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Actual picture of the law of universal gravitation and the quantum gravity theory describing the real state of the universe

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ABSTRACT

This paper presents the real sense of the classical and quantum theory of gravitation as a component of the actual picture of the universe where the volume, as the size of the expanding universe, approaches infinity, while the total of material masses goes to zero. At present, these two standard theories describe the phenomenon of gravitation but do not explain the very mechanism and the cause of this process. This constant and real lack of information on that subject is consistent with natural laws and the same with the laws of physics, which were already experimentally determined by Werner Heisenberg in 1927. The paper also presents the causes of inability to explain up to the present the actual picture of the essence of the universe.

Keywords: classical gravity theory, quantum gravity theory, dark matter, Copernicus, Newton.

1. INTRODUCTION

Isaac Newton published for the first time his monumental work entitled "Philosophiæ Naturalis Principia Mathematica", which comprised among others information on the law of universal gravitation, in 1687. In this work, the phenomenon of gravitation, consisting in the attraction of material bodies, was described. However, the mechanisms of gravitational attraction (reason or cause of attraction) of material bodies were not presented. The classical and quantum theory of gravitation still evolves [1-7]. New theories are being developed where the simple mechanism (cause) of gravitational attraction has not been determined yet [1].

Albert Einstein published his "General theory of relativity" in 1916 where he presented the thesis that the force of gravity results from local spatio-temporal geometry [8]. He also presented there the mechanism (cause) of gravitational attraction as a space-time warp by large mass objects. This theory was right to the end of the 20th century only. The concept of wormhole introduced by Hermann Weyl in 1921 and its expansion by Albert Einstein and Nathan Rosen in 1935 as a possible path of the transfer of matter from one universe to another

via dark holes and the theory invented by Edward Witte in 1995 and expanded by Stephen Hawking as different types of universes which developed as a result of the collision of membranes in the eleven-dimensional space are already untrue at present in the 21st century, like the Randall-Sundrum theory which describes membrane universes.

Einstein, Weyl, Rosen, Witten, Hawking, etc., are, among others, the authors of theories who did not present the real state of the universe [8-10]. On the other hand, their theories are consistent with natural laws and the same with the laws of physics discovered and formulated by Werner Heisenberg in his uncertainty principle in 1927.

Most theories presented by scientists is untrue. The more complicated the theory is, the more untrue it is and the same the more consistent it is with the Heisenberg uncertainty principle because the universe does not allow knowing the truth.

The theory itself will be true if we assume that it is simple. Thus, the one like that should be searched for, observed and described. The Borowski's theory being presented below explains in a simple way the essence of the universe.

2. THE ACTUAL PICTURE OF THE UNIVERSE ACCORDING TO THE THEORY OF TOMASZ BOROWSKI

2. 1. The actual picture of the planetary system

In the paper entitled "The new theory of gravitation representing the movement of planets", a concept of the mechanism for the existence of planetary systems and galaxies is presented in a simple way. This concept relies on the motion of planets around the Sun by means of a difference in dark matter pressures (Fig. 1).

