

# Basic principles of universal gravitation

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Abstract: In the article titled *On the formation of the Earth's gravitational field*, the concepts of magneton line field and gravitational line field of primitive earth and the process of closure of bending are explained. The gravitational space of the astral body is transformed into a realistic linear mass system. This provides the basis for substantial mass field to address the problem of universal gravitation. In this situation, the concepts of graviton line and gravitational line field are proposed. Because of the cutting of the moving gravitational lines and magneton lines of other astral bodies, the precession of the graviton line and magneton link in a zigzag contraction manner occurs. From the perspective of quantization of gravity, the source of universal gravitation is given. Thus, the universal gravitation is related to the mass and movement of substance. This article proposes the method for theoretical calculation of universal gravitational constant. The theoretical quantized value of the Earth's universal gravitational constant calculated by this method is  $\Delta G = 2.281853214 \times 10^{-30} \text{ kg m/s}^2$ . The square principle of distance is explained in terms of the efficiency of quantized momentum, and the ratio of

effective and ineffective transmission amount. Compared with the Kepler's theorem, it is essentially the ratio of area swept by each magnetic line due to cutting to the area swept by progression converted from such movement after the amplification over the distance. We compare the universal gravitation with Coulomb's force for the first time in essence. The universal gravitation and Coulomb's force are unified. We find some convincing proof that universal gravitation and Coulomb's force have identical principle of action.

Keywords: Magnetic monad, expression of tension, galactic magnetism, cutting precession, linear contraction pressure, nucleus groove, bending and vacillating meshing, false swing of force surface

**Main body:**

**Introduction:** in classical dynamics, people have gone a long way to understand the universal gravitation. The astronomer Kepler attempted to find the reason for the movement of the planets in the solar system from the movement principle of the planets in the solar system. He envisioned that the sun emits a force similar to the magnetic flow towards the planet. The force acts as the spoke of the wheel, keeping the planet on its orbit. The planet is forced to revolve around the sun as the sun rotates. The scientist Hook and astronomer Halley also agreed that the gravitation and gravity are of the same essence; both of them resemble the magnetic force. Magnetism is very important in the traditional study of gravitation,

as it has the classical mechanical properties. Then can magneton, magnetic field and gravitational field be the substances with basic mass? Are they like the rope to transmit the force? The understanding of the magneton is obtained by making an analogy with the magnetic field. Generally, we do not seem to care about why the magnetism is invisible but the magnetic force exists. If we say that the magneton is the basic substance, then it must have volume and mass. Then how to define these basic features of magneton? Why we cannot see the magneton? Why we have not yet discovered the mass and weight of magnetism? The crux of the problem is that magnetism is the pusher in universal gravitation and gravity, the medium for the generation of universal gravitation. Without magnetism, there will be no gravity and gravitation. Therefore, the magneton itself has no weight, that is, it cannot produce a force for itself. Since the magneton and magneton line cannot reflect the light beams, we cannot see the magneton. Such understanding is tested by the traditional knowledge. The next question is what is the shape of magneton? As seen from the new concept of tension [1], if the magneton is composed of particles with smaller mass, then the magneton will not have the dot-like shape of the particle, but the shape of discus. The two surfaces of magneton discus are two attachment points, which can be considered as charges. An independent magneton is a two-charge body with symmetry. Magneton acts as the gluon and link in the atom. The end face exposed

outside the nucleus is a charge. This magneton charge can extend infinitely. In the development process, the magneton line created by the stacking of the two point-charge magnetons cannot be comprehended by us. It is likely to be the graviton line and gravitational line in universal gravitation. (see Fig. 1):

Magnetic line and gravitational line are real continuous string of charge with linear development. It is a linear object created out of the adhesion of the flat-type object as the point of application of force via tension. Magneton, magnetic charge and graviton have mass as the basic substances. A charge is essentially a transverse plane of magneton. The charge force is the permanent thrust that presses the two charge planes together, and a non-stop collision. It is the force maintaining the collision without energy transfer, elastic force and reaction force. Meanwhile, it is a manifestation of tension. Under the action of force, the magnetic line possessing the tension link structure is featured by the basic tensile strength. The curvature of false plane and its intermittent closure during the cutting process give the feature of gravitational line to the magneton line in some situations. The gravitational line composed of the magneton line is a realistic substance that has mass as the air and water. It represents the cosmic nature and the substance with huge gravitation that cannot be understood. Since the magnetic line does not have the plane that reflects the photon but only deflect the photon, the light beam cannot reflect the

true shape of magnetic line and gravitational line. Hence, the magnetic line and the gravitational line are the most important dark matter that has been recognized by human beings.

The magneton line extends from the nucleus of any element on earth. After being bent and connected due to the Earth's movement, a huge gravitational line field and magnetic line field are formed on Earth. The magnetic line field of gravitation is different from the basic magnetic field. The two are determined by different momentum features of the same substance, and they are mutually transformable. When the magnetic line of the Earth makes intermittent movement relative to the Earth, it is the basic magnetic field of the Earth, known as the Earth's magnetic field. This is the basis for the momentum of the magnetic force of the Earth. Its momentum is large compared to the Earth's momentum, and hence it is easily recognized. When the magnetic line of the Earth is completely static relative to the Earth, it is the gravitational line field and gravitational field. The gravitational field has a zero momentum in relation to the Earth, which makes it difficult to be discerned. Therefore, it is a realistic structural field with linear mass. Every gravity and gravitational phenomenon on the Earth is determined by the magneton force line and line field on the Earth.

Now let's consider the basic process and principle of universal gravitation with the linearity of force. The magnetic line of universal

gravitation mentioned in this article is equivalent to gravitational line.

(Fig. 1 below is the structural diagram of the atom of my conception)

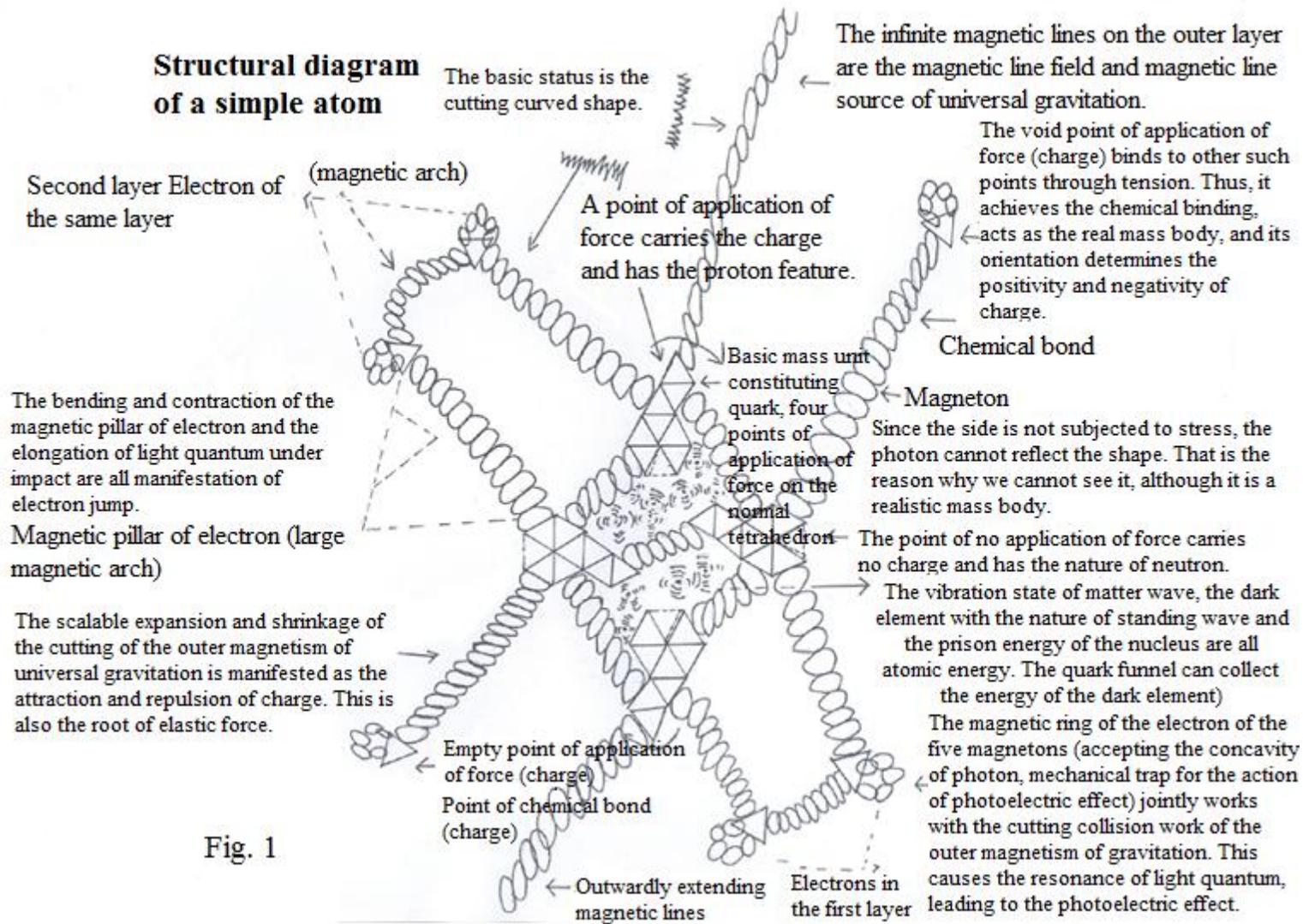


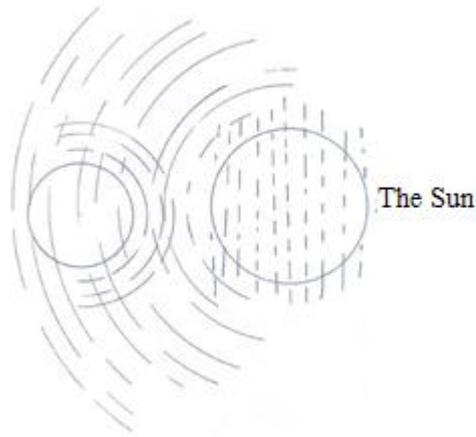
Fig. 1

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## Section 1: The cutting of gravitational line leads to the accelerating force of gravity.

The first type of force in universal gravitation is gravitational line. This is the induction perpendicular to the direction of cutting and caused by the cutting and collision as well as the bending and movement of gravitational line. The persistence of induction causes the accelerating force of gravitation and gravity.

