

On the Mechanism of Gravity in the Law of Universal Gravitation

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ABSTRACT

This paper describes the mechanism of gravity, the force formula for which was proposed by Isaac Newton. The formula is analyzed using mathematical analysis. It can be translated into a four-dimensional space dominated by the vacuum of dark matter. It is in this space that the mechanism of attraction between the gravitational and test masses can be described. This mechanism consists of the appearance of a pressure difference between them. The resulting pressure creates an attractive force, which arises in an additional dimension shaped like a cylindrical helix. It is interesting to note that the parameters of the helix correspond to the motion of graviton and chronon particles along it, belonging to the choral-graviton field generated by the test mass during its interaction with the gravitational mass.

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Introduction

Since Newton's derivation of the law of universal gravitation based on observations of planetary motion, there have been numerous attempts to explain this formula using mechanical explanations. These are the so-called kinetic theories of gravitation. These theories were developed from the 16th to the 19th centuries, invoking the etheric medium. Undoubtedly, an intermediate medium can help explain gravitational phenomena. However, without the ether, these theories are no longer viable. General relativity, the accepted theory of gravity, is currently the standard model for describing gravity without the use of long-range forces. However, developments in cosmology indicate that galaxies, in addition to their own masses, are subject to an additional gravitational force that is not accounted for in general relativity. This force is caused by dark matter, i.e., a certain substance that could very well be considered the intermediate medium. If baryonic matter exists in this medium—matter visible to us and capable of being studied with our senses—then why not assume that this medium is a certain type of vacuum? Unlike ether, such a vacuum has a very low constant density and negative pressure. This property can be used to explain the formula for the law of universal gravitation. The author uses this approach in his article.

The Connection between the Law of Gravity and 4-Dimensional Space

Let's say there are two types of bodies attracting each other. The first body, with the larger mass, will be called the gravitational body. The second body, with the smaller mass, will be called the test body. If we consider bodies within the solar system, then the gravitational body is the Sun, and the test body is the planet Earth. People living on the surface of the Earth are certain that

they live in three-dimensional space and one-dimensional time. This certainty is based on Newton's law of universal gravitation. It describes the attraction of the planets of the solar system, based on three spatial dimensions, with a gravitational force equal to [1]:

$$F_{zp} = -\frac{M_{zp} \cdot M_{np} G}{l^2} \quad (1)$$

where M_{zp} is the gravitational mass; M_{np} is the test mass; l is the distance between the centers of mass in 3-dimensional space; G - Newton's constant of gravitation.

The mechanism of gravitational attraction remains unknown. Einstein's general theory of relativity rejects the concept of gravitational force and proposes an alternative to gravity in the form of the curvature of spacetime by a gravitational mass. The resulting trough, at the boundary of which the test mass is located, is the cause of its rolling (attraction) toward the gravitational mass. The question arises: why should this mass roll rather than be repelled by the edges of the trough? The answer probably lies in the established notion that a fall always occurs into a pit, and not vice versa. However, formula (1) is based on the concept of force and is more intuitive. Therefore, explaining the mechanism of attraction for it is a pressing problem. This article attempts to explain the action of gravity using force. We begin by defining the gravitational acceleration from the test mass, expressing it through its derivative:

$$a_{np} = \frac{dv_{zp}}{dt} = \frac{v_{zp} dv_{zp}}{dl} = \frac{F_{zp}}{M_{np}} = -\frac{M_{zp} G}{l^2} \quad (2)$$

In the resulting formula, we consider the distance between the masses to be a variable. After solving the resulting differential equation, we arrive at a function of a 3-dimensional gravitational volume filled with a test mass and varying over time t :

$$l^3 = \frac{9}{2} M_{np} G t^2 \qquad \frac{dF_{u,\delta}}{dl} = \frac{4}{3} \pi c^2 \frac{d}{dl} (\rho_{np} l^2) = \frac{4}{3} \pi c^2 (2l \rho_{np} + l^2 \frac{d\rho_{np}}{dl}) \quad (7)$$

Let us determine the density of the test mass in this volume, considering it to be a sphere.

$$\frac{4}{3} \pi l^3 = \frac{4}{3} \pi \cdot \frac{9}{2} M_{np} G t^2 = 6\pi \cdot M_{np} G t^2$$

Where

$$\rho_{np} = \frac{M_{np}}{\frac{4}{3} \pi l^3} = \frac{1}{6\pi G t^2} \quad (3b)$$

Let us express the centrifugal force from (3a).

$$l^2 = \frac{9}{2} \frac{M_{np} c^2 G}{c^2 l} c^2 t^2 = \frac{9Gt^2}{2c^2} \cdot \frac{M_{np} c^2}{l} = \frac{9Gt^2}{2c^2} F_{u,\delta}$$

where $F_{u,\delta} = \frac{M_{np} c^2}{l}$ is the centrifugal force arising in 3-space

from the total energy of the test mass.