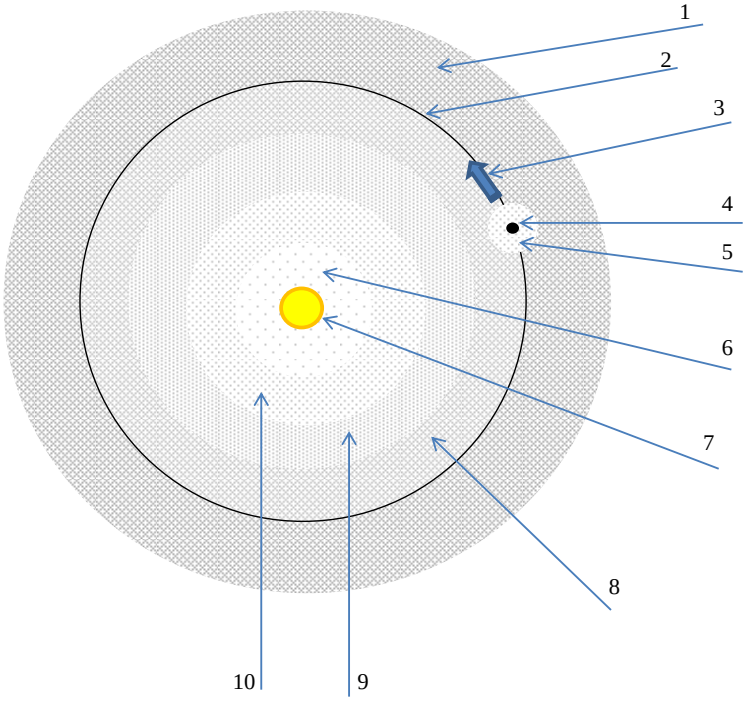

Fig. 1. Structure of the Solar System and the mechanism of planetary motion in the circular orbit: 1, 5, 6, 8, 9, 10 – differences in dark matter pressures, 2 – planetary orbit, 3 – direction of planetary motion, 4 – planet, 7 – Sun.

The whole planetary system is and moves in a solvent which is the dark matter. Dark matter pressure is the higher, the more distant a point is from the material mass (planet, Sun, comets, etc.). Dark matter pressure is the lower, the more closer a point is to the material mass (planet, Sun, comets, etc.). The centrifugal force of a planet moving in the orbit around a larger material object is balanced by the increasing pressure of dark matter outside the planetary system (Fig. 1).

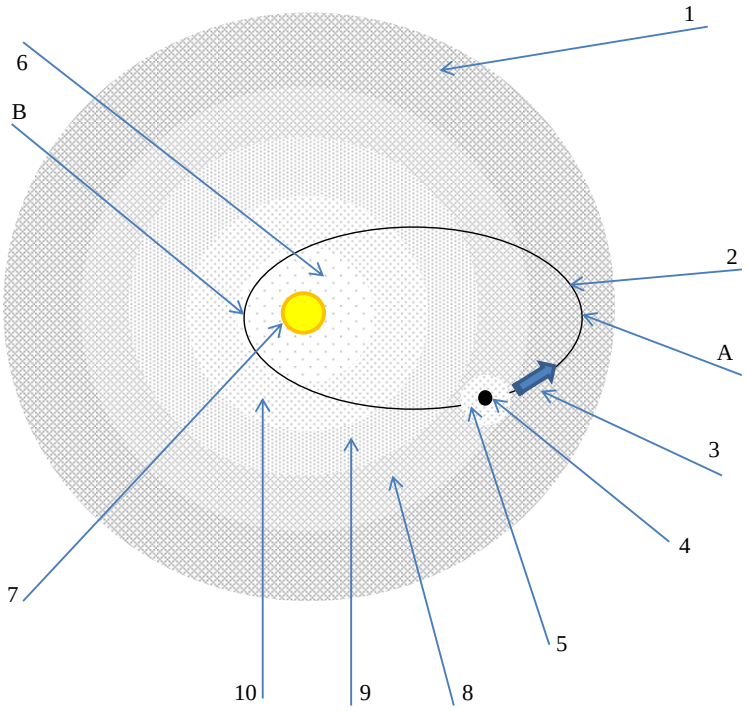

Fig. 2. Structure of the Solar System and the mechanism of planetary motion in the elliptical orbit: 1, 5, 6, 8, 9, 10 – difference in dark matter pressures, 2 – planetary orbit, 3 – direction of planetary motion, 4 – planet, 7 – Sun, A – V = minimum, B – V = maximum.

The velocity of a planet moving in the elliptical orbit in point A (Fig. 2) is minimal because dark matter pressure is potentially the highest. In point B (Fig. 2), the velocity of a planet moving in the elliptical orbit is maximal because dark matter pressure is potentially the lowest.

As a result of his observations and calculations, Edwin Hubble found that the universe expands. On the other hand, the universe was found later to expand at an increasing rate. Therefore, it is possible to state at present that the universe thins out and dissolves due to dark matter pressure and the same the volume of the universe approaches to infinity, while the total of material masses goes to zero.

When the infinite volume ends, the density of the universe will equal zero.

2. 2. The actual picture of galaxies

The galactic system, like planetary systems, is in a dark matter solvent. In the outer part of galaxy, dark matter pressure is higher than in inside it. Owing to that, the galaxy is integrated as a single unit (Fig. 3).

