International Journal of Scientific Advances
ISSN: 2708-7972
Volume: 5 | Issue: 6 | Nov – Dec 2024 Available Online: www.ijscia.com
DOI: 10.51542/ijscia.v5i6.4

What Is Hidden Behind the Gravitational Constant? There Is A Relationship Between Gravity and The Electric Field?

Ferencz József

Bolzano Utica 35/a, Budapest 10. Ker., Budapest, Hungary, 1104

*Corresponding author details: József Ferencz; ferenczj@outlook.hu

ABSTRACT

Let's look at Kepler's, Newton's, and Coulomb's laws again. There are a few things that have escaped our attention. Kepler's and Newton's laws show that movement is also necessary for the creation of the gravitational force field. Gravity is a force field induced by motion. Therefore, the gravitational constant G depends on the speed, so we cannot measure it precisely. Based on Coulomb's and Newton's laws, it can be understood that gravity and the electric force field are related to each other. The gravitational field can be described using the electric field. Let's ask some questions about gravity.

1. Can the value of G be determined by calculation?
2. Why can't we measure the value of G exactly?
3. How can you prove that G is variable?
4. Is there a relationship between the gravitational force field and acceleration?
5. What gives the energy of a gravitational force field?
6. What properties do we know of the gravitational force field?
7. Is there a connection between the gravitational force field and the electric force field?
8. What connects the gravitational force field and the electric force field?

Keywords: speed-dependent; gravitational constant; gravitational force field; mass powerlessness; acceleration; Kepler's law; Newton's law; Coulomb's law; electric force field; connection of force fields.

INTRODUCTION

The notations used in this study are as follows.

$\sqrt{\mu_2} = 1.161 \cdot 10^{10} \left[\frac{kg}{As}\right]$

K_0 = Coulomb constant $9 \cdot 10^9 \left[\frac{kgm^3}{A^2 s^4}\right]$

G = gravitational constant $6{,}674 \cdot 10^{-11} \left[\frac{m}{s^2}\right]$

M_S = Sun's mass

M_E = Earth's mass

R_E = Earth radius

v_E^2 = Earth speed

Q_s = Sun's charge

Q_E = Earth's charge

R_{SF} = Sun Earth distance

R_{EM} = Earth-Moon distance

M_M = Moon's mass

r_m = Moon radius

a_{Ec} = Earth's centripetal acceleration

g_{SE} = gravity at distance from Sun to Earth

g_E = Gravity on Earth

K_a = Kepler constant

$K_m = K_a \cdot 4\pi^2 = 1.327 \cdot 10^{20} \left[\frac{m^3}{s^2}\right]$

Modified Kepler constant.

$M_S \cdot G = 1.327 \cdot 10^{20} \left[\frac{m^3}{s^2}\right]$ Sun constant

$$M_S \cdot G = K_m = 1.327 \cdot 10^{20} \left[\frac{m^3}{s^2}\right] \quad (1)$$

1. Determining the value of G by calculation

This requires Kepler III. amendment of the law. Kepler III. law of planetary motion.

$$\frac{T_1^2}{T_2^2} = \frac{R_1^3}{R_2^3} \rightarrow \frac{R_1^3}{T_1^2} = \frac{R_2^3}{T_2^{''}} \quad (2)$$

As a next step, enter the orbital time into the formula as the ratio of the distance traveled by the planet to the speed.

$$T^2 = \frac{4\pi^2 R^2}{v^2} \rightarrow \frac{R_1^3}{T_1^2} = \frac{R_2^3}{T_2^{''}} \rightarrow R_1 \cdot v_1^2 = R_2 \cdot v_2^2 = K_m \quad (3)$$

This is a modified form of Kepler's law. Its unit of measurement $\frac{m^3}{s^2}$ is the same as for the original shape.

Based on Table 1, this is true for any planetary orbit. This is approximately acceptable, even if it is for a circle. Kepler calculated the mean distance and the orbital period. Therefore, this is the average track speed. This is practically at the point of intersection of the minor semi-axis and the track. If there is no time term, we will not be bound to a specific circular orbit during our calculations. It must not be forgotten that in this figure the direction of movement is always perpendicular to the radius of circulation. This is perfectly fulfilled in the case of elliptical planetary orbits and semi-major axes.

For small half-shafts, only approximately. This is true in four cases in its planetary orbit. Kepler's law is also valid at the intersection of the minor axis and the planetary orbit, calculated with the mean solar distance.