We express the force through the density of the test mass (3b).

$$F_{u,\delta} = \frac{M_{np} c^2}{l} = \frac{2c^2 l^2}{9G l^2} = \frac{2}{9} \cdot \frac{6\pi c^2}{6\pi G} l^2 \frac{l^2}{l^2} = \frac{4\pi}{3} \rho_{np} c^2 l^2 \quad (4)$$

The formula shows that force is a variable quantity. Let's take the derivative with respect to the spatial coordinate for its left side.

$$\frac{dF_{u,\delta}}{dl} = \frac{d}{dl} \left(\frac{M_{np} c^2}{l} \right) = - \frac{M_{np} c^2}{l^2}$$

For further calculations, we must introduce an intermediate medium involved in the gravitational attraction of the test mass. We will understand this to be the vacuum created by dark matter. We will characterize it by a constant gravitational radius, determined by the formula:

$$P_{m.m.} = \frac{M_{m.m.} G}{c^2} \quad (5)$$

Let's express the square of the speed of light from it and substitute it into the formula:

$$\frac{dF_{u,\delta}}{dl} = - \frac{M_{np} c^2}{l^2} = - \frac{M_{np} M_{m.m.} G}{l^2 P_{m.m.}} = - \frac{M_{np} M_{m.m.} G}{l^3 \cdot \frac{P_{m.m.}}{l}}$$

From the theory of time [2] it follows that the resulting ratio in the denominator is the direct gravitational rate:

$$\frac{P_{m.m.}}{l} = \dot{\psi}_{np} = \frac{dl}{dt}$$

Taking this into account, the derivative is transformed into the form of the gravitational force from dark matter:

$$F_{m.m.} = \frac{P_{m.m.}}{l} \frac{dF_{u,\delta}}{dl} = \dot{\psi}_{np} \frac{dF_{u,\delta}}{dl} = \frac{dl}{dt} \cdot \frac{dF_{u,\delta}}{dl} = \frac{dF_{u,\delta}}{dt} = - \frac{M_{np} M_{m.m.} G}{l^3} \quad (6)$$

From the formula, it is clear that the force acts in a 4-dimensional space, or more precisely, in the space of a 5-dimensional sphere. Differentiating the right-hand side of the centrifugal force formula (4) with respect to dl , we find the derivative:

Multiplying by the value of the direct tempo, we arrive at the formula for the force arising from dark matter.

$$F_{m.m.} = \dot{\psi}_{np} \frac{dF_{u,\delta}}{dl} = \frac{4}{3} \pi c^2 (2l \rho_{np} + l^2 \frac{d\rho_{np}}{dl}) \cdot \frac{P_{m.m.}}{l} = \frac{4}{3} \pi c^2 P_{m.m.} (2\rho_{np} + l \frac{d\rho_{np}}{dl}) = \frac{4}{3} \pi M_{m.m.} G (2\rho_{np} + l \frac{d\rho_{np}}{dl})$$

Equating the previous expression (6), we obtain an equation for the gravitational force from the mass of dark matter acting in 4-dimensional space and changing over time:

$$F_{m.m.} = \frac{dF_{u,\delta}}{dt} = - \frac{M_{np} M_{m.m.} G}{l^3} = \frac{4}{3} \pi M_{m.m.} G (2\rho_{np} + l \frac{d\rho_{np}}{dl}) \quad (8a)$$

Reducing by $M_{m.m.} G$, we arrive at the equation for the analog of acceleration from a test mass in 4-dimensional space:

$$- \frac{M_{np}}{l^3} = \frac{4}{3} \pi (2\rho_{np} + l \frac{d\rho_{np}}{dl}) \quad (8b)$$

Let's transform the equation with respect to the test mass.

$$-M_{np} = \frac{8}{3} \pi l^3 \rho_{np} + \frac{4}{3} \pi l^4 \frac{d\rho_{np}}{dl} = 2M_{np} + \frac{4}{3} \pi l^4 \frac{d\rho_{np}}{dl}$$