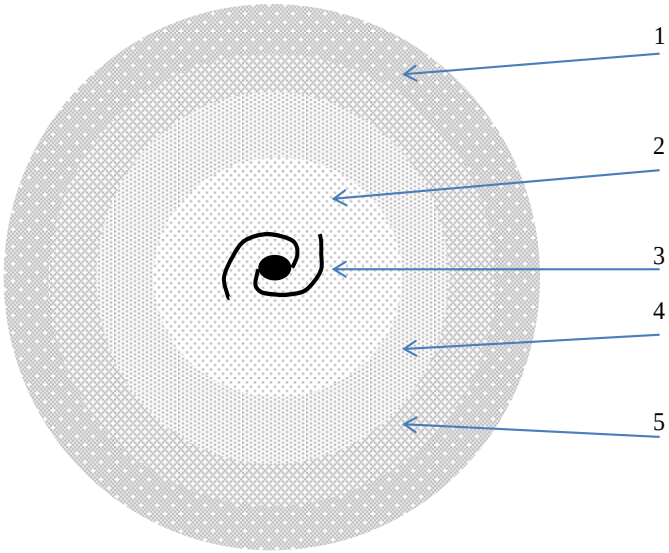

Fig. 3. The picture of galaxy in a dark matter solvent:
1, 2, 4, 5 – difference in dark matter pressures, 3 – galaxy (e.g. spiral galaxy).

There is the dark matter between galaxies. Outside the galaxy clusters, dark matter pressure is higher than inside them, which causes the galaxy clusters to occur in concentrations (Fig. 4).

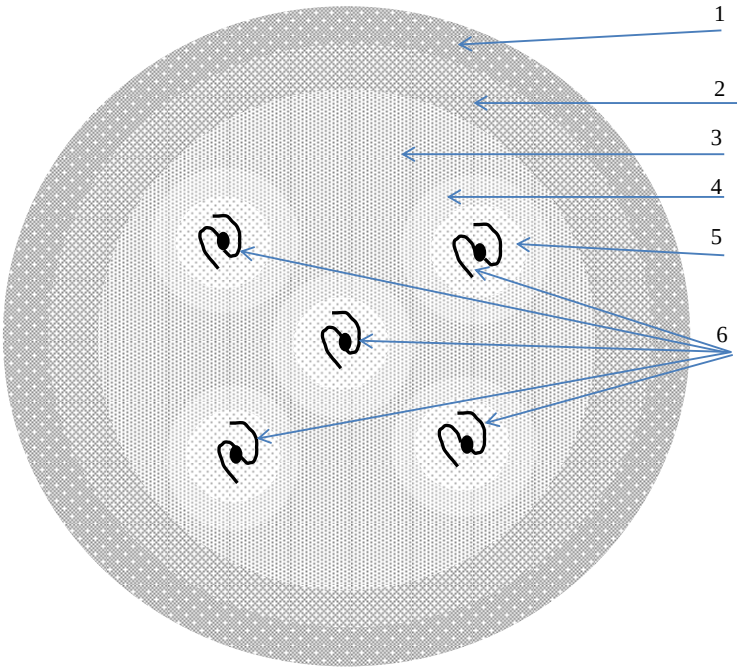

Fig. 4. The picture of galaxy cluster in a dark matter solvent:
1, 2, 3, 4, 5 – difference in dark matter pressures, 6 – galaxies (e.g. spiral galaxies).

2. 3. Expansion of the universe

The universe expands by means of a difference in dark matter pressures. Dark matter pressure is proportionally the highest when heading for the centre of the universe, whereas it will be proportionally lower when approaching the limits of the universe. The dark matter does not occur outside the universe, thus there is no dark matter pressure. Therefore, it is possible to state that a perfect vacuum occurs only outside the limits of the universe.

This system of pressure differences in the universe causes its limitless expansion to the infinity. All bodies in the universe are globular, thus it is possible to state that the universe is an expanding body in the form of globe (Fig. 5).

Based on Figure 5, it is possible to define the space as an area where the material mass occurs together with the dark matter or the dark matter itself. The dark material mass itself, without the dark matter, does not occur in the space. Therefore, there is no material mass outside the universe, as well as the dark matter, which means that there is no space outside the universe. The universe expands, thus the space expands, too.