TABLE 1: Mean Sun Distance, Average Orbital Speed, and Radial Velocity Product ($R \cdot v^2$) for Planetary Orbits.

	Medium Sun-distance (km)	**Average orbital speed (km/s)**	**$R \cdot v^2$ ($\cdot 10^{20} m^3/s^2$)**
Mercury	57 910 000	47,87	1,3271
Venus	108 200 000	35,02	1,32669
Earth	149 598 000	29,79	1,32761
Mars	227 940 000	24,13	1,32759
Jupiter	778 330 000	13,06	1,32754
Saturn	1 429 400 000	9,66	1,33385
Uranus	2 870 990 000	6,80	1,32754
Neptune	4 504 300 000	5,44	1,32984
Pluto	5 913 520 000	4,74	1,32862

Based on Table 1, it is constant in planetary orbits. Apart from Saturn, the results are identical with ± 0.002 accuracy. Based on this, it can be assumed that there is some inaccuracy or other disturbing factors in the track data used. The equation below is the modified Kepler constant in the Solar System.

$$R_1 v_1^2 = R_2 v_2^2 = R_i v_i^2 = K_m \quad (3)$$

The results of the table are also the same as the constant value of the Sun.

$$M_S \cdot G = 1.989 \cdot 10^{30} kg \cdot 6.67424 \cdot 10^{-11} \frac{m^3}{kg \cdot s^2}$$

$$= 1.3275 \cdot 10^{20} \frac{m^3}{s^2}$$

Based on this, the value of G can be calculated based on astronomical data.

$$M_S \cdot G = R_1 \cdot v_1^2 = R_2 \cdot v_2^2 \rightarrow G = \frac{R_i v_i^2}{M_S} \quad (4)$$

Let's see if we can get to the calculable value of G in another way.

Let's use Newton's law of force and calculate the centripetal force between the sun and the earth.

$$\frac{M_E v_E^2}{R_{SF}} = G \frac{M_S M_E}{R_{SF}^2} \rightarrow G = \frac{R_{SE} v_E^2}{M_S} \quad (5)$$

We can see that the value of G is also given by Newton's law. Furthermore, the value of G has already been calculated by several researchers. Constantin Meis gave the following formula. [1]

$$G = \frac{l_P^2}{4\pi\varepsilon_0\mu_0 e\xi} \quad (6)$$

He used data from the micro or quantum world. His equation suggests that gravity is not only related to motion but also to the electric field. Dirac also noted in 1937 that the value of G decreases depending on the lifetime of the universe. [2]

Based on formula (5), however, it does not change due to the elapsed time. But because of the constant change in the universe. The radius of the orbiting mass and the associated orbit speed can also change. We have to face the possibility that G is not everywhere and not always the same in the universe. G can also be a variable. It can be seen that we arrived at the calculated value of G in three ways. Let's do a calculation using the known data of the Sun and the Earth. Sun Earth with middle distance. We calculated the average speed of the Earth.

$$G = \frac{1.495978 \cdot 10^{11} \cdot 29.789^2 10^6}{1.989 \cdot 10^{30}} = 6.67424 \cdot 10^{-11} \frac{m^3}{kgs^2}$$

This is exactly the value of G.

We can calculate the same result for any planet. Its value can be calculated based on data from the quantum world and astronomical data. G is also variable based on the formula. Variable speed and variable radius are also included in his formula. Both are constantly changing, albeit to a small extent.

2. Why can't we measure the value of G exactly?

Let's see what the formula says.

$$G = \frac{R_{SE} v_E^2}{M_S} \quad (5)$$

What we have so far determined by measurement can also be determined by calculation. Also, with the help of currently known astronomical data. And the result is the same as the value accepted today. The formula points to something very important. G can vary even though we consider it a natural constant. In formula (5), R and v also change continuously. This is true for all elliptical orbits. During the Earth's orbit around the Sun, its speed and orbital radius are constantly changing. That is why there is a constant uncertainty in the measurement of G.

Let's see under what conditions the measurements of the gravitational constant were carried out and what was measured:

- The measurement was performed on the Earth's surface at a speed of 0.
- When the bodies are at rest, under the least possible disturbing conditions.
- Meanwhile, the Earth's speed varied between 30,287 km/s and 29,291 km/s in its orbit around the sun.
- Its distance from the Sun varied between 1.47098·108 km and 1.52092·108 km.
- The Earth moved in a certain planetary orbit around the Sun.
- It doesn't matter where and when we measure.