Or taking into account (3b):

$$-3M_{np} = \frac{4}{3} \pi l^4 \frac{d\rho_{np}}{dl} \quad (9)$$

We select a 4-dimensional volume:

$$\pi l^4 = - \frac{9}{4} M_{np} \frac{dl}{d\rho_{np}}$$

Multiplying by $8\pi/3$ both parts, we arrive at the formula for the surface of a 5-dimensional sphere:

$$S_{5\text{сф}} = \frac{8\pi^2}{3} l^4 = - \frac{9}{4} \cdot \frac{8\pi}{3} M_{np} \frac{dl}{d\rho_{np}} = -6\pi M_{np} \frac{dl}{d\rho_{np}} \quad (10)$$

Let's transform it into the form:

$$\frac{1}{6\pi} \frac{d\rho_{np}}{dl} = - \frac{M_{np}}{8\pi^2 l^4} \quad (11a)$$

We assume that the gravitational interaction between the test and gravitational masses occurs in a 5-dimensional sphere. To do this, we multiply both parts by $M_{sp} G$.

$$\frac{M_{sp} G}{6\pi} \frac{d\rho_{np}}{dl} = - \frac{M_{np} M_{sp} G}{8\pi^2 l^4} = -\varepsilon \quad (11b)$$

Gravitational Processes in a 5-Dimensional Sphere

Let's move from the energy density (11b) to the energy density of the core arising within the gravitational mass. By the core, we mean a region of 5-dimensional space with a constant radius and energy density. The properties of the core thus coincide with those of a vacuum. However, unlike a vacuum, the energy density of the core is very significant. Taking this into account, we transform the formula to the following form:

$$-\varepsilon = \frac{M_{cp} G}{6\pi} \frac{d\rho_{np}}{dl} = -\frac{M_{np} M_{cp} G}{8\pi^2 l^4} = -\frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} \cdot \frac{l^4}{l_a^4}$$

Then we obtain the equation for the gravitational core in the form:

$$-\varepsilon \cdot \frac{l^4}{l_a^4} = \frac{M_{cp} G}{6\pi} \frac{d\rho_{np}}{dl} \cdot \frac{l^4}{l_a^4} = -\frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} = -\rho_a c^2 = \varepsilon_a \quad (11c)$$

where ε_a is the energy density of the gravitational core; l_a is the radius of the gravitational 5- dimensional sphere arising inside the gravitational mass; ρ_a is the constant density of the gravitational core inside the gravitational mass.

Let's solve the equation by separating the variables:

$$d\rho_{np} = -\rho_a c^2 l_a^4 \frac{6\pi}{M_{cp} G} \cdot \frac{dl}{l^4} \quad (11d)$$

We integrate under the initial conditions and $\rho_{np}(0) = \rho_a$ и $l(0) = l_a$:

$$\int_{\rho_a}^{\rho_{np}} d\rho_{np} = -\rho_a c^2 \frac{6\pi}{M_{cp} G} l_a^4 \int_{l_a}^l \frac{dl}{l^4}$$

We get:

$$\rho_{np} - \rho_a = \frac{6\pi\rho_a c^2}{3M_{cp} G} l_a^4 \left(\frac{1}{l^3} - \frac{1}{l_a^3}\right) = \frac{2\pi\rho_a c^2}{M_{cp} G} \left(\frac{l_a^4}{l^3} - l_a\right) = \frac{2\pi\rho_a c^2}{M_{cp} G} l_a \left(\frac{l_a^3}{l^3} - 1\right) = \frac{2\pi\rho_a c^2}{M_{cp} G} \frac{l_a^4}{l^3} - \frac{2\pi\rho_a c^2}{M_{cp} G} l_a \quad (12a)$$

Let's check the formula.