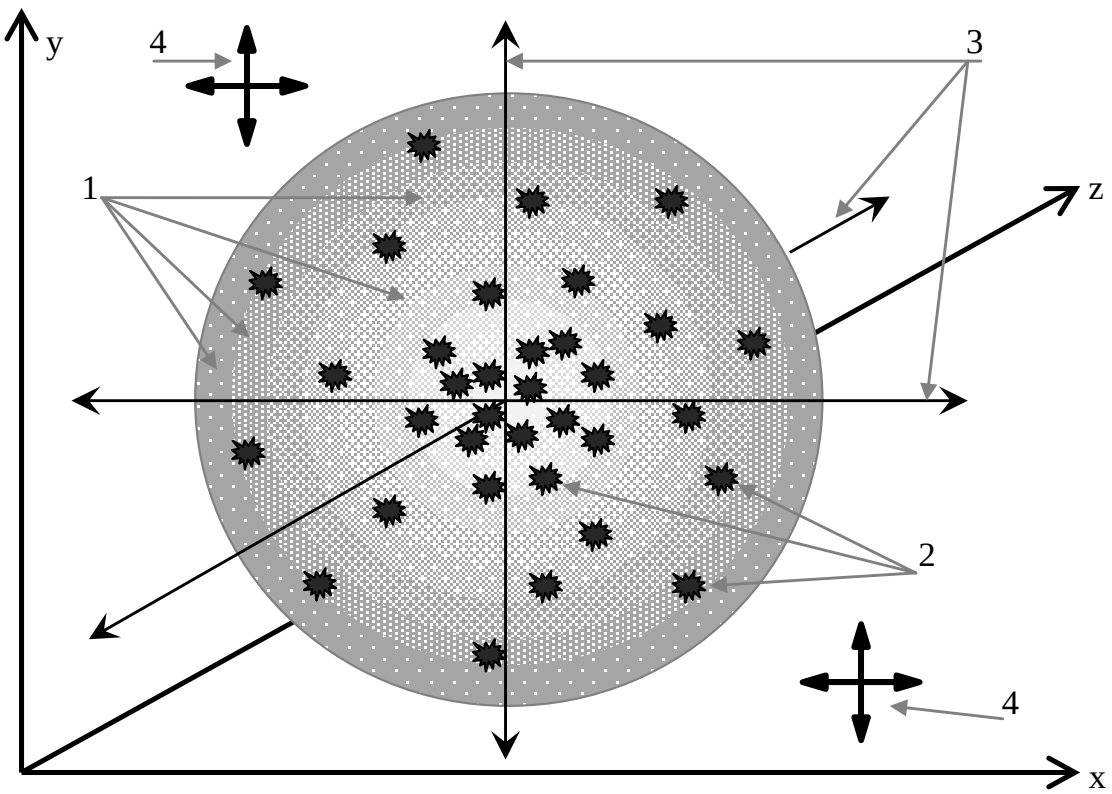

Fig. 5. A simplified scheme of the expanding universe in the "space" which does not exist: 1 – difference in dark matter pressures, 2 – galaxy clusters, 3 – directions of the universe expansion, 4 – "space" which does not exist because there is no dark matter, XYZ – co-ordinate axes of the "space" where the universe occurs.

2. 4. Movement of galaxies (galaxy cluster) in the universe

2. 4. 1. Theoretical path of the galaxy (galaxy cluster) movement in the universe

As the universe expands owing to the dark matter which is a basic component of the universe, the material bodies, among others galaxies (galaxy clusters), move together with it. Galaxies (galaxy clusters) move along a trajectory from a location with higher dark matter pressure to that with lower dark matter pressure, irrespective of where they are. Figure 6 presents the trajectories of galaxy motion.

Dark matter pressure presented in Figure 6 (1) is the highest; items 2-6 show local lower dark matter pressure. Depending on the difference in dark matter pressure in position 1 and between pressures in positions 2-6, the velocity of galaxy motion will vary. When determining the velocity of galaxy motion, an approximate pressure difference in position 1 and positions 2-6 may be calculated. Different galaxy velocities indicate dissimilar local pressure differences.

