, it also experiences a contraction effect.

6、 Conclusion

The contraction effect of objects is very small in daily life, but in the era of rapid technological development, when spacecraft fly at high speed or approach massive celestial bodies, especially close to the speed of light or black holes, the contraction effect will become huge. Therefore, when manufacturing high-speed spacecraft, the contraction effect of materials should be considered.

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