When $\rho_a = \frac{2\pi\rho_a c^2}{M_{cp} G} l_a$ we have:

$$\rho_{np} = \frac{2\pi\rho_a c^2}{M_{cp} G} \frac{l_a^4}{l^3} = \frac{6\pi}{3M_{cp} G} \cdot \frac{\rho_a c^2 l_a^4}{l^3} \frac{8\pi^2}{3} = \frac{6\pi}{M_{cp} G} \cdot \frac{M_{np} M_{cp} G}{3l^3 \frac{8\pi^2}{3}} = \frac{M_{np}}{l^3 \frac{8\pi^2}{6\pi}} = \frac{M_{np}}{\frac{4}{3}\pi l^3} \quad (12b)$$

Thus, we arrived at the previous value of the test mass, given by formula (3b). Formula (12a) is the basis for explaining the gravitational attraction between masses. To do this, we multiply both sides by the square of the speed of light. This results in a formula for the pressure difference between the test mass and the gravitational mass.

$$\Delta p = p_{np} + p_a = (\rho_{np} - \rho_a) c^2 = \frac{2\pi\rho_a c^4}{M_{cp} G} \frac{l_a^4}{l^3} - \frac{2\pi\rho_a c^4}{M_{cp} G} l_a = F_0 \frac{2\pi\rho_a}{M_{cp}} l_a \left(\frac{l_a^3}{l^3} - 1\right)$$

where $\rho_{np} c^2 = p_{np}$ is the positive pressure from the density of the test mass; $p_a = -\rho_a c^2 = \varepsilon_a$ is the negative pressure from the density of the gravitational core, equal to its positive energy density; $c^4 / G = F_0$ is the Planck force.

Here: (see 11c)

$$\frac{2\pi\rho_a}{M_{cp}} = \frac{2\pi}{M_{cp}} \cdot \frac{M_{np} M_{cp} G}{c^2 \frac{8\pi^2}{3} l_a^4} = \frac{M_{np} G}{c^2 \left(\frac{4\pi}{3} l_a^4\right)} = \frac{P_{np}}{\frac{4\pi}{3} l_a^4}$$

where $P_{np} = \frac{M_{np} G}{c^2}$ is the gravitational radius of the test mass.

Substituting, we get:

$$\Delta p = (\rho_{np} - \rho_a) c^2 = F_0 \frac{2\pi\rho_a}{M_{cp}} l_a \left(\frac{l_a^3}{l^3} - 1\right) = F_0 \cdot \frac{P_{np}}{\frac{4\pi}{3} l_a^4} l_a \left(\frac{l_a^3}{l^3} - 1\right) =$$

$$F_0 \cdot \frac{P_{np}}{\frac{4\pi}{3} l_a^3} \left(\frac{l_a^3}{l^3} - 1\right) = \frac{3F_0}{4\pi l_a^2} \frac{P_{np}}{l_a} \left(\frac{l_a^3}{l^3} - 1\right) < 0 \quad (13)$$

Since the gravitational radius l_a of the gravitational mass is significantly smaller than the radius l of the test mass, the difference in parentheses is negative. The minus sign indicates that the resulting gravitational pressure Δp is directed toward the gravitational mass, thereby creating an attraction between the masses. In this case, the pressure is created by the force $f_{cp} = 3F_0(P_{np} / l_a)$ acting on the surface of a three-dimensional sphere of radius l_a . The total constant pressure included in (13) can be written as:

$$p_{cp} = \frac{f_{cp}}{4\pi l_a^2} = \frac{3F_0}{4\pi l_a^2} \frac{P_{np}}{l_a} = \frac{F_0 P_{np}}{4\pi l_a^3} = \frac{c^4}{G} \frac{M_{np} G}{c^2} = \frac{M_{np} c^2}{4\pi l_a^3} \quad (14a)$$

As we can see, it is described by the total energy of a test mass contained in a 3-dimensional ball of radius l_a .

Let us express it through the density of the nucleus (11c)

$$\rho_a = \frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} = \frac{M_{np} c^2}{8\pi^2 l_a^4} \frac{M_{cp} G}{c^2} = \frac{M_{np} c^2}{4\pi l_a^3} \cdot \frac{M_{cp} G}{c^2} = p_{cp} \cdot \frac{P_{cp}}{2\pi l_a}$$

where $P_{cp} = \frac{M_{cp} G}{c^2}$ is the gravitational radius of the gravitational mass.