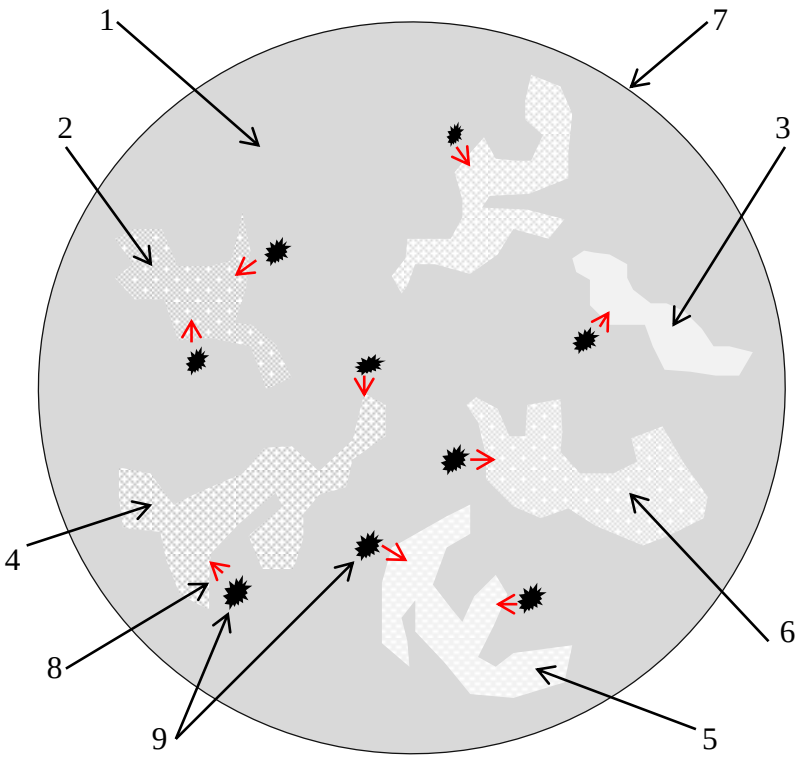

Fig. 6. A simplified scheme of the galaxy (galaxy cluster) movement in the universe:
1, 2, 3, 4, 5, 6 – variable densities of the dark matter in the universe, 7 – limit of the universe,
8 – direction of the galaxy (galaxy cluster) movement in the universe, 9 – galaxies (galaxy clusters).

2. 4. 2. Real trajectory of the galaxy (galaxy cluster) motion in the universe

Theoretical path of the galaxy movement in the universe is similar to the real trajectory. The galaxy motion along a theoretical path would equal the real trajectory if the universe does not expand. The universe expands, thus the theoretical trajectory of the galaxy motion differs from the real one. Due to the fact that dark matter pressure decreases together with getting closer to the outer limits of the universe which expands, the real trajectory will be shifted towards the outer limits of the universe (Fig. 7) [21-29].

An increase in the velocity of galaxy motion in the universe will depend on two factors:

A) – pressure difference between position 1 and positions 2-6 (Fig. 6),

– pressure difference between position 1 and positions 2-3 (Fig. 7),

B) – average pressure difference between positions 1-3 and position 6 (Fig. 7).