In the latest astronomical researches, a large amount of dark matter is found in the cosmos. It takes the filamentous shape in the galaxy. Consider that surrounding the sun, there does exist a huge, linear gravitational field with real mass as predicted by Kepler and Faraday. Then, the Earth also has such linear gravitational field. Its structure and state can be shown as Fig. (2): in the solar system, the gravitational field of the sun starts from the center of the sun, until reaching the entire solar system. Under the action of the sun's movement, the gravitational line field will also move along with the spinning of the sun. We know that the revolution speed of the Earth is 29,790 meters/s. The Earth's radius is 696000000 meters. The rotation period of the sun is 25 days. Then the linear velocity of the sun's equator is 2024.58189m/s.



The linear velocity at which the sun sweeps over the disc plane of the Earth is 435168.7528 m/s.

It can be seen that the spinning of the sun causes the gravitational line field and magnetic field of the sun to constantly sweep over all the mass system of the planet. Now suppose the Earth itself is also full of gravitational lines. Every object on the Earth is surrounded by the gravitational lines. The Earth's gravitational line field is rigorously hierarchical. Due to the cutting by the sweeping gravitational lines of the sun, the gravitational lines of the Earth can be divided into the following situations. See Fig. 3 (graphic 10).

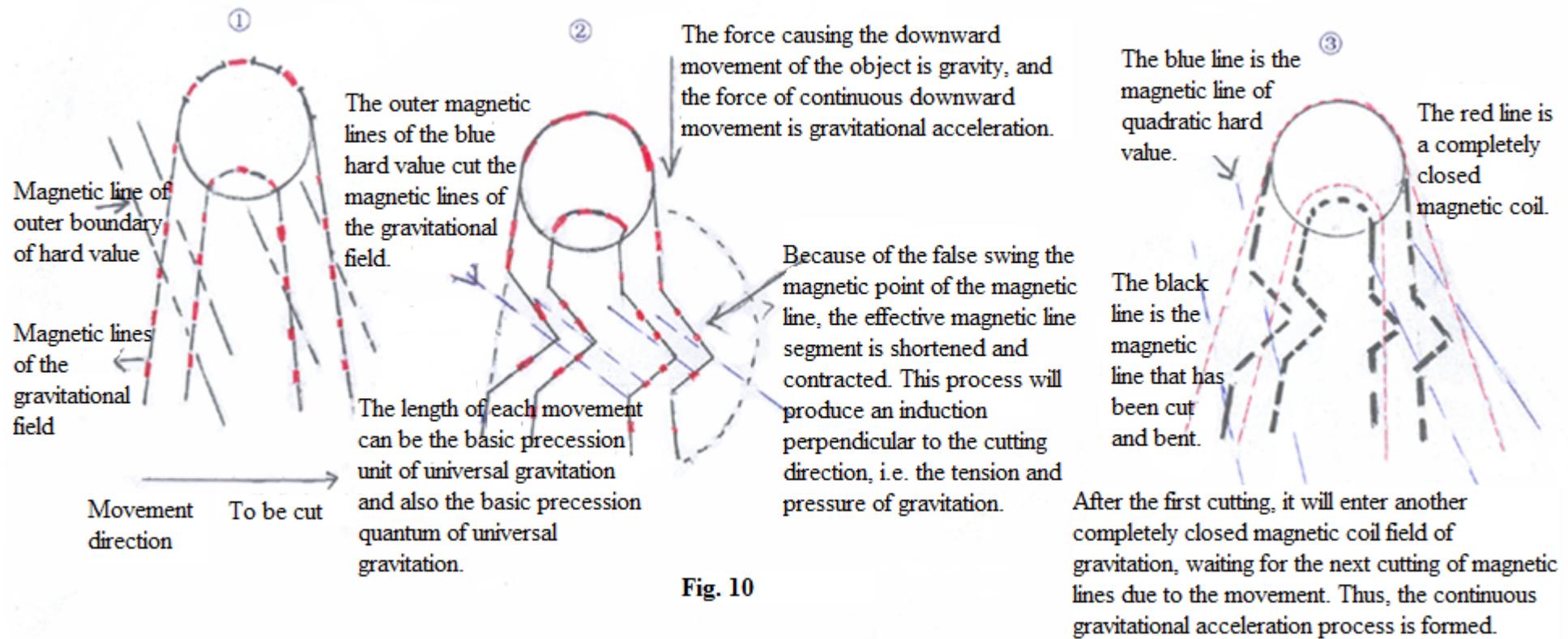


Fig. 10

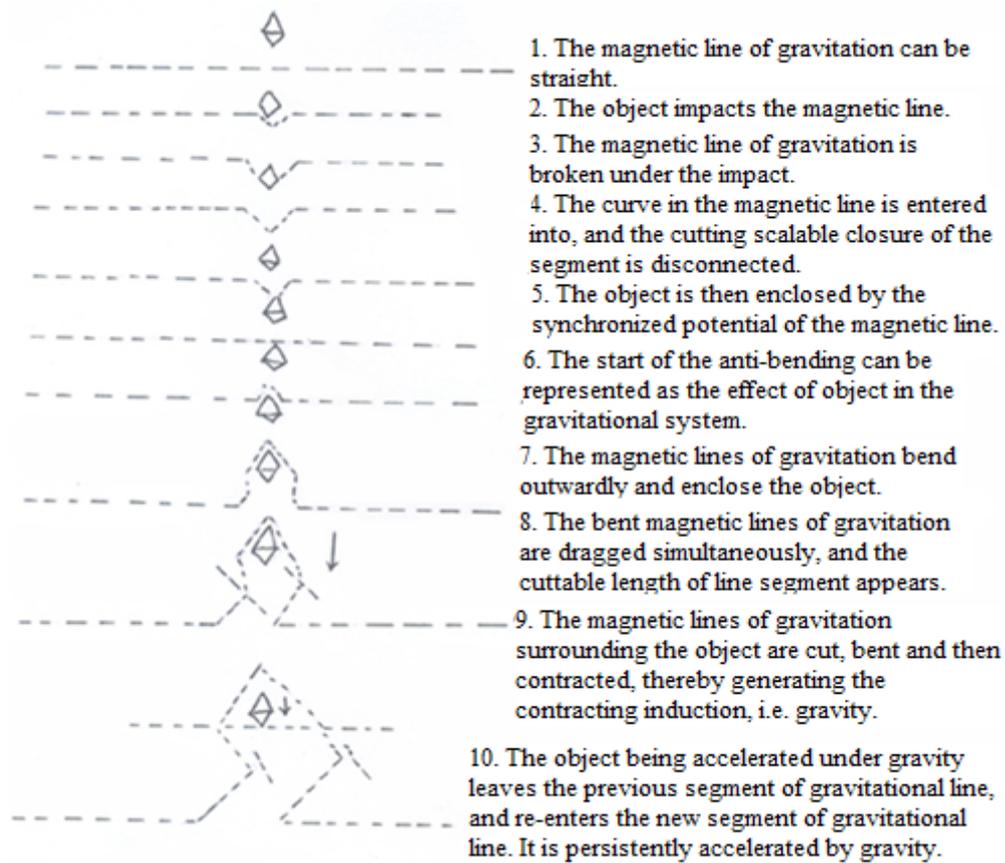
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When an object leaves the Earth's surface and uplifts to a certain height from the Earth, it will be immediately enclosed by dense magnetic lines and gravitational lines that bend towards the Earth's center. These gravitational lines that enclose the object will be closed in a moment under the action of Magdeburger force of ether (Casimir force). It becomes the closed gravitational coil that intertwines the object. Since the gravitons composing the gravitational lines are point of application of force, there exists the false in the area of the point of application of force that vacillates, meshes and bends. Therefore, the force lines can be bent. Due to the presence of tension, the force lines have tensile strength. Therefore, when the gravitational lines of the sun cut, collide and impact the gravitational lines of the Earth, the segments of the Earth's gravitational lines will be bent due to the collision from the sun's gravitational lines. With the tensile strength, when the Earth's gravitational lines are bent under collision, the two ends of this gravitational line will be pulled to make supplementary precession movement. Such precession will finally reach the entwined object in sequence. An induction along the gravitational line will be produced on the entwined object. Therefore, the thrust for the movement of object pointing towards the source of the gravitational line is generated. This thrust caused by the associated pressure in line cutting is universal gravitation. The work of thrust per unit of subcutting is the quantized

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value of gravitation. The persistent action of this force is gravitation.

Along with the movement of the gravitational line segment with cutting feature, the impact also affects and pulls the bound object. The object then makes a drawing movement towards the center of the Earth. As the object makes the downward movement, it enters the next layer trapped by the closed gravitational lines of the Earth. When the next layer of closed gravitational lines is cut again and continuously, it will exert a persistent induction on the object. This makes the object to continuously move towards the direction of induction. Because of relative movement, the object in the gravitational field causes the persistent mutual cutting of the gravitational lines, the gravitational lines surrounding the objects will bend and contract, thus making continuous precession. The bound object under the traction (movement under force, inclination of false plane) makes continuous precession towards the center of the Earth. That is when the object is under the pull of accelerating force of gravity. It is the reason for the generation and acceleration of movement for an aerial object due to the cutting of gravitational lines and magnetic lines. This is also the essence of gravity and gravity acceleration; the basic principle of universal gravitation in the true sense of mass. This is also the result of the movement of mass, of the same nature with all action of mass energy. The detailed process is given below: Fig. 4 (graphic 3)



**Fig. 3**

It can be seen from the cutting and traction process that the action of universal gravitation in this framework has a direction. The direction of gravitation is finally determined by the bending direction of the gravitational line. If the gravitational line is cut, the object will always move towards the bending direction of gravitational line. This indicates that the attraction force of gravitational line on the object is a linear, binding precession force. The site where the gravitation occurs is the place where the gravitational line gets in contact with the object, causing pressure. This is one facet of object, but not the entirety of the mass of object. The sweeping of the sun's magnetic lines and gravitational lines cuts the sub-gravitational line field of the Earth. This causes the

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gravitational effect that cuts, bends and pulls. It is the root of Newton's universal gravitation.

Concerning the gravitational field, we define the following questions:

1. It can be seen from Fig. 9 and 10 that in the basic gravitational space, the magnetic lines of gravitation can bend and is cuttable without precession.

2. The invasion of any object can cause the elongation of the gravitational line field of ground state. The gravitational lines are extended, and become the cuttable magnetic lines of gravitation that can bend and make precession.

3. The bending direction of a gravitational field always points to the mass system which is the source of gravitational lines. The direction of gravitation always points to the bending direction of gravitational field. Such bending includes natural incurvation, moving incurvation, and invasive trailing incurvation. The direction of gravitation always points to the mass system as the source.