Where do we find P_{cp} :

$$p_{cp} = \rho_a \frac{2\pi l_a}{P_{cp}} = \frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} \frac{2\pi l_a}{P_{cp}} = \frac{M_{np} c^2}{8\pi^2 l_a^3} \frac{M_{cp} G}{c^2} \frac{2\pi l_a}{P_{cp}} = \frac{M_{np} c^2}{8\pi^2 l_a^3} \frac{2\pi l_a}{P_{cp}} \frac{M_{cp} G}{c^2} = \frac{M_{np} c^2}{8\pi^2 l_a^4} \cdot 2\pi l_a = \frac{M_{np} c^2}{4\pi l_a^3} \quad (14b)$$

We arrive at the same dependence if we accept that $l_a = P_{cp}$ there is a radius of a 5-dimensional sphere:

$$p_{cp} = \rho_a \frac{2\pi l_a}{P_{cp}} = \frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} \frac{2\pi l_a}{P_{cp}} = \frac{M_{np} M_{cp} G}{8\pi^2 l_a^4} \cdot 2\pi = \frac{M_{np} M_{cp} G}{4\pi l_a^4} = \frac{M_{np} c^2}{4\pi l_a^4} \frac{M_{cp} G}{c^2} = \frac{M_{np} c^2}{4\pi l_a^4} l_a = \frac{M_{np} c^2}{4\pi l_a^3}$$

It should be noted that since the masses are considered in the space of a 5-dimensional sphere, the resulting pressure found is transmitted through an additional dimension, folded into a helical line, which is shown in Figure 1.

Let's deduce the cylindrical helical line. We transform (14b) to the form:

$$\frac{2}{3} l_{\chi}^2 p_{ep} = \frac{M_{np} c^2}{8\pi^2 l_{\chi}^4} \cdot 2\pi l_{\chi} \frac{2}{3} l_{\chi}^2 = \frac{M_{np} c^2}{8\pi^2 l_{\chi}^2} \cdot \frac{4\pi}{3} l_{\chi}$$

Or
$$\frac{2}{3} l_{\chi}^2 p_{ep} = M_{np} \frac{c^2}{l_{\chi}^2} \cdot \frac{l_{\chi}}{2\pi} = M_{np} \frac{c^2}{2\pi l_{\chi}} \quad (14c)$$

Here: $\frac{c^2}{l_c^2} = \omega_{0\chi}^2$ is the square of the angular velocity of rotation;

is $r_{\chi} = \frac{l_{\chi}}{2\pi} = 2\pi \cdot \frac{l_{\chi}}{4\pi^2} = 2\pi \cdot l_{\chi} \alpha_{GU}$ the radius of the cylinder;

$\rho_{e..} = 2\pi l_{\chi}$ is the radius of curvature of the helix;

$\alpha_{GU} = \frac{1}{4\pi^2} = 0,025330295$ is the Grand Unified Field (GUN)

constant; c is the absolute velocity equal to the speed of light.

We find the ratio of the given radii, expressing them through the square of the sine of the angle:

$$\sin^2 \gamma = \frac{r_{\chi}}{\rho_{e..}} = \frac{l_{\chi}}{2\pi \cdot 2\pi l_{\chi}} = \frac{1}{4\pi^2} = \alpha_{GU} \quad \sin \gamma = \frac{1}{2\pi}; \quad \gamma = 9,157849512^\circ \quad (14d)$$

As we see, the square of the sine of an angle is the TER constant. Then the sine of an angle is the chronal-graviton field constant.

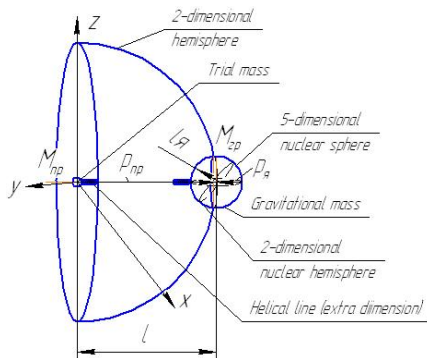


Figure 1: Diagram of the Gravitational Interaction of the test and Gravitational Mass.

It is determined by the ratio of constants [3]

$$\frac{\alpha_g}{\alpha_{\chi}} = \frac{1}{2\pi}$$

where $\alpha_g = \frac{\mu_{ep} \cdot M_p G}{\hbar c} = \frac{\mu_{ep} m_0 n_{\max} G}{\hbar c} = \frac{(\mu_{ep} n_{\max}) m_0 G}{\hbar c} = \frac{m_0^2 G}{\hbar c} = \frac{Q_g^2}{\hbar c} = 1$

is the graviton field constant, which determines the interaction between the graviton mass μ_{ep} and the mass and the mass of graviton matter M_p .

