

## The Physics of Gravity

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### Abstract

The physics of gravity is explained by the process of expansion of the universe. The expansion of the Universe induces the resistance of gyroscopic forces of electron's rotation. The second component of gravity forces is the resistance from the second derivative of linear expansion.

**Keywords:** Gyroscopic forces; The unity of the micro and macrocosm; The expansion of the universe; The second derivative of expansion.

### Introduction

Until now, the attempts by scientists to find an explanation for the phenomenon of gravity can be considered futile. Gravity (gravitation, universal gravitation) (from lat. Gravitās-"gravity") is a universal fundamental interaction of all material bodies. The proposed explanation (generally accepted) describes the phenomenon itself, but not the physics of its origin. In any case, in comparison with electromagnetism, for example, the phenomenon of gravity has not been explained in any way.

### Main part

The proposed hypothesis is based on the concepts and terms of the classical mechanics.

The gravity force is the reaction of gyroscopic forces of the electron's rotation around their nuclei in the molecules of a substance to the influence forces that tend to or have already unbalanced them. This reaction seeks to return the gyroscope to its original position. The force that has unbalanced and continues to unbalance the molecule and electron is the force of the Universe Big Bang and the ongoing expansion of the Universe. The reaction force vector (gravity force) is directed to the conditional center of the Universe (to the center of what limits our consciousness), to the conditional center of the Bang, taking into account the effects of the Coriolis force. Everything available in the Universe has been constantly influenced by these forces since its origin. It is pointless to dwell about the speed of the effect spread (the wave nature) of these forces; they have always impacted on every molecule in the Universe since the very beginning. The Coriolis force forms a spiral mechanical trajectory of substance, for example, when moving in the direction of the Black hole. The closest chain of the gravity vector: Everything on Earth, the center of the Earth, the Sun, the Black

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hole in the center of the Milky Way Galaxy. Everything that exists on the way to the Black Hole faces resistance: with the surface of the Earth, with centrifugal force from rotation. Our path to the Black Hole will be the same according to the g principle (according to the principle of free fall acceleration), either each on its own, or as a part of the Earth, or as part of the solar system. Moreover, the gravity force increases as the substance cools, which is also very likely to be associated with the dynamics of the electron rotation around the nucleus. The negative temperature dependence of gravity is established experimentally [1]. It is possible to carry out a simple experiment such as weighing a cold and hot object. How can the difference in weight of a cold and heated item be explained? Namely, it is weight, not mass. It can be assumed that this difference is caused by various dynamic indicators of electron rotation, for instance, the electron rotation speed. In any case, the search for the mechanism of this dependence will not lead to the rejection of the hypothesis.

The hypothesis explains the gravity force by the connection of the microworld with the macrocosm through the gyroscopic properties of an electron motion in its orbit. Such phenomenon as the expansion of the Universe should be understood as an external effect on the gyroscope (in this case, the role of the gyroscope is fulfilled by the rotating electron of the atom). The gyroscopic force (a combination of forces from the rotation of all electrons) of an electron tends to counteract the vector of the expansion force of the universe. The typical features of the Universe expansion are widely represented in the researches of scientists (Edwin Hubble, Ethan Siegel). The presented hypothesis does not contradict modern ideas of scientists about this phenomenon (expansion of the Universe). The expansion of the universe occurs without a resultant vector that has a focus, i.e. directed from any one point. The expansion of the Universe has a total character with the preservation of the internal processes of the system, which allows us to consider the system (Galaxy, Solar System, etc.) as an object.

The proposed hypothesis traces the close relationship between the micro and macrocosm. It seemed that the motion of electrons in orbits and the displacement of the orbits have a resulting moment equal to zero. It turns out that according to the proposed hypothesis, at some point in the orbits, preference is given at some point, as a result of which the resulting vector is different from zero. This difference from zero is the gravitational force. Picture of the World in the light of a hypothesis.

In the article "Commentary on the article "Biography of the Earth" [2] the origin of the planets of the solar system is explained by the ejection of the solar hyperprominence. It is quite possible taking into consideration the dependence of gravity on temperature. The higher the temperature is, the weaker the gravity. At the ejection stage, this dependence contributes to the ejection range (by billions of kilometers). The currently dominant pattern of planet formation through the formation of clots followed by gravitational compression with the release of heat is very doubtful. In this context it is sufficient to consider Saturnring. For some reason, this scheme cannot be applied here under any circumstances. The scheme itself does not contradict the laws of physics, but some critical mass is probably necessary for its implementation.