**Derivation of the universal gravitational constant, method for the calculation of quantized gravitation value**

The generation of universal gravitation is the result of gravitational line that cuts, bends and makes precession. The question is how to determine the value of such precession thrust (the quantized value of gravitation). This involves the minimum bending and unfolding radius of

gravitational line. In the previous papers, to form a minimum magnetic ring, it must be composed of five magnetons connected in a head-to-tail manner in terms of mechanical and structural principles. There should be no more than or less than five magnetons, in accordance with the basic properties of magneton. For a magneton with the mass  $M_r$ , the radius  $r$  of the minimum magnetic loop of magnetic line can be calculated as  $2\pi r=5$ , thus  $r= 0.795774729$  magneton unit. That is,  $r= 0.795774729 M_r$ . For any magnetic line to bend and break, it has to finish within this length of curvature. Under this situation it can be calculated that every time the magnetic line is cut, the effective precession momentum mass of magneton of the party being cut is as follows (see Fig. 5):

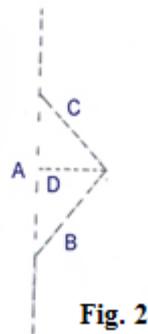
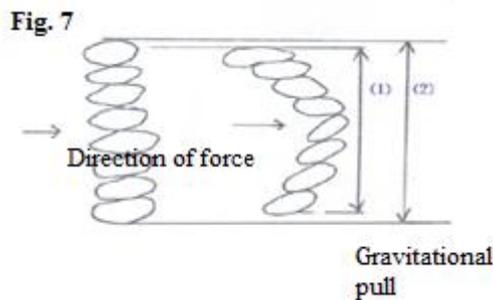


Fig. 2



Suppose Fig. 5 shows the bending of the gravitational line.

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$$\Delta p_{m1} = (L_C + L_B) M_r - L_A M_r$$

$$\Delta p_{m1} = (2.250790828) M_r - (1.591549458) M_r$$

$$\Delta p_{m1} = 0.65924137 M_r \quad (\text{Formula 1})$$

where  $M_r$  is the mass of magneton (also the mass of graviton).  $\Delta p_{m1}$  is the minimum precession momentum mass for each cutting of each magnetic line. It can be derived that the unit of each cutting, traction and precession is the length of 0.65924137 magneton. That is, if one party (major party) is taken as the reference, each cutting gives the precession measure equivalent to the length of 0.65924137 magneton for the object under the action of gravitation. It can be said that the recipient of force has completely acquired the traction momentum mass equivalent to the length of 0.65924137 magneton. That is:  $\Delta G_m = 0.65924137 M_r$ .

This component of traction mass is converted into the two along-line tensile forces with the same magnitude and opposite direction. Thus, the minimum unit of effective precession momentum of the magnetic line segment of gravitation is as follows:

$$\Delta G_m = (0.65924137 M_r / 2) \quad (\text{Formula 2})$$

For the object, the effective gravitation is 1/2 of 0.65924137  $M_r$ . This fact can be understood as follows: when the cutting speed of the outer magnetic line of gravitation is definitely larger than the gravity acceleration (because the movement distance of the momentum mass is

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within the range of one magneton), then the precession traction mass for each cutting of the gravitational line of magneton is equivalent to 1/2 of 0.65924137  $M_r$ . It will be converted to the accelerating impact work on the object (recipient of force) (similar to electron volt). Then the basic, minimum unit of the work force of gravitational momentum for each magnetic line of gravitation (since the momentum is completely converted into work, here it represents the momentum work):  $\Delta G = (0.65924137 M_r / 2) \times v$ .

With the giver of force as the reference, the quantum unit of gravitation is expressed as follows:

$$\Delta G = (0.65924137 M_r) \times v \quad (\text{formula 3})$$

$v$  is the absolute velocity of mass of gravitational line segment that is being cut. The following is the cause of the cutting speed of universal gravitation: in the presence of universal gravitation, the gyration and spinning of the galaxy lead to the spinning of the sun at a fast speed. The spinning of the sun causes the gravitational lines and gravitational field of the sun to sweep over the mass system of the planet in the solar system. Such sweeping cuts the sub-gravitational line field of the sub-galaxy, which produces the universal gravitation effect that bends, cuts and makes precession. Moreover, it produces a sweeping traction force on the planet. As a result, the planet makes revolution in the same direction of the spinning of the sun. Given the sun's radius of 696000000

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m and the sun's rotation period of 25 d, the linear velocity of the sun's equator is calculated as:

$$U = 2 \frac{2\pi r}{s} = \frac{4373096899}{25 \times 24 \times 60 \times 60} = 2024.581898 \text{ m/s}$$

The linear velocity at which the sun sweeps over the Earth is  $U_{\text{earth}} = U \times \frac{\Sigma R}{R}$ .

$$U_{\text{earth}} = 2024.581898 \text{ m/s} \times \frac{149600000000}{696000000} = 435168.7528 \text{ m/s}$$

The cutting velocity of gravitation is expressed as

$$V = 435169.2515 \text{ m/s} + 465 \text{ m/s} \pm 29790 \text{ m/s} = 435634.2515 \text{ m/s} \text{ (formula 4)}$$

The velocity of 435634.2515 m/s is the cutting speed of the Earth's gravitation. It is the speed of the sun's magnetic field sweeping over the Earth (435169.2515 m/s) plus the revolution speed of the Earth (29790 m/s). Since the sweeping speed of the sun is faster than the revolution speed of the Earth, 29790 m/s should be subtracted from it. In the real action amount, the Earth will sweep over the magnetic field of the galaxy due to revolution, which is the effect cutting of gravitation. Thus, the effective cutting speed of the Earth's gravitation is  $V = 435169.2515 \text{ m/s} + 465 \text{ m/s} \pm 29790 \text{ m/s} = 435634.2515 \text{ m/s}$ . The speed above also reflects the cutting of the magnetic lines of galaxy, that is, -29790 in paramagnetism, and +29790 in vertical cutting. The superposition and subtraction of the spinning speed also reflects that the feeble gravitation

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is stronger in the day and weaker in the night. Given that  $v = 435634.2515$  m/s, it is transformed into the working momentum of gravitation for the object by each cutting:

$$\Delta G = (0.65924137 M_r \cdot 1 / 2) \times 435634.2515 \text{ (Formula 5)}$$

With the giver of force as the reference, the quantum unit of gravitation is expressed as

$$\Delta G = (0.65924137 M_r) \times 435634.2515 \text{ m/s}$$

where 0.65924137 is a constant.  $M_r$  is the mass of a magneton, and also the mass of a graviton. According to the principle of point of application of force, the mass of one magneton is equivalent to the mass of three photons. In the formula for relative static mass of photon by Xia Hengguang, the static mass of photon is calculated as  $2.6485 \times 10^{-33}$  g from the angle of deflection of light beam near the sun. Then the basic and minimum unit of precession momentum of universal gravitation is expressed as follows:

$$\Delta G = (0.65924137 \times (2.6485 \times 10^{-33} \text{ kg}) \times 3) \times 435634.2515 \text{ m/s}$$

$$\Delta G = 2.281853214 \times 10^{-30} \text{ kg m/s}^2 \text{ (Formula 6)}$$

$\Delta G$  is the basic amount of gravitational thrust produced by the cutting of one magnetic line of gravitation. This is also the basic unit of quantized amount of universal gravitation. The unit can be changed into  $S^2$ . It is an absolute reference system. The resulting amount is equivalent to the process amount.

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Then we will use this method to verify the magnetic force and check the result. Since the hydrogen atom only has one extranuclear electron. It can be considered that the electron and nucleus of the hydrogen atom are only connected by a gravitational line (magnetic link). It is known that the basic, minimum unit of momentum precession is as follows:

$$\Delta G = 2.281853214 \times 10^{-30} \text{ kg m/s}^2$$

This is only the initial action amount. For it to transmit to the nucleus of the hydrogen atom, it has to travel a certain distance. Then the force of extranuclear electron of hydrogen atom is  $\Delta G' = \frac{\Delta G}{R^2}$ .

For the inverse proportion relationship by the square of distance, it is essentially the distance from the receiving of the work by the object, to the response of the giver of force and finally to the acting of force on the object. It is the effective amount of the momentum working that is required. It is the effective transmission for each working. The additional work of  $R^2$  is required to achieve the continuous transmission. It is only by this means that the giver of force can response. The distance between the electron and the nucleus is mostly  $5.29 \times 10^{-15} - 5.29 \times 10^{-11}$  m. Now the distance between the extranuclear electron and the nucleus of the hydrogen atom is determined as  $5.29 \times 10^{-12}$  m. It is in inverse proportion to the square of distance. The charge force of each charge link is

$$\Delta G' = \frac{\Delta G}{R^2} = \frac{2.281853214 \times 10^{-30} \text{ kg}}{(5.29 \times 10^{-12})^2} \text{ m/s}^2 = 8.15410613 \times 10^{-8} \text{ kg m/s}^2$$

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Then the extranuclear electron of hydrogen atom can generate the cutting force pointing towards the center of nucleus, i.e. the Coulomb's force:

$$\Delta F = 8.15410613 \times 10^{-8} \text{ kg m/s}^2 \text{ (Formula 7)}$$

The Coulomb's force of the hydrogen electron and hydrogen proton is currently calculated as  $F = 8.2 \times 10^{-8} \text{ kgm/s}^2$ . These two values are basically the same. That is to say, the Coulomb's force of hydrogen electron and hydrogen proton is obtained by other methods without using the coefficient of Coulomb's force. The values are within the allowable range. Therefore, this method is reliable. This constitutes a new idea in mechanics and provides important proof of correlation. According to the links from the forward and lateral links of electron, the precession and pendulation methods are used to obtain the definite values of the vibration and pendulation of electron. This provides a new, effective method for the measurement of electron cloud. Thus, the electron movement is made observable.

Using the static mass of photon and the movement speed of the Earth (effective gravitational velocity), a simple method in classical mechanics is employed for the first time to obtain the Coulomb's constant. It is identical to the experimental value. This finding may be a major breakthrough in physics.