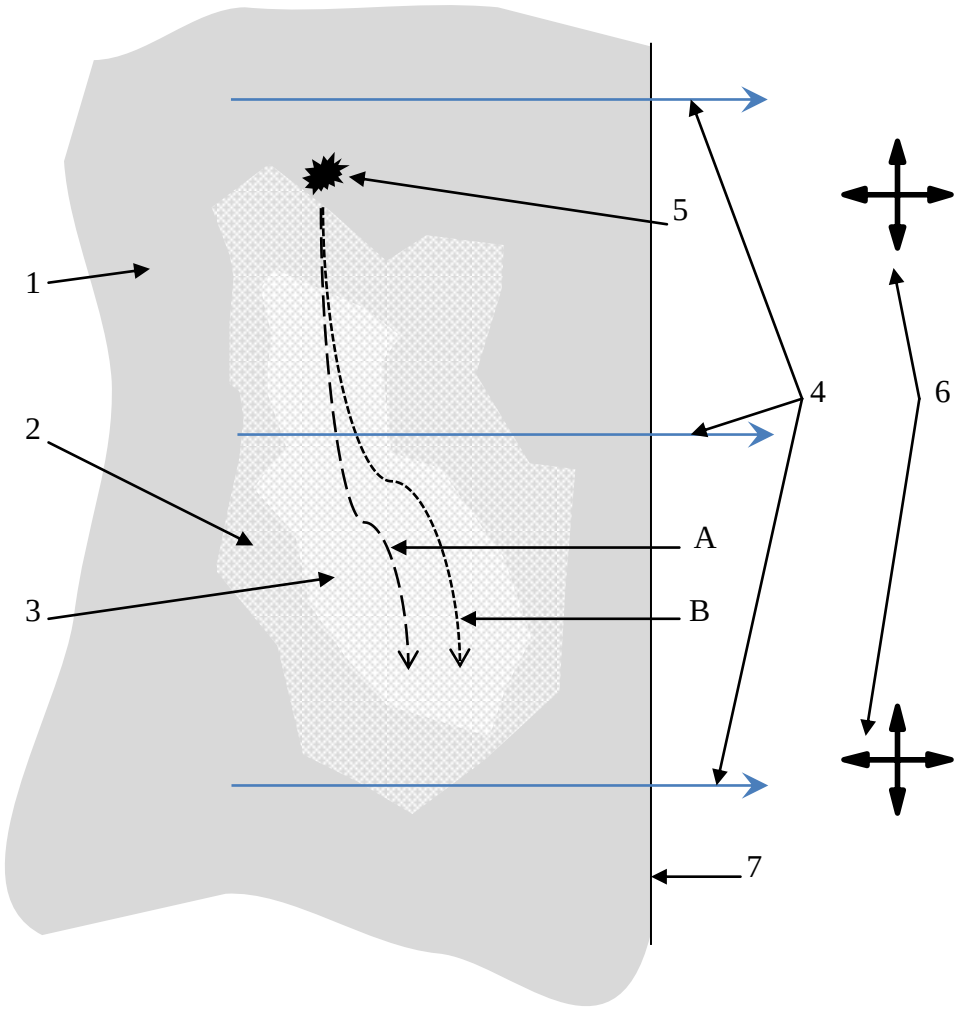

Fig. 7. A simplified scheme of the galaxy (galaxy cluster) movement in the universe: 1, 2, 3 – variable densities of the dark matter, 4 – direction of the expansion of the universe r, 5 – galaxy (galaxy cluster), 6 – space which does not exist (perfect vacuum), 7 – limit of the universe, A – theoretical trajectory of the galaxy (galaxy cluster) movement, B – real trajectory of the galaxy (galaxy cluster) movement.

2. 5. The actual picture of the quantum gravity theory

When analysing the Newton's law of universal gravitation (1) and the Coulomb's law (2), it is possible to state that these two apparently dissimilar formulae are not different.

$$F = G\frac{m_1 m_2}{r^2} \quad (1) \qquad\qquad F = k\frac{q_1 q_2}{r^2} \quad (2)$$

A real difference between the theory of actual picture of the Newton's law of universal gravitation (1) and the quantum gravity theory (2) describing the real state of the universe relies on the fact that:

1) the Newton's law of universal gravitation (1) is primarily affected by a difference in dark matter pressures,
2) the Coulomb's law (2) is affected by a difference in dark matter pressures as well as by the phenomenon of electromagnetism which bends the trajectories of moving particles.

The phenomenon of electromagnetism is a special case of repulsion which can be observed as a form of attraction, e.g. of electric charges. There is no difference in the mechanism between the phenomenon of planetary motion and that of electric charge motion as a form of repulsion which is being observed as the attraction.

The Newton's theory is verifiable for large distances where the phenomenon of a difference in dark matter pressures rules. The Coulomb's law is verifiable for small distances where the Newton's law and the phenomenon of electromagnetism rule. Trajectories of the moving planets and particles result from a difference in dark matter pressures. Gravitational acceleration is induced by the electromagnetic phenomenon [11-20].

2. 6. The Schrödinger equation

Like it results from the Schrödinger equation that the same particle can be in two different locations at the same time, so contrary several particles can be in the same location of the same time. Hence, it is possible to state that different dissimilar formulae may determine the same phenomenon at the same time and contrary one formula may determine different phenomena at the same time. Therefore, it is possible to make a conclusion that real results may be incorrect, while incorrect results may be real.

3. CONCLUSIONS

- The Newton's gravity according to Borowski is the phenomenon of repulsion consisting in the movement of objects that results from a difference in dark matter pressure, which can be observed as an "attraction".
- The quantum gravity according to Borowski is the phenomenon of repulsion consisting in the movement of objects that results from a difference in dark matter pressure and the phenomenon of electromagnetism, which can be observed as an "attraction".

- The phenomenon of gravitational acceleration according to Borowski consists in the repulsion of particles by means of electromagnetic waves.

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