These are only the most basic because we haven't even talked about the other movements of the solar system yet. So, these are the measurement conditions, which were assumed to be measured at rest. In fact, they were and are still measured under constantly changing conditions. So, the measurement uncertainty is no accident.

3. How can it be proved that G is variable?

Nature shows the solution. The Earth revolves around the Sun in an elliptical orbit. This is what nature has shown us. Let's ask the question. Why does the Earth move from an orbit with a larger orbital radius to a smaller one when speed increases? How does the Earth know that it now has to move to a smaller radius orbit? What is causing this change? Starting condition, no external energy is brought into the system. We don't even know. In this case, there is only one option. If the force between the Sun and the Earth changes. The mass attraction will be greater than the Earth's centripetal force. This is the only way the Earth can move from an orbit with a larger radius to an orbit with a smaller radius. In the case of the increasing speed of the Earth, the increase in the centripetal force must be smaller than the increase in the force between the Sun and the Earth. Otherwise, the Earth cannot enter an orbit with a smaller orbital radius. Let's look at the two characteristic points of the Earth's orbit, the aphelion and the perihelion. Let's calculate the force between the Sun and the Earth at these two points. They are at the point of intersection of the major axis of the elliptical orbit. Here, the circulation radius is the same as the guiding radius. Aphelion is the farthest point from the Sun. This is where the Earth's speed is the lowest. If the Earth passes through this point, the accelerating effect of the Sun already takes effect. Earth's speed up to Perhelion increases. And the radius of circulation decreases. The result of the calculation.

In aphelium, the force of gravity is $3.431 \cdot 10^{22} N$.

The force of gravity in perhelium: $3.668 \cdot 10^{22} N$.

The result shows that the force effect is significantly greater in perhelion than in aphelion. This means that as a result of the increasing speed, the mass attraction between the Earth and the Sun increases. That is, acceleration induces an increasing force.

In aphelion, the speed is: $29.291 \cdot 10^3 \frac{m}{s}$

In Perhelion, the speed is: $30.287 \cdot 10^3 \frac{m}{s}$

The Speed Difference: $0.996 \cdot 10^3 \frac{m}{s}$

This means that there is a speed change of $2.15626 \cdot 10^{-7}$% per second along the orbit.

Let's also look at the decrease in distances between aphelion and perhelion.

Aphélium's distance from the Sun: $1.52097 \cdot 10^{11} m$

Perhelium's distance from Sun: $1.47098 \cdot 10^{11} m$

The decrease of the Orbital radius to perhelion: $0.04999 \cdot 10^{11} m$

Let's see how this can happen. The first step in the process is that the speed of the Earth increases due to the acceleration of the Sun. As a result, the value of G must increase. This also increases the force between the Sun and the Earth. Let's see what the formulas say if the speed of the Earth increases due to the accelerating effect of the Sun.

$$G = \frac{R_{SE} \cdot v_E^2}{M_S} \tag{5}$$

The value of G clearly increases with increasing speed. Until the reduction of the radius of circulation R_SE occurs due to the induced greater force effect. As a result, the mass attraction between the Sun and the Earth will again be equal to the Earth's centripetal force.

$$F = G \cdot \frac{M_S \cdot M_E}{R_{SE}^2} = \frac{v_E^2}{R_{SE}} \tag{7}$$

Let's look at the other solution, formula (7). If G is constant and does not change. Then, based on Newton's law of force, the Earth cannot go into an orbit with a smaller radius. Newton's law of force does not include velocity. Thus, at any speed of the Earth, the force effect between the Sun and the Earth should always be the same. However, this does not correspond to reality. The calculations prove that the force between the Sun and the Earth is not the same in Aphélium and Perhélium. *Mass attraction is definitely speed dependent. So, Newton's law of force is one of the proofs that G's must be variable*. Let's examine the issue further. The radius of circulation cannot change by itself. Its change must be preceded by a change in the effect of force. So, the change in the orbital radius always occurs a very short time later. Therefore, it is possible that the Earth's centripetal force only follows the change in the force between the Sun and the Earth. Presumably, this happens periodically. *The elliptical orbit of the planet is proof that G varies within small limits. This is the only way the Earth and other planets can move in an elliptical orbit around the Sun. This is the second proof that G is a variable.*

4. Is there a relationship between the gravitational force field and acceleration?

Let's see what other interesting things there are about gravity?

$$M_E g_{SE} = M_E \frac{v_E^2}{R_{SE}^2} \rightarrow g_{SE} = \frac{v_E^2}{R_{SE}}$$