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In normal situations, the gravitational line field related to cutting is of ground state, that is, the state of complete bending, cutting and no traction. The amount of gravitation is allowed to calculate all relative speeds. But if the gravitational field of the cutting side also extends because of the mass invasion, then the simultaneous bending effect occurs with the intersection of two lines. The differences are only in terms of degree and speed. Thus, the actual effective speed is calculated as follows:

$$v'_{\text{party being cut}} = v_{\text{absolute}} - v''_{\text{cutting party}}$$

$$\Delta G = (0.65924137 M_r) \times (v_{\text{absolute}} - v''_{\text{cutting party}})$$

$$\Delta G = (0.65924137 M_r^{1/2}) \times (435634.2515 \text{ m/s} - v''_{\text{cutting party}})$$

When the giver of force  $M_m$  is taken as the reference,

$$\Delta G = (0.65924137 M_r) \times (v_{\text{absolute}} - v''_{\text{cutting party}})$$

$$\Delta G = (0.65924137 M_r) \times (435634.2515 \text{ m/s} - v''_{\text{cutting party}}) \text{ (Formula 8)}$$

As to the problem of absolute cutting speed, it can be determined that it occurs when the cutting gravitational fields of the two parties are both of the ground state. The gravitational fields of the two parties cannot deform, and then momentum precession and momentum pendulation will not occur. The actual cutting momentum of the two parties is 0. Although the gravitational field can be cut, the gravitational field does not work.

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When one party is of ground state, while the other party is in the deformation state, the cutting momentum velocity of the deformation party is the full effective speed. When one party is in deformation state and the other party is at a certain position, or when the deformation cutting occurs in the whole range enclosed by the gravitational line, the propagation of gravitation will cause the sequential deformation of gravitational line during the propagation process. When the propagation and deformation of gravitation has just reached the cutting area of gravitation of the other party, the momentum speed of gravitation of the other party will become the full effective speed minus the momentum speed of the other party. As a result, the gravitation decreases. The value of this relative speed will be equivalent to a constant of the full speed of the two parties, or may be related to the deformation degree of the other party. The invariance and variability of gravitation and its relationship with momentum speed can help explain the tidal generation force.

Note: This process may explain the existence of the tidal generation force of the moon. It is the moon that affects the ground state of gravitational lines of the sun and the galaxy. As a consequence, the gravitational line of galaxy changes into the variable state, thus with less cutting of the gravitational lines of the Earth. This illustrates that the tidal generation force is probably due to the weakening of gravitation and electromagnetic force and the simultaneous increase of centrifugal force.

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This is not the process of the increase of gravitation due to superimposition.

Now we suppose the throughput of magnetic lines of universal gravitation for one kilometer of mass is: if  $kg\phi_{\text{magnetism}}$  is N, then the universal gravitational constant is

$$G = kg\phi_{\text{magnetism}} N \times (0.65924137 M_r^{1/2}) \times U$$

$$G = kg\phi_{\text{magnetism}} N \times (0.65924137 M_r^{1/2}) \times 435634.2515 \text{ m/s}$$

According to the transmission over the distance, the actual value is

$$G = [kg\phi_{\text{magnetism}} N \times (0.65924137 M_r) \times 435634.2515 \text{ m/s}] / R^2 \text{ (Formula 9)}$$

As the sun sweeps, the following question ensues: the farther away from the sun, the larger the sweeping speed will be. Is this the cause for the difference in universal gravitational constant? This may not be the case. G value is in the unit of  $s^2$ , and according to the radiation density state of the gravitational field of the sun, it is easy to prove that at any position,

$$W = \left(\frac{R}{\Sigma R} \rho\right) \times \left(\frac{\Sigma R}{R} \times s\right)$$

That is to say, the product of linear velocity at different radial position and the density of the cutting of gravitational lines at this position is the same for any point on the radial position. Then the theoretical formula for universal gravitational constant is as follows:

$$G = N \times 0.65924137 M_r \times \left[ \left(\frac{R}{\Sigma R} \rho\right) \times \left\{ \frac{\Sigma R}{R} \times (s \pm s' + \Delta s) \right\} s^2 \right] / R^2$$

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$$G = N \times [0.65924137 M_r \times \left\{ \frac{\Sigma R}{R} \times (s \pm s' + \Delta s) \right\} \times \frac{R}{\Sigma R} \rho ] S^2 / R^2$$

(Formula 10)

where  $s$  is the sum of all effective velocities. This indicates that when cutting the disc of gravitational field, the cutting density is in inverse proportion to  $R$  of the sun as long as the discs of the two objects are distant away. Although the cutting momentum of the most effective endpoint is different, the universal gravitation of a system has time difference on the basis of  $S^2$ , which gives rise to time difference and distance difference. The larger the cutting speed, the smaller the cutting density will be, and vice versa. However, the overall work of cutting is the same. Therefore, the universal gravitational constant is everywhere the same in the solar system.

In the case of cutting, the work of each precession is calculated, in order to calculate the universal gravitation as follows: For the Earth, we have

$$G = \left\{ \left[ 0.65924137 M_r \times \left\{ \frac{\Sigma R}{R} \times (s \pm s' + \Delta s) \right\} \times \frac{R}{\Sigma R} \rho \right] / S^2 \right\} / R^2$$

$$G = \left\{ \left[ \Delta G \times \frac{R}{\Sigma R} \rho \right] / S^2 \right\} / R^2$$

$$G = \left\{ \left[ \Delta G \times \frac{696000000}{149600000000} \rho \right] / S^2 \right\} / R^2$$

$$G = \left\{ \left[ 2.281853214 \times 10^{-30} \text{kgm/s}^2 \times \frac{696000000}{149600000000} \rho \right] / S^2 \right\} / R^2$$

$$G = 2.281853214 \times 10^{-30} \text{kgm/s}^2 \times 4.6524 \times 10^{-3} \rho$$

$$\rho = [6.67259 \times 10^{-11} \text{N}\cdot\text{m}] / [2.281853214 \times 10^{-30} \text{kgm/s}^2 \times 4.6524 \times 10^{-3}]$$

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$$\rho = 6.287896536 \times 10^{24} \text{ (Formula 11)}$$

The  $\rho$  value obtained is. When testing the G value of two iron balls weighing 1 kilogram, the gravitational lines of the sun cut  $6.287896536 \times 10^{24}$  magnetic lines of sun passing through the two iron balls. The result divided by 2 is the density of magnetic lines of the sun.

Moreover, the acceleration of the sun is  $0.98 \text{ m/s}^2$ . Since the speed of doing work is certainly larger than the gravity acceleration, it can be approximated that each doing of work is completely converted in an equivalent way. In this way, the object with the mass  $m$  is accelerated from static to the speed of  $9.780 \text{ m/s}$ . The total momentum work required is the number  $N$  of traction by  $W$ .  $\Delta Gm$  is the fundamental quantity. Thus, it can be obtained that  $w = \Delta Gm \times N$ .

After substituting the known quantities, the following calculation is performed:

$$N = (9.780 \text{ m/s}^2) / (2.281833214 \times 10^{-30} \text{ kgm/s}^2 \times 1/2)$$

$$N = 8.572055083 \times 10^{30} \text{ (Formula 12)}$$

That is to say, for an object with the mass of  $m_1$  kilogram, the momentum work acquired by each cutting of magnetic lines is  $(0.65924137 M_r / 2) \times 435634.2515 \text{ m/s}$ . The acceleration is  $9.780 \text{ m/s}^2$ . Thus, as it travels by  $9.780 \text{ m}$ , it has to be dragged for  $8.572055083 \times 10^{30}$  times in the unit of  $(0.65924137 M_r / 2) \times 435634.2515 \text{ m/s}$ . It can only reach the acceleration of  $9.780 \text{ m/s}^2$  when the magnetic lines of the sun do

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the work in the unit of  $1/2$  of  $2.281833214 \times 10^{-30} \text{kgm/s}^2$  and it is impacted by  $8.572055083 \times 10^{30}$  times. In this issue, if the square of the distance is used, the total number of cutting within this time interval can be obtained. Moreover, the magnetic passage and magnetic density of the cutting party can be also obtained.

A comparison can be made with the case of Mars. Consider an object with the mass  $m$ . The work acquired for each cutting of magnetic lines is  $(0.65924137 M_r 1/2) \times 24370 \text{m/s}$ . Its acceleration is  $3.8612 \text{m/s}^2$ . The number  $U$  of traction due to cutting is calculated. In the comparison with the Earth, the unit of measure is both  $\Delta Gm = 0.65924137 M_r 1/2$ . They transport the same distribution of radiation that cuts the magnetic lines of the sun.

If the gravity value of the same layer of the Earth is used for comparison, the calculation will be made easier.

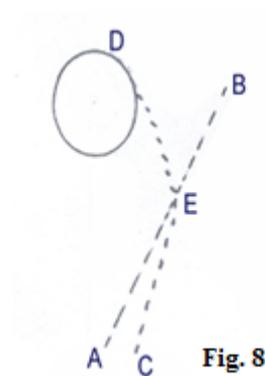
In the experiment, it can be simplified into the gravity of several atoms. Thus, the accurate mass of the atom, its structure, four points of application of forces, and comparison of number are possible to obtain. All these make the calculation easier. These aspects are highly complex for our understanding.

In the issue of gravitational acceleration, the gravity acceleration has a limit. This can be seen when it is compared with the cutting speed. When the acceleration is larger than  $1/2$  of the cutting speed, the cutting

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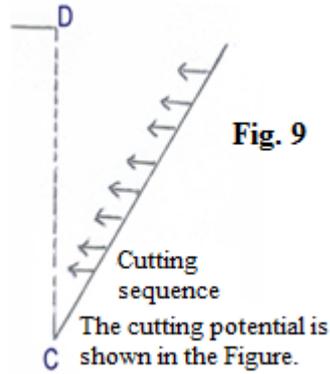
speed will become invalid. Instead, it will be in a state of inertial falling. When the falling body reaches a limit speed, the gravity is invalid. The falling process is inertial. This issue is very intriguing. (It may have importance in the microscopic world). This also indicates that for any object that falls at a high speed, the synthesis of universal gravitation will be affected when the speed exceeds a certain limit. At this time, the weight loss occurs.

The formula of universal gravitation is derived as follows:



As seen from Fig. 6 (graphic 8), every time the magnetic lines are cut, one party receives the gravitation, which is  $1/2$  of the work of cutting. In this way of doing work, if one complete response is to be achieved (that is, accomplishment of a complete work conversion) and the ordering is made according to the magnetic lines cut, then it can be a transmitting relationship.

In this way, the quantized calculation of universal gravitation has to follow the rules below: See Fig. 7 (graphic 9).