In light of the above mentioned, it can be assumed that the expansion-contraction of the Universe is a cyclic process. For example, the expansion takes place according to the type of dough inflation, in all directions, without an explicit focus of the center of expansion. Expansions and contractions occur where they are created for this condition respectively. What we can observe now in the Universe is an instant photo of an illusion. Phenomena (plural) are possible simultaneously in different parts of the Universe, both visible and invisible.

There can be given an example to clearly illustrate the phenomenon of increased gravity at a decreasing temperature: the creation of negative pressure under the piston when it is advanced by an external force from the cylinder. In this case, the forces that prevent further extension of the piston (expansion of the Universe) increase, like gravity forces these forces tend to return the piston to its original position. In the article "Commentary on the hypothesis "Biography of the Earth" [2] the formation of the planets of the solar system and their rotation up to now has been presented as a one-time impulse receipt. Also, the connection of the macro- and

microworld has formed once and is still active today.

In the dynamics of the Universe development two-way processes are possible. So, for example, in the short term period the Earth sees the process a warming (20 thousand years), and in the long term period (billion years, all the life of the Earth) it sees the process of cooling. The Universe sees the process of expansion and the boundaries of the Galaxy see the process of compression. For a more complete picture of the World, all processes must be taken into account. It is possible that with such approaches, the propensity to explain nature phenomena by the presence of dark matter, dark energy, etc. will someday disappear.

Our Galaxy can be seen as a leaf on a tree branch. A tree grows, a branch grows, but the leaf may dry out. The black hole in the center of the galaxy has its own gravity. Inside the galaxy, gravity is enhanced by decreasing distance and by cooling.

And, finally, how can one explain the gravity not to the Earth, for example, but of an object to an object? The nature of the gravity of an object to an object is explained by the same thing; everything that exists has one origin. The precession of the gyroscope seeks to take its starting position. Everything that exists consists of gyroscopes that received impulse at one point, at the point of the Big Bang. Currently, everything is available in a two-unit process that is an expansion from the bang and the gyroscopic tendency to the starting point before the bang.

## Conclusions

Each hypothesis gives direction to further research in science. The proposed hypothesis is not an exception. The gravity force (the one measured by a dynamometer) is determined by the resulting reaction vector of the totality of molecular (atomic) gyroscopes of an object (substance), of everything that exists. The proposed hypothesis explains the nature of the gravity force and does not pretend to revolutionize the calculation base of physical phenomena associated with gravity. It can also be assumed that the nature of inertial forces is similar to the nature of gravitational forces, but at a local level. The presence of gravity is an indirect evidence of the Universe expansion. In other words, the gravity is a reaction to some external impact. The external influence can be considered as the expansion of the Universe as such and various dynamic effects of the expansion process (acceleration, etc.). The proposed hypothesis more fully reveals the connection of macro- and microworld. The existence of the negative dependence of gravity on temperature confirms the effect of the second law of thermodynamics, the irreversibility of the cooling of substance. Further cooling of the Universe leads to a process of increasing gravitational forces and subsequent compression of the Universe, to the cyclical processes of expansion and contraction. The compression process will lead to the new challenges and questions.

Another approach appears to be interesting. If we consider the force of gravity in connection with the dynamics of the process of the universe expansion, we will conclude that the extension is associated with a change in linear size. The expansion rate is the first time derivative. Neither directly nor indirectly can we determine this process. But the second derivative is manifested in the gravity of the material object. Since the Universe expands simultaneously in all directions, the resulting vector of gravity is directed to the center of the Universe (from an object to a conglomerate of objects, from a small conglomerate to a large one and further to the center of the Universe) It turns out that the gyroscopic forces and forces from the second derivative of the expansion of the Universe are two parts of one equation.

**Note.** The expansion of the universe occurs everywhere in the entire Universe. The meter with which we measure distances is also expanding, so we cannot give an obvious, explicit assessment of this process, for an ordinary person nothing changes around us.

## References

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