(8)

Let's put the well-known a $a_{Ec} = \frac{v_E^2}{R_{SE}}$ next to formula (8). Indexed according to Sun-Earth.

$$g_{SE} = \frac{v_E^2}{R_{SE}} \quad a_{Ec} = \frac{v_E^2}{R_{SE}} \quad (9)$$

After that, let's ask a question! Is the acceleration the same as the gravitational field force or the same calculation method? Or does the acceleration induce a gravitational force field that counteracts the force that created it? Is it a coincidence that the gravitational force field and acceleration have the same units? Based on the resulting formula, it can be seen that the acceleration induces a gravitational force field, which acts against the force creating the acceleration. We can see this now in the case of centripetal acceleration. Its magnitude is the same as in this example, only in the opposite direction to the Sun's gravitational field. Between two masses, if they are not in contact, only the gravitational force field maintains contact. Based on the example, they are in opposite directions and balance each other. /Let's remember what Lenz's law says here/ Let's look at this in earthly conditions, and index the formula accordingly. Perhaps the solution is too simple, which is why it escapes our attention.

$g_E = \frac{v^2}{R_E}$ formula arranged for v.

$$v = \sqrt{R_E g_E} \quad \text{... (10)}$$

And we get the already known formula, only now we arrived at it differently. Let's substitute the Earth data.

$v = \sqrt{6.378 \cdot 10^6 \cdot 9.8066} = 7.9086 \frac{m}{s}$ And this is the first cosmic speed on Earth.

$$g_{SE} = \frac{v_E^2}{R_{SE}} \quad a_{Ec} = \frac{v_E^2}{R_{SE}} \quad (9)$$

Acceleration of a mass in a gravitational force field induces a gravitational force field. The induced gravitational force field acts against the force that created it. Much like induced voltage.

5. What gives the energy of the gravitational force field? The relationship between the gravitational force field and the mass

Let's use the results so far. Let's calculate the value of Earth's gravity. Substitute formula (5) for G.

$$g_E = G\frac{M_E}{R_E^2} \quad G = \frac{R_{SE} v_E^2}{M_n} \rightarrow g_E = \frac{R_{SE} \cdot v_f^2}{M_S} \cdot \frac{M_E}{R_E^2} \quad (11)$$

$$9.8114 \frac{m}{s^2} = \frac{1.495978 \cdot 10^{11} 29.789^2 10^6}{1.989 \cdot 10^{30}} \cdot \frac{5.98 \cdot 10^{24}}{6.378^2 \cdot 10^{12}}$$

The calculation proved that our previous statements are correct.

What does Formula 11 show

(1) Gravity is not only a property of mass.
(2) It is directly proportional to the distance over which the given mass circulates R_{SE}
(3) It is inversely proportional to the mass around which M_s orbits.
(4) It is inversely proportional to the square of the distance, where it is measured as R_E^2
(5) Contains gravitational potential energy $M_E v_E^2$
(6) It is proportional to the square of the velocity of the circulating mass v_E^2
(7) The gravitational constant is also variable and speed dependent.
(8) The gravitational constant cannot only be measured but also calculated.

We can calculate the gravity of any planet and get the result we know today. Let's do a calculation with the Moon's data as well. Index the formula according to the Moon and Earth.

$$g_M = \frac{R_{EM} \cdot v_M^2}{M_E} \cdot \frac{M_M}{r_M^2} \quad (12)$$

$$1.636 \frac{m}{s^2} = \frac{3{,}844 \cdot 10^8 \cdot 1.023^2 \cdot 10^6}{5.98 \cdot 10^{24}} \cdot \frac{7{,}35 \cdot 10^{22}}{1.738^2 \cdot 10^6}$$

We also got a correct result for the surface of the Moon.

In the following, we will examine how we can verify that the results so far are correct. Let's do a thought experiment with a 1kg body. Calculate the gravitational force field of a 1 kg body. Sun, Earth in the distance. It orbits the Sun at the speed of the Earth. We calculate the force field at a distance of 1 m from the body.

$$\frac{1.495978 \cdot 10^{11} \cdot 29.789^2 \cdot 10^6}{1{,}989 \cdot 10^{30}} \cdot \frac{1}{1^2} = 6{,}67424 \cdot 10^{-11} \frac{m}{s^2}$$

We obtained a gravitational force field corresponding to the value of the well-known gravitational constant. For a body weighing 1 kg at a distance of 1 m.