1. In the actual cutting process and in terms of the hierarchical arrangement rule of magnetic lines of the sun, the magnetic line field of the sun can complete the cutting of a complete line of the Earth within the same time period. This is where the transcendence of the gravitation and the closeness to action at a distance is manifested. However, in the cutting process, the closeness of the gravitational lines of the Earth must be realized by the Magdeburger tension of ether photons. Therefore, the propagation speed of the gravitation cannot exceed the light speed. 2. The cutting of every magnetic line decreases progressively by 1/2 from the source. The cutting amount decreases in a step-like manner, that is, the next cutting amount is 1/2 of the previous one. Thus, the following formula can be obtained:

$$F = [(0.65924137 M_r) \times v \times \frac{1}{2^x}] \times N/m^2$$

where  $N/m^2$  is the number of transmission in the unit of  $s^2$ .  $x$  in  $\frac{1}{2^x}$  is the number of cutting during this process of propagation. The formula above is a precise formula. By substituting into the charge force of the electron of hydrogen atom, the following value is obtained:

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$$\left[ (0.65924137 M_r) \times v \times \frac{1}{2^x} \right] \times N/s^2 = 8.2 \times 10^{-8} \text{ kg m/s}^2$$

Targeting at X, we have

$$F = \left[ (0.65924137 M_r) \times v \times \frac{1}{2^{\left(\frac{R}{2D}\right)}} \right] \times N/s^2, \text{ (formula 13)}$$

where D is the radius of the minimum magnetic loop; R is the distance between the two objects. Since in the calculation of minimum unit of momentum precession, the precession distance of magnetic line is  $0.65924137 M_r$ . Therefore, for the calculation of distance, we have to unify the unit of distance.

The sequential step-like manner of work of cutting magnetic lines and the transport of force ensure that the force from one party can sequentially reach the other party. The similar vertical linear wave can be made. That is to say, the force from one party has to be transported to the observed party. The transport of gravitation also has time difference. The larger the density of the magnetic field of the cutting party, the higher the gyration speed will be. The step-like transport speed of gravitation is also faster.

3. The larger the distance from the cutting party to the party that emits the gravitational lines, the longer the time it takes for step-like transport of gravitation. Moreover, the number of the gravitation received by the major party will be smaller. In the unit time, the major party acquires less gravitation transported.

The shorter the distance from the party being cut to the party that emits the gravitational lines, the shorter the time it takes to transport the

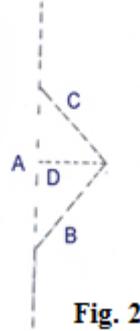
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gravitation in a step-like manner. In unit time, the major party will receive more times of gravitation transported, which means that greater gravitation is acquired. In other words, the greater the gravitation emitted, the force will be in inverse proportion with the distance in a more obvious way.

4. In the case of the product of mass, the strong force in collision will generate a quark concavity from the perspective of strong force formul<sub>a</sub> and strong force element. Thus, a point of application of force for the gravitational line is generated. Therefore, the product of mass can be approximately considered as the number of vortex points of magnetic lines formed in the unit of volume mass. The total number of vortex points of magnetic lines in the unit of volume mass is the total density of magnetic lines that entwine. It is a volumetric property, a particle property, and the magnetic lines of universal gravitation have total number of effective gravitational lines. One sticking point can have two magnetic lines, and one collision point of gravitation can form one vortex. Thus, it can be approximated as the situation where one particle corresponds to one magnetic line. Hence, one portion of mass approximately corresponds to one portion of gravitation. It is in direct proportion with mass. The total volume of the sticking point of the corresponding party can be approximated as the product of mass in terms of strong force. The proportional relationship is also obtained.

# The derivation of $F = GMm/R^2$

Suppose the mass of a magneton is  $M_r$ . Then according to Fig. 2,



(D is approximated as the minimum effective fracture radius of the magnetic line). When the magnetic lines of the universal gravitation are being cut, the resulting

effective traction precession mass is calculated as

$$\Delta p_{m1} = (0.65924137 M_r).$$

The effective precession momentum mass is not generated:

$$\Delta p_{m2} = 2D^2 M_r$$

The effective ratio between the two working momentum masses is

$$\frac{\Delta p_{m1}}{\Delta p_{m2}} = \frac{0.65924137}{2D^2} \quad (\text{formula 14}).$$

On the part of the receptor,  $\Delta Gm = (0.65924137 M_r^{1/2})$ . Thus, the

effective precession momentum mass becomes  $\frac{\Delta p_{m1}}{\Delta p_{m2}} = \frac{0.65924137}{2 \times 2D^2}$

(formula 15).

That is to say, one gravitational line will generate the effective precession

mass of  $\Delta Gm = \frac{0.65924137}{2 \times 2D^2}$ . The mass ratio of effective work to

additional work is as follows: When there are N magnetic lines, the total

effective precession mass is  $\Sigma \Delta m = n \frac{0.65924137}{2 \times 2D^2}$  momentum. For the

precession momentum of  $M_r \times \mathbf{U}$ , it can be converted into effective

precession force:  $F = N \times \frac{0.65924137}{2 \times 2D^2} \times M_r \times \mathbf{U}$ .

In Fig. 6, the unfolding diameter of the magnetic line is  $L = A$ ,  $A^2 = L^2$ ,

$(D+D)^2 = L^2$ ,  $(2D)^2 = L^2$ ,  $L^2 = 4D^2$ . By substitution into Formula 8,

$$\Delta G = (0.65924137 M_r) \times \mathbf{U} \quad (\text{Formula 16})$$

With  $\Delta G = (0.65924137 M_r) \times v$  obtained above,

$$F = N \times \frac{0.65924137}{L^2} \times M_r \times \mathbf{U} \quad F = N \times \frac{\Delta G}{L^2} \quad (\text{Formula 17})$$

In the formula of universal gravitation  $F = GMm/R^2$ , the product  $Mm$  is actually the value after obtaining the quark vortex of gravitation.

Under the condition of uniform and sufficient magnetic lines, every vortex can be approximated as the two-cabinet effective line of the magnetic line. Thus,  $Mm$  can be understood as the total number of effective action lines  $n = Mm$  within the range of mass product.

$$\text{Then } F = N \times \frac{\Delta G}{L^2}, \quad F = Mm \frac{\Delta G}{L^2}.$$

In Fig. 6, the distance between the two points of universal gravitation is  $A$ ,

and  $A^2 = L^2 = R^2$  (after the increase of  $R = L$  by  $2 \times 2D^2$  times,  $L$  is in

fact extended to  $L^2 = R^2$ ).  $u = Mm$

$$\text{Then, } F = Mm \frac{\Delta G}{R^2}, \text{ i.e. } F = \Delta G \frac{Mm}{R^2}.$$

This is basically the same as  $F = MmG/R^2$ . For  $L = A = R$ , it is actually

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the distance we observe when the action of force is over. This makes  $L = A = R$ , but there is difference somehow. The difference lies in the distance of precession. In large-distance case, such difference can be completely ignored, while for very small distance, such as the distance between electron and neutron, it cannot be ignored. That may be the original reason for the need for refinement of the current universal gravitation.

In the calculation of close-distance universal gravitation, the following method may be more precise. Suppose  $Mn$  corresponds to effective magnetic line amount  $Mm\phi_{\text{magnetism}}=n$ . The distance of  $Mm$  is  $R$ , then

$$F = \frac{n_{Mm} \times (0.65924137Mr \times u) \times (0.65924137Mr \times u \times \frac{1}{2})}{2 \times (\frac{R}{2D}) \times (2D^2 \times Mr \times u)} \quad (\text{Formula 18})$$

It can be said that the inverse proportion relationship with distance  $R^2$  applies within this range of distance. It is the force since the object receives the work to the major party making a response and finally to the object receives the work. It is the problem whether the required momentum work is an effective ratio; or it may be the problem of the attenuation amount of decreasing consumption. That is to say, for the work of  $\Delta G = 2.281853214 \times 10^{-30} \text{kg m/s}^2$  to transport from the object to the major party, it will be consumed by the measure of  $1/R^2$ , causing the effect of sequential transmission of the medium. The force measured at

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the observed party is  $1/R^2$  in the relationship of distance transport. This  $R^2$  represents the total mass that needs to be pushed. The driving force is equivalent to  $\Delta G = 2.281853214 \times 10^{-30} \text{kgm/s}^2$ . The longer the  $R$ , the larger the total mass needs to be pushed. The final result of cutting is only the small value of  $\frac{1}{2^x}$  (approximated as the smaller speed). Therefore, the force felt by the major party is smaller. That is to say, each work done by the object needs to be transported to the major party. An additional work of  $R^2$  is required for continuous transport. Only when this condition is met can the major party responses and feels it. It is also the ratio of ineffective amount to effective amount of momentum of gravitation in the total work. That is actually a non-elastic wave propagation response. Compared with Kepler's theorem on the macroscopic scale, it is the matter of the ratio of the area swept by each magnetic line due to cutting to the area swept by traction precession converted from cutting. This ratio is magnified over the distance. In other words, in the time process of reasoning, the following problem occurs:

$$F = N \times \frac{0.65924137}{L^2 \times M_R \times u} \times M_r \times U. \text{ The current result will be obtained by}$$

sorting out.

This indicates the inverse proportion relationship by square in gravitation is the work done by the object. Only the work of  $1/R^2$  can be transported to the major party. All other portions are consumed over the route of propagation as the sequential pushing force for the graviton of

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line segment. This calculation is in the unit of Newton in mechanics, that is,  $s^2$ . It is the total amount of such process that can be accomplished within the time interval of 1s. If seen from this angle, distance has a huge effect on force. Here arises the reason for the huge difference between electromagnetic force and universal gravitation. The image also has the association as shown in the figure below: to understand the square of distance, an assumption is made.

Suppose a length of distance of  $Xm$ . It is divided into  $N$  smaller segments in the length of  $D$ . In what situation will  $N \times D^2 = X^2$  or  $N \times D^2$  most infinitely approach  $X^2$  ( $X \neq D$ ). Probably when it evolves into  $2 \times (N \times D^2)$  or when it changes into

$$F = \frac{n \times (Mr \times 0.65924137 \times u) \times 0.65924137 Mr \times u}{L^2 Mr \times u \times 2} \quad \text{(Formula 19) from Formula 11.}$$

That is to say, an accurate formula for universal gravitation should be  $F = Mm2G/2R^2$ , but 2 can be canceled out.

For example, if the graviton is a string of small balls without any elastic potential, which conform to the principle of momentum transport.

The following situation may happen:

$$2 \times (2^2 + 2^2) = 4^2$$

$$2 \times (3^2 + 3^2) = 6^2$$

$$2 \times (4^2 + 4^2) = 8^2$$

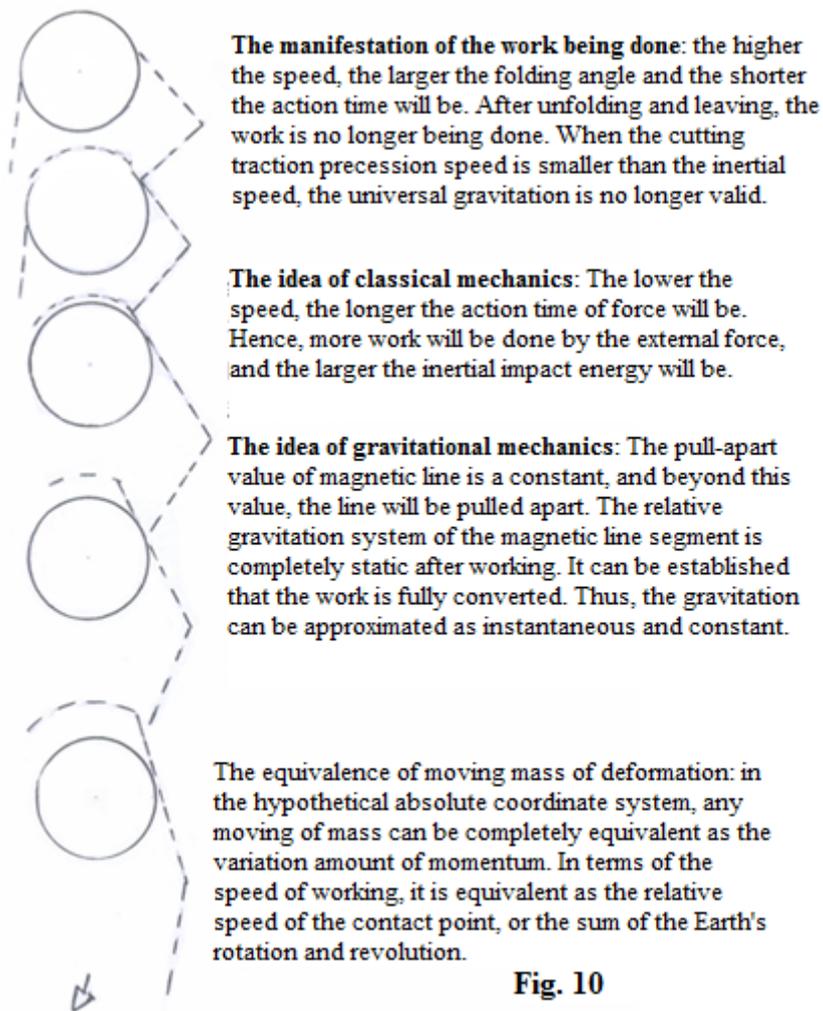
$$2 \times (5^2 + 5^2) = 10^2. \quad \text{(Formula 20) For every additional collision, one}$$

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more magneton is pushed. The initial gravitation momentum increases with the length and has an inverse proportion relationship with distance. It may as well be a correspondence relationship.  $L_A$  is a constant, then the functional relationship is  $\Delta p = (1/2)^n$ . From  $n = R/LA$ , it is obtained that  $\Delta G p = (1/2)^{(R/LA)}$ . (Formula 16) It can be seen that without the work done by the universal gravitation, there would probably be no mechanical waves. Without the internal energy, either voice or wave cannot propagate or propagate in a uniform way and for a long distance. However, we are unable to comprehend this issue. Both the elastic force and the mechanical undulation have to rely on the work done by gravitation to attain the current state.

**Comparison and impression of work done by quantized process:** Einstein uses the natural law that the inertial mass is in direct proportion to gravitational mass as the basis for the equivalence principle. In the infinitesimal volume, the uniform gravitational field can completely replace the reference system of the accelerating motion. The equivalence between the inertial mass and gravitational mass is natural inference from the equivalence principle. In this article, gravitational motion and accelerating motion are two completely identical mechanical processes, both of which are the results of mechanical impact. They can be both represented in classical mechanics. The difference is that every exchange of gravitation is the

exchange of complete scalar energy, which may be quantized. The result is the sum of time amount in density. However, the accelerating force can be linearly continuous as the product of temporal relationship. Fig. 9 (graphic 10)



The along-line induction of magnetic lines of gravitation abides by the law of conservation of momentum. The forces cutting the line segments have to abide by the law of conservation of momentum, mass and force. Only in this way will the gravitational line produces the anti-tensile force. Otherwise, the anti-tensile force cannot persistently exist. All these can be calculated from the law of conservation of strong

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force. This is the issue that never occurs to our mind before. The conservation of strong force refers to that the force can be converted to the increasing or decreasing of mass and therefore consumed. There is no conversion to internal energy. In the conservation process, the ether Magdeburger force in the photopressure process plays the decisive role. Without the Magdeburger force of ether, the gravitational lines cannot be closed after being incised open. Neither will there be intermittently opened gravitational lines in the universe. In that case, there will be no universal gravitation. A large amount of along-line energy is converted into the increasing and decreasing of mass. This may be the law of the transmission of energy by infinitely large mass. Otherwise, a small mass force cannot achieve the energy exchange with the large mass. The opening and closure of ether Magdeburger force and the magnetic lines resemble the commutation as the increase or decrease of energy density of the vacuum.

## Section 2: Gravity caused by the cutting of gravitational lines

The tension of the magnetic loop of gravitation is generated from the principle of cutting precession of extending and bending mass force lines from the astral body.

The second force of universal gravitation is generated by the cutting and bending of the magneton force line of gravitation with mass

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and along-line tensile strength. It is a type of linearly contracted pressure superposing on along-line direction.

According to the structure and properties of gravitational field, only the object entering into the gravitational and magnetic field of the Earth, or the substance with the intrinsic mass of the Earth, will be enclosed by the magneton loops of the Earth's gravitation in large amount or in standard amount. The magneton coils surrounding the object will uniformly produce tension and compression on the surface of the nucleus of the matter. Since the magnetic lines of gravitation are not subjected to the action of force, all magnetic lines that show force on the objects will be stuck in the groove of nucleus for some time, so as to achieve the purpose of conversion. (The extranuclear electron of atom and the connective magnetic pillar of electron have a small influence on the universal gravitation. They only determine the vibration and energy of electron. Therefore, the effect of universal gravitation is mainly related to the atomic structure of the substance. The gravity of the matter also concentrates in the nucleus).

Once the gravitational loop contacting the matter is closed, the matter will be subjected to the gravitational line field of the sun, the magnetic lines of the galaxy and other effective gravitational lines as well as the collision and cutting of the magnetic lines. The mutual collision and cutting of gravitational lines and magnetic lines cause the swing of

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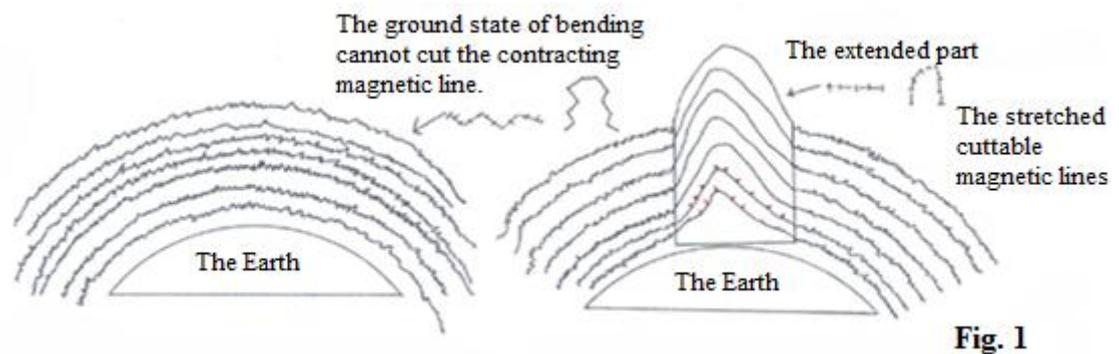
the false plane laterally under the magnetic point force at the cutting position. The force lines of the magnetic loops of the Earth are bent. Therefore, the magnetic loops bypassing and surrounding the matter cause the shortening of the length of the magnetic lines due to the strong bending of magnetic loop. As a result, the closed magnetic loops experience the tension of force line. Since the force lines entwining the magnetic lines bend, contract and get tensed, the entwined substance experiences the contracting and binding pressure from the magnetic loop. The contracting and binding pressure from the magnetic lines is the basic force of universal gravitation, the universal binding pressure gravity. Such binding pressure is persistent or stable in strong contraction. In order to move the objects that are bound by the magnetic lines of gravitation to the Earth's surface, you have to exert the pulling work equivalent to the binding pressure. This is the gravity perceived when you move the object using the force. This is what we call weight. It is also the fundamental principle for the gravity on Earth.

Gravity is quantized, continuous and persistent. If the cutting of the magnetic field of universal gravitation stops (or if there is no moving cutting), the magnetic lines of gravitation with binding pressure will lose the continuous acquisition characteristic. Only the pull-apart value of strong force, that is, the strong force that pulls apart the binding magnetic lines, does not have the persistence of gravity. Then gravity is only left

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with a certain pull-apart weight. For example, when you lift up an object with certain weight to a height, it will stay there without falling under gravity at an acceleration (this phenomenon may be found at the margin of galaxy). The basic principle of gravity should apply to any planet. It can be concluded that a astral body without being cut by the external magnetism should have no such features of gravity.

The binding pressure of universal gravitation follows the above rules. A more detailed physical manifestation of the Earth's gravity is shown in Fig. 10 (graphic 1).



As the magneton field of the Earth's gravitation closes, it will be cut by the sun's magnetism and thus bent and contracts. After reaching stabilization, it will present a completely bent and contracted state. This is the ground state of bent and contracted for the Earth's magnetism. It is also the ground state of the Earth's magnetism. When an object enters the Earth's magnetic field with completely bent and contracted state, it will invade the space of ground-state magnetic field. Thus, it propels the elongating movement of the magnetic line in the original position. In this way, the ground-state stable magnetic line will be extended to a certain

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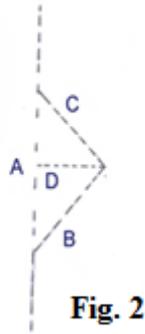
extent. Then the magnetic line will have a renewed probability of cutting precession. It provides the conditions for the cutting, precession and contraction of object under the action of magnetic lines, Therefore, gravity has the features of spontaneity, mobility and persistence.

In the celestial coordinate system of the universe, the binding pressure of magnetic loop is realized in a moment or in an extremely short time. It should have a regular amount. The faster the speed relative to the coordinate system, the shorter it takes to realize the binding force of the magnetic loop, and vice versa. The question is should this tension of magnetic line has a constant structure?

## Calculation of weight and mass

The weight of an object is determined by three aspects.

First, the uniform equivalence of the magnetic lines of gravitation. For the magnetic monad composing the magnetic loop, the swing of its false plane has a limit value. When all the magnetic monads composing the magnetic loop experience the false swing, the magnetic loop cannot produce the contraction excessively. This gives an absolute contractibility to the magnetic loop. Due to the equality of magneton, this contractibility is certain in the identical environment and is uniformly equivalent. This is the first factor for the equivalence of universal gravitation and gravity in the same environment. The contractibility of a force line of magneton is calculated as shown in Fig. 2:



**Fig. 2**

D is approximated as the minimum effective fracture radius of magnetic line, thus  $2\pi r = 5$

$$r = 0.795774729 \text{ length unit of magneton.}$$

$$C^2 = 2D^2 \quad C^2 = 2 \times 0.633257419 \quad C^2 = 1.266514838 \quad C = 1.125395414C$$

$$\text{Hence } (L_C + L_B) - L_A$$

$$= (2.250790828) - (1.591549458)$$

$$= 0.65924137 \text{ length unit of magneton (also the minimum precession}$$

unit of the cutting of magnetic lines of gravitation).

$$0.65924137 / (L_C + L_B) = 0.292893218 = 29.2893218 / 100 \text{ (Formul}_a^{21})$$

It can be seen that the largest contractibility of magneton link is about 29.29/100.

Given the mass and contractibility of the magneton, the actual number of magnetons on this magnetic link can be calculated according to the observed length of magnetic line of gravitation. This will provide the parameters for the quantized calculation of universal gravitation.

Second, the approximate, equivalent exclusion of magnetism with equivalent mass. Since the magnetic line segments of universal

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gravitation are uniformly equivalent and due to the ground state of magnetic lines of gravitation, the exclusion of magnetism of a certain mass also corresponds to a constant. Since the magnetic lines of gravitation are completely static in relation to the Earth and have no weight, the weight of an object cannot infinitely increase with the length of the magnetic lines. Thus, the binding effect on object will not be affected, and the weight will not change.

The standard contractibility of magnetic lines, standard exclusion of magnetism of mass and weightless of magnetic lines ensure the constant value of weight. The weight can neither be infinitely large or increased.

The understanding on the magnetic lines in the topic of gravity field cannot be obtained from the common sense. Regardless of the length, the magnetic lines of gravitation will never have any weight or elastic force as may be imagined.

Third, the non-equivalent exclusion of magnetism with equivalent mass and formed by quark vortex. In the system of universal gravitation, the gravity of the object is only in direct proportion to the magnetism exclusion space created by the object itself. Or, it is in direct proportion to the bending volume of the magnetic lines of gravitation. Because any matter that is bound by the magnetic loop of gravitation always has its point of application of force located on the magnetic vortex of the matter, the effective gravitational gravity of a volume is only directly

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proportional to the unit number of the points of application of force on the binding magnetic lines. On one hand, the weight is in direct proportion to the volume of the matter under stress. The larger the volume, the greater the amount of points under pressure and the greater the gravity will be. If the volume of the object under pressure is smaller, there will be fewer points under pressure, and the gravity will be smaller. This also explains the difference in gravity for the same volume.

But due to the composition amount of the same mass, the quark vortex formed may be different. The mutual shielding of sticking vortex and the absence of opportunity of the magnetic lines may be shown as difference in weight and gravity for the composition amount of the same mass. In the calculation, the structural mass of the matter is not equal to gravity.

Gravity and weight do not reflect the amount of matter contained in an object. The two are more incomparable in different gravitational systems. Thus, in latter calculation of mass, the structural mass should be used, i.e. it is the necessary, accurate two points of application of force to make up a matter, and the number of four points of application of force. Only after known this can we accurately calculate the astral bodies in the universe and obtain accurate conclusions. After calculating the mass with this method, we find that the previous method is inaccurate.

In the gravitation process, since the magnetic lines of gravitation

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utilizes the principle of effective vortex points for the atomic structure, the atoms with heavy structure will produce the shielding effect because of the hierarchical obstruction. The number of sticking points does not increase with the mass equivalence. However, the initial triggering momentum of the work done by gravitation increases with the number of sticking points at a certain proportion. This causes the situation of "small horse dragging the large cart". This is the reason for the heavy nucleus atom structure and the lagging of initial acceleration. Therefore, the matters with different structures have slightly different gravitational acceleration. Along with the increase of the ordinal number of atom, the gravitational acceleration of the matter in the vacuum gradually decreases. The matter composed of light-nucleus atoms has higher gravitational acceleration; the matter composed of heavy-nucleus atoms has lower gravitational acceleration.

(Note) Newton's theory has difficulty in the field of cosmic theory. According to Newton's theory, the number of force lines extending from the infinite distance to the mass  $m$  is in direct proportion to mass  $m$ . If the average mass density  $\rho$  is a constant in the entire universe, then the ball with the volume  $V$  contains the average mass  $\rho V$ . Therefore, the number of force lines penetrating the spherical surface  $F$  and entering the ball is in direction proportion to  $\rho V$ . For unit spherical area, the number of force line entering the ball is in inverse proportion to  $\rho V/F$  or  $\rho R$ . Theoretically, as the ball radius  $R$  increases, the field intensity on the spherical surface will finally become infinitely large. However, it is not possible <sup>[2]</sup>. Although Xi Laizhe makes some correction to address this difficulty, such correction and sophistication have neither empirical nor theoretical basis. In this problem, the idea of the sticking vortex of force line and the uniformity of the force line arrangement can easily explain this phenomenon.

Summary: For a single substance and a single magnetic line,

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one-time substance has one-time number of points of application of force, and five-time substance has five-time number. The mass of the same composition can be approximated as the points of application of force. The mass for the same composition amount can be approximated as the points of application of force with the same composition amount. For the magnetic lines with a certain curvature, the pull-apart value of each magnetic line is uniform and fixed. A magnetic line has a fixed pull-apart value for the point of application of force in a substance. The binding pressure on each point of application of force in a substance is a completely identical value. Regardless of the size, the force point value of gravitation in the same magnetic field is equivalent for the object. That is, the basic unit of the gravitational gravity is an approximately uniform constant.

Under the condition of uniform magnetic field of gravitation, the larger the unit volume of the substance, the larger the number of the binding magnetic lines, and hence the larger the binding pressure of the magnetic lines (to pull these magnetic lines apart, greater force has to be applied). Then it is said that the substance is under greater gravitation and has greater gravity, and vice versa. The combined results of the binding pressure from several equivalent magnetic loops are the gravity and weight of object with force linearity. This explains the reason for the gravity of substance: the cutting, contracting and binding pressure of magnetic lines of gravitation. This may only be an approximate weight

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and mass. It cannot reflect the accurate amount of the structural mass of substance.

In the Earth's gravitational system, the contraction and traction by the magnetic loops of the Earth are determined as valid with the external magnetism cutting the Earth's magnetic lines. The sun's magnetism is also affected to a certain extent. The magnetic lines of the galaxy basically cannot bend, and produce no cutting and precession. Therefore, it does not superimpose on the gravity of the Earth.

When the density of magnetic lines of universal gravitation exceeds the amount ratio of quark convex, it can be ensured that the force line distribution in a magnetic line system of gravitation will also achieve basically the same gravitation effect even though the distribution is not completely uniform. Moreover, because of the mobility of the object, it is not easy to form the superimposition effect of magnetic lines. For a planet, its distribution of magnetic loops can be rather non-uniform, but the gravitational acceleration is relatively uniform.

In the magnetic field of the Earth's surface, the density of magnetic lines will be lower at a higher position close to the equator. The density of the magnetic lines will be increased at a lower position close to the two poles. The tangential speed at the equator is larger than that at the two poles. The uniformity of density of the Earth's magnetism, difference in the curvature of the Earth's magnetic lines and tangential speed jointly determine the gravity and difference value of the Earth.

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## Section 3: Comparison and unification of Coulomb's force and universal gravitation

It is already known that there is a large difference in Coulomb's constant and universal gravitational constant. The Coulomb's force between the electron and proton is  $F_e=8.2\times 10^{-8}\text{N}$ . The universal gravitation is  $F_g=3.6\times 10^{-47}\text{N}$ . The integer difference of Coulomb's force and universal gravitation between the electron and proton is

$$N = \frac{Kee}{GMm} = \frac{Fe}{Fm} = 2.26 \times 10^{39} \approx 2.30 \times 10^{39}$$

This difference is measured by the square of distance. Thus,  $N = \frac{Kee}{GMm} = \frac{Kee}{GMm} \times \frac{1}{R^2}$ .

It is seen that the difference is  $2.30 \times 10^{39}$ . But what does  $2.30 \times 10^{39}$  mean and what is its correlation with the universal gravitation? In the dissertation "Formation process of the Earth's magnetic field and gravitational field", the minimum of action distance of universal gravitation should be the Earth's circumference, which is 40000,000 m. The distance between the electron and the nucleus is mostly about  $10^{-15}$ --- $10^{-11}$  m. Thus, on the level of the distance of electrostatic force, the minimum unit of action distance of universal gravitation changes into  $40000,000 \text{ m}/10^{-12}=40000,000,000,000,000,000$  (m) per portion, where  $10^{-12}$  is the minimum portion of distance. According to the distribution of

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magnetic lines of the Earth's universal gravitation, the conjugation of the Earth's magnetism and the structure of polar light at the poles, the space of curving back of gravitational lines is 100-200 km above the two poles. The diameter of magnetic vortex can reach up to  $1000^3$  000 km. From  $2\pi R$ , the gravitational lines above the Earth extend for about  $4000 \times 2$  km. Thus, the action distance of universal gravitation or the actual circumference of a closed magnetic line of the Earth is  $R = 4.8 \times 10^{19}$  ( , m) per portion. The multiple of Coulomb's force to universal gravitation divided by the square the circumference of a standard closed magnetic field of the Earth is 1:

$$N = \frac{Kee}{GMm} \times \frac{1}{R^2} = \frac{Kee}{GMm} \times \frac{1}{(4.8 \times 10^{19})^2} = \frac{2.3 \times 10^{39}}{2.304 \times 10^{39}} \approx 1$$

(Formula 22)

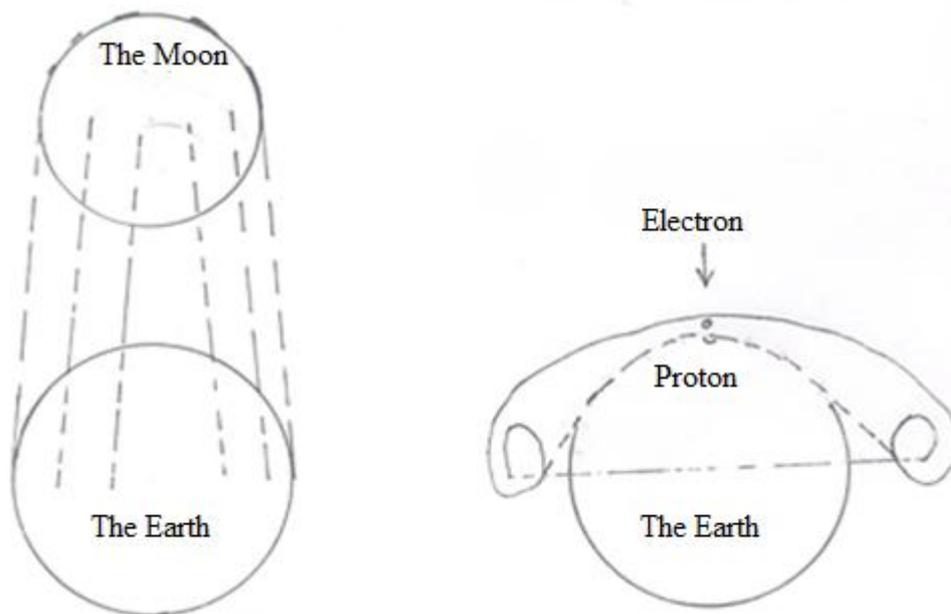
In this case, the multiple of Coulomb's force to universal gravitation is  $N=1:1$ , or  $F_e = 8.2 \times 10^{-8} \text{N} \times \frac{1}{(4.8 \times 10^{19})^2} = 3.559 \times 10^{-47} \text{N} = F_g$ . The Coulomb's

force is equivalent to universal gravitation. Why does it happen? How is it that the Coulomb's force divided by the square of the Earth's circumference is universal gravitation? As proved by Jia Dong in his dissertation, the minimum unit of action distance of universal gravitation is the Earth's circumference. The length of a closed magnetic line is also equivalent to the Earth's circumference. Is there some underlying association? A law can be concluded from this situation: the Coulomb's force of an electron divided by the universal gravitation (actually the minimum distance unit) is the universal gravitation of the electron. Starting from the realistic principle of universal gravitation, the Earth's circumference can be divided into small portions of the distance between the electron and the nucleus. The square of the Earth's circumference by the Coulomb's force enables the unification of universal gravitation and Coulomb's force. This is absolute not an accidental phenomenon. Why is it that the multiple of Coulomb's force to gravitation divided by the square of the ratio of the Earth's circumference to distance of

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Coulomb's force is equivalent to universal gravitation? And there is no other way to obtain this? This provides the basis for the unification of Coulomb's force and universal gravitation. The multiple of Coulomb's force to universal gravitation is believed to be caused by the uncertainty of the real action distance. This is because we only note the visualized straight-line distance, without considering the distance of possible bending road.

The gravitation between the moon and the Earth is calculated in terms of the distance  $R$  from the Earth to the moon. So why the distance  $R$  of universal gravitation between electron and proton is to be calculated in terms of the Earth's circumference. There are two possible reasons for this, see Fig. (11)

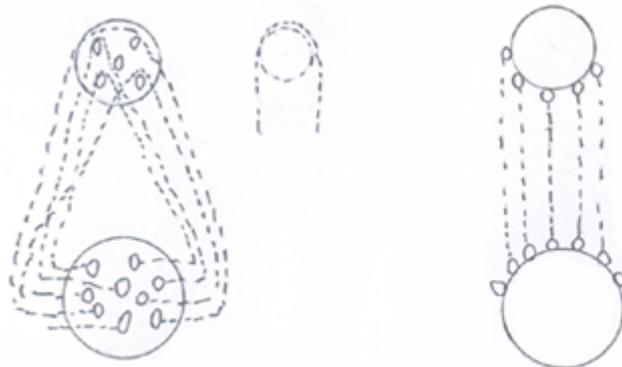


1: Due to different distance and volume relationship, the tangential line between them is made. It is found that the tangential line between the Earth and moon is nearly at a right angle. Therefore, the gravitational lines of the Earth with respect to the moon can act in a vertical way and along the connecting line. The distance  $R$  is the distance from the Earth to the moon. Since the action line of gravitation between the electron and

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proton is that between the electron and the Earth, the tangential line between the electron and the Earth is almost parallel. Thus, the effect of the gravitational line of the Earth on the electron has to go back to the two poles, After making a turn at the two poles, it returns to the starting point. The distance for the transport of force is exactly equal to the Earth's circumference plus the spanning length. Therefore, the distance R of gravitation between electron and proton has to be calculated in terms of the Earth's circumference. 2. Secondly, the moon has a large volume, and the gravitational lines entwine the moon. Therefore, the area of mechanical contact is very large. One half of every force line is sufficient to complete an independent mechanical process without slippage. However, the electron has a very small volume. Since they are straight, the gravitational lines have very small mechanical contact points on the electron. For any force line to complete an action process, the traction along the gravitational line will be formed with the electron as the tangential point. It is manifested as the entire force line completing the gravitation effect. Now we will give a summary of the comparison between universal gravitation and Coulomb's force:

1. Point of action, see Fig. 12 (graphic 6)



The Coulomb's force line is the connection between the two point charges. The anti-tensile value of the force line consists of the total mass of the relative motion and total momentum, so it is very large.

The gravitational lines entwine in n-shape. The anti-tensile value of the line is equivalent to the impact force on the two segments of magneton. Therefore, its tensile force is far smaller than that of Coulomb's force line.

**Fig. 6**

The gravitational lines entwine in n-shape. The anti-tensile value of the line is equivalent to the impact force on the two segments of magneton. Therefore, its tensile force is far smaller than that of Coulomb's force line.

The Coulomb's force line is the connection between the two point charges. The anti-tensile value of the force line consists of the total mass of the relative motion and total momentum, so it is very large.

Fig. 6

As seen from the outer form of particle, universal gravitation is the binding, entwining, enclosing and dragging relationship with the feature of sticking vortex. It is manifested as the n-shaped stress, double-strand force line, with single or double force line that can be pulled.

Coulomb's force is the strong force along the magnetic link between the particles (charges) of the two substances. It is a single-strand force line, with single line curvedly pulling or pushing.

## 2. Way of stress

The two are subjected to stress due to the work done by cutting the external magnetism. This cutting process causes the magnetic line to curve. The force line bends and contracts, and makes precession traction. As a result, the gravitational traction occurs, and the object moves closer.

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3. Way of stress conversion and variation Since the Coulomb's force is formed by the direct connection of the force points and the gravitational lines entwine in n-shape, it occurs in the expanding process of the cutting of magnetic lines. The n-shaped gravitational lines cannot produce the supporting force or repulsion force on the object, so the universal gravitation cannot produce repulsion. Coulomb's force is the direct connection by strong force, so the connecting Coulomb's force line can produce the supporting and repulsion on the force points on the two ends in the expanding process of cutting of magnetic lines. In some situations, the repulsion effect will occur.

5. Situation of the number of force points on the two sides

The universal gravitation should be in direct proportion to the quark vortex of the substance (small) of the stressed party. It can be approximated as in direct proportion to the mass of the small substance. But for the large substance emitting the gravitational lines, it should be in direct proportion to the density of gravitational field in the large substance. It cannot be simply in direct proportion to the mass of the large substance. With larger density, the large substance has denser gravitational lines. Therefore, there also exists the correspondence relationship. In other words, it can accurately correspond to the mass of small substance, but not accurately to the mass of large substance. According to the principle of strong force, two quarks can form a force

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line vortex. The strong force may be the collision and multiplication of the mass of the two sides. Thus, the product of the mass of two sides (two quarks correspond to two magnetic lines) can be approximately considered as the amount that can form force point vortices. This is the physical principle of the product of mass.

Coulomb's force is in direct proportion to the charges of the two parties, i.e. the force point amount. What is more accurate is that it is in direct proportion to the minimum charge amount. Only two charges alone (two force points) are sufficient to form a magnetic link of strong force between the two charges. Thus, in terms of strong force, it can be the product of charge amount. Such product relationship reflects the fact that the party with smaller charge amount can form the largest amount of magnetic links with the party with larger charge amount. So the product of charge amount can be approximated as the accurate amount. This is the meaning of the product of charge amount. How miraculous is the relationship between human being and the nature! In some situations, it should be the product relationship with the party with smaller charge amount, or the additive relationship.

6. In terms of the action distance, when the distance is smaller, the Coulomb's force can act by direct traction but no continuous effect, i.e. the precession that the two parties move close to each other. But for universal gravitation, the gravitational lines are not the lines connecting

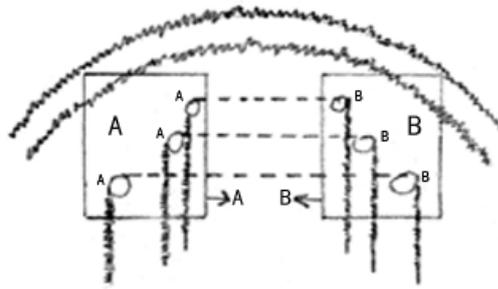
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the two parties regardless of the distance. Rather, they originate from the field far away. For the gravitational effect to work, the local magnetic lines have to vary. For even a seemingly close distance, the magnetic lines have to travel for long distance. Thus, it should be the stable continuous effect, but no possibility of direct traction.

This is a major discovery as to the equality between universal gravitation and Coulomb's force. Starting from the realistic principle of universal gravitation, we arrive at the unification of universal gravitation and Coulomb's force. The action mechanisms of gravitation may be also the same in the case of basic magnetic lines. The only difference is that the action distance of magnet is the basic closed circumference of the magnetic lines of magnet. It is easy to see that the closed circumference of magnetic lines of magnet is much larger than the action distance of Coulomb's force, but smaller than the circumference of universal gravitation. For this reason, the magnet force is larger by many times than the universal gravitation, while smaller by many times than the Coulomb's force.

## Gravitation between two horizontal objects

See Fig. 13:



There is also universal gravitation between two objects that move close to each other in the horizontal direction. Due to the topology and incurvation of magnetic lines of the Earth's gravitation, between the two objects placed in the horizontal direction forms the beyond-line magnetic line connection. One end of a magnetic line binds the quark vortex of one party, and the other end binds the quark vortex of the other party. This, in fact, utilizes the magnetic lines of the Earth's gravitation, and between the two objects placed in the horizontal direction forms the magnetic lines of gravitation. Under the cutting of external magnetism, contraction, traction and precession occur between the two objects in the horizontal direction. This is the gravitation between the two objects. This basically conforms to the principle of  $F = MmG/R^2$ . (see Fig. 5 for the gravitation between A\B). Compared with the value of gravitation in an independent environment and according to the contact between the force line and the vortex, there may be some difference between the maximum gravitation and independent F value. It can be seen that the universal gravitation between the two objects placed in horizontal direction on Earth takes

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effect through the traction of gravitational lines of the Earth. This is not the force