Here: $\mu_{ep} = \frac{m_0}{\alpha_c^2 n_c^3} = 2,99 \cdot 10^{-68} \text{ z}$ $n_{\max} = \alpha_c^2 n_c^3 = 7,36146715 \cdot 10^{62}$ is the number of quantum graviton levels; $M_p = P c^2 / G = \mu_{ep} n_{\max}^2$ is mass of graviton matter; $Q_g^2 = \mu_{ep} \cdot M_p G = m_0^2 G$ is the square of the graviton field charge.

$$\alpha_{\chi s} = \frac{2\mu_{\chi} \cdot M_p G}{\hbar c} = \frac{2\pi m_0^2 G}{\hbar c} = \frac{Q_{\chi s}^2}{\hbar c} = 2\pi \quad \text{is the chronal field constant,}$$

which determines the interaction between the bichronon mass $2\mu_{\chi}$ and the mass of graviton matter M_p .

Here: $\mu_{\chi} = \pi \mu_{ep} = \frac{\pi m_0}{\alpha_c^2 n_c^3} = 2,99 \cdot 10^{-68} \pi = 9,39 \cdot 10^{-68} \text{ z}$ is the chiron mass;

$Q_{\chi s}^2 = 2\mu_{\chi} \cdot M_p G = 2\pi m_0^2 G$ is the square of the chronal field charge.

Multiplying (13) by $\frac{2}{3} l_{\chi}^2$, we arrive at the formula for the resulting force:

$$F_p = \frac{2}{3} l_{\chi}^2 \Delta p = \frac{2}{3} l_{\chi}^2 (\rho_{np} - \rho_s) c^2 = \frac{2}{3} l_{\chi}^2 p_{ep} \left(\frac{l_{\chi}^2}{l^2} - 1 \right) = \frac{M_{np} c^2}{2\pi l_{\chi}} \left(\frac{l_{\chi}^2}{l^2} - 1 \right) = \frac{M_{np} M_{ep} G}{2\pi l_{\chi}^2} \left(\frac{l_{\chi}^2}{l^2} - 1 \right) = -\frac{M_{np} M_{ep} G}{2\pi l_{\chi}^2} \left(1 - \frac{l_{\chi}^2}{l^2} \right) \quad (15a)$$

The minus sign indicates that the force is attractive.

Let us single out in the formula the Newtonian gravitational force in 3-dimensional space

$$F_p = \frac{2}{3} l_{\chi}^2 (\rho_{np} - \rho_s) c^2 = -\frac{M_{np} M_{ep} G}{2\pi l_{\chi}^2} \left(1 - \frac{l_{\chi}^2}{l^2} \right) = -\frac{M_{np} M_{ep} G}{2\pi l_{\chi}^2} \frac{1}{l^2} \left(l^2 - l_{\chi}^2 \right) = \frac{F_p}{2\pi l_{\chi}^2} \left(\frac{l^2 - l_{\chi}^2}{l} \right)$$

where $F_p = -\frac{M_{np} M_{ep} G}{l^2}$ there is the force of gravity (1).

Let's write it in the form:

$$F_p = \frac{2}{3} l_{\chi}^2 2\pi l_{\chi}^2 (\rho_{np} - \rho_s) c^2 = \frac{4\pi}{3} l_{\chi}^4 (\rho_{np} - \rho_s) c^2 = \frac{8\pi^2}{3} l_{\chi}^4 (\rho_{np} - \rho_s) c^2 = \frac{8\pi^2}{3} l_{\chi}^4 (p_{np} - p_s) = \frac{8\pi^2}{3} l_{\chi}^4 \frac{l_{\chi}^2}{l} \left(\frac{l^2 - l_{\chi}^2}{l} \right) \quad (15b)$$

The resulting formula for the gravitational force in 3-dimensional space is related to the core of a 5-dimensional sphere located within the gravitational mass. Based on this formula, the following definition of the gravitational force formula can be given: *Newton's gravitational force is directly proportional to the product of the surface area of the 5-dimensional sphere and the difference between the test and nuclear pressures, and inversely proportional to the difference between the areas of the two-dimensional hemispheres arising from the test mass and the nuclear mass.*

Conclusion

The derived formula (15b) is the second part of the law of universal gravitation. It defines the mechanism of gravity based on the concept of a five-dimensional sphere, which is the core of the gravitational mass. The first part of the law describes the gravitational interaction of masses based on the three-dimensionality of the space surrounding the mass. Newton's experimentally derived formula has faithfully served humanity for five centuries. However, at the same time, it hinders the study of gravity as a force, failing to explain its mechanism. The author hopes that the second part of the formula will help accelerate progress in the further study of this force and lead to a complete understanding of its secrets.

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