How many types of induced gravitational force fields do we perceive?

(1) The simplest acceleration on Eart environment on a straight path. We feel this in a car, on a plane, etc. as long as the acceleration or deceleration lasts. The induced gravitational force field also acts against the force that created it. It pulls us into the seat or out of it.
(2) 2. What we used to think of as mass helplessness. It is actually a change in the gravitational force field due to acceleration or deceleration.
(3) The centripetal acceleration. This is what we feel on the merry-go-round in the turning car. Here, too, the induced gravitational field force acts against the force that created it, only here it is radial.

(4) The earth's gravitational force field, we feel it when we lift a body.
(5) Is it a coincidence that the unit of measure of the gravitational force field is the same as the unit of measure of acceleration, both $\frac{m}{s^2}$? This is not a coincidence, there are no coincidences in physics and mathematics. Gravitational field strength also changes during the acceleration of bodies. As a result of the interaction of the two gravitational field forces, this is what we feel.
(6) The gravitational field force between two independent bodies, which can create a connection even without contact. This gives the masses helplessness.

6. What properties do we know of the gravitational field?

(1) Induced gravitational field force, its creation also requires movement.
(2) Not only the exclusive property of the mass.
(3) Speed dependent.
(4) The acceleration or deceleration of any mass induces a gravitational field force against the force that created it.
(5) The value of G is within very small limits, but varies. So it's not permanent.
(6) G is only a parameter of a current system. /How big this system is not known/

7. Is there a connection between the gravitational force field and the electric force field?

This question has already puzzled many people. Several researchers came to the conclusion that there is a connection between gravity and the electromagnetic field. Faraday also dealt with the relationship between gravity and the electromagnetic force field. However, it was not successful.

Gertsenshtein demonstrates that electromagnetic radiation can cause gravity [3]. Constantin Meis came to the point where following conclusion [4].

$$U_{Newton} = G\frac{m_i m_j}{r_{ij}} = \frac{1}{4\pi\varepsilon_0}\frac{e_i e_j}{r_{ij}}\eta_{ij} = U_{Coulomb} \quad (13)$$

The equivalence of mass-charge and the electromagnetic nature of the gravitational constant G means that Newton's law of gravity is equivalent to Coulomb's law of electrostatics. The gravitational constant G is also related to the electromagnetic properties of the vacuum. This means that Newton's gravitational potential is equal to Coulomb's electrostatic potential. From this, it can be concluded that gravity is electromagnetic in nature. How can we prove this? Let's take the units of measurement of the gravitational constant, the Coulomb constant, and the modified Kepler's constant. Is there a relationship between them?

$$G \left[\frac{m^3}{kg \cdot s^2}\right], \quad K_0 \left[\frac{kg \cdot m^3}{A^2 s^4}\right], K_m \left[\frac{m^3}{s^2}\right]$$

It can already be seen at first sight that K_0 is divisible by G and K_m. Based on these, we can write K_0 in the following two ways.

$$K_0 = \mu_1 \cdot K_m \quad K_0 = \mu_2 \cdot G \quad (14)$$

Calculate the value of μ_1 and μ_2

$$\mu_1 = \frac{K_0}{K_m} \qquad \mu_1 = \frac{9 \cdot 10^9}{1{,}327 \cdot 10^{20}} = 6{,}782 \cdot 10^{-11} \left[\frac{kg}{A^2 s^2}\right]$$

$$\mu_2 = \frac{K_0}{G} \qquad \mu_2 = \frac{9 \cdot 10^9}{6{,}6742 \cdot 10^{-11}} = 1{,}348 \cdot 10^{20} \left[\frac{kg^2}{A^2 s^2}\right]$$

With the help of μ_1, and μ_2, we can determine an amount of electric charge for the Sun and the Earth. Substitute these into Coulomb's force law. We get the same result for the force effect calculated with Newton's force law. Constantin Meis' claim can also be verified with astronomical data. Newton's law is equivalent to Coulomb's law.

My detailed calculations in the article Connection Between Gravity and Quantum World [5].

Charging of Sun: $Q_S = 1{,}711 \cdot 10^{20} [As]$

Charge of Earth: $Q_E = 5{,}149 \cdot 10^{14} [As]$

The force between the Sun and the Earth with Newton's law.

$$F_N = 6{,}67424 \cdot 10^{-11} \frac{1{,}99 \cdot 10^{30} \cdot 5{,}98 \cdot 10^{24}}{1{,}495^2 \cdot 10^{22}} = 3{,}553 \cdot 10^{22} \text{ N}$$

The force between the Sun and the Earth with Coulomb's law:

$$F_C = 9 \cdot 10^9 \frac{1{,}712 \cdot 10^{20} 5{,}149 \cdot 10^{14}}{1{,}495^2 10^{22}} = 3{,}548 \cdot 10^{22} \text{ N}$$

So it can be verified numerically that Newton's and Coulomb's laws are equivalent. So, there is a connection between the gravitational force field and the electric force field.

8. What connects the gravitational force field with the electric force field?

Let's put Newton's law and Coulomb's law side by side, since they give the same result.

$$K_0 \frac{Q_S Q_E}{R_{SE}^2} = G \cdot \frac{M_S M_E}{R_{SE}^2} \quad (15)$$

With this, we connected the electric force field with the gravitational force field.

$$\frac{K_0}{G} = \frac{M_S^2}{Q_S^2} = \mu_2 \qquad \frac{K_0}{G} = \frac{M_S M_E}{Q_S Q_E} = \mu_2$$
$$\rightarrow \frac{M_S^2}{Q_S^2} = \frac{M_S \cdot M_E}{Q_S \cdot Q_E} \quad \rightarrow \frac{M_S}{Q_S} = \frac{M_E}{Q_E} = \sqrt{\mu_2} \quad (16)$$

Sorting the equation, we arrive at μ_2 and $\sqrt{(\mu_2)}$. How important is this to us? Because they connect the quantum world with the astronomical world. It can be used to determine the electric field associated with gravity and the speed of the planets, even charging the central mass of the Milky Way. Their value can also be determined with data from both the astronomical and quantum worlds. Detailed calculations are provided in the article *Connection Between Gravity and Quantum World* [5].

$\sqrt{(\mu_2)}$ can also be determined from Constantin Meis's equation. It is a proportionality factor in both the astronomical and quantum worlds, suggesting that the laws governing these two realms are the same. This represents a small step in unifying the four fundamental forces. The electric force field can be expressed from the gravitational force field and vice versa. The magnitude of the corresponding gravitational force field can be determined from the electric force field, allowing a meaningful relationship to be written between gravity and the electric field. The charge in the electric force field should not be imagined as a static charge, but rather as the result of a collection of vibrating charges.

How important is it that G is variable and computable? The formula for G can be used to specify the radius of a planetary orbit for any velocity in the Solar System. It can even help determine the central mass of the Milky Way system. Most importantly, it shows that the gravitational force field is induced by motion, making it speed-dependent. This can be expressed using the electric field, offering a new way to describe the gravitational force field.

CONCLUSIONS

Based on the answers to the questions, we can say the following:

(1) The value of G varies, as evidenced by Newton's law of forces and the elliptical orbits of the planets.
(2) The value of G can also be determined by calculation.
(3) We cannot measure it precisely, because the speed and radius of circulation are constantly changing during the measurement. The value of G changes very little. It increases or decreases periodically.
(4) A planet can only move in an elliptical orbit if G changes.
(5) Acceleration or deceleration in a gravitational force field creates a gravitational force field change. It always works against the force that created it. This is what gives the crowd its helplessness.
(6) The gravitational force field is an induced force field and speed dependent.
(7) Newton's force law also includes the energy of the gravitational force field.
(8) There is a connection between the gravitational force field and the electric force field. This is proven by the fact that Newton's law of force and Coulomb's law of force give the same results. Thus, it is an opportunity to combine the two fields of force.
(9) If there is a connection between the gravitational force field and the electric force field, then the gravitational force field is the carrier medium of electromagnetic waves. Thus, it is the carrier of light.
(10) The new way to describe the gravitational force field.
(11) Based on the above, it is possible to answer whether gravity has one pole.

REFERENCE

[1] Meis, C. (2022). Journal of Modern Physics, 13(6).

[2] Dirac, P. (1937). The Cosmological Constants. Nature, 139, 323.

[3] Gertsenshtein, M.E. (1961). Resonance of Light Waves and Gravitational Waves. Journal of Experimental and Theoretical Physics, 41, 113-114. (English Translation in Soviet Physics JETP, 14, 84-85, 1962).

[4] Meis, C. (2022). Journal of Modern Physics, 13(6).

[5] International Journal of Scientific Advances (2024). Volume 5, Issue 1, Jan–Feb. Available online: www.ijscia.com. DOI: 10.51542/ijscia.v5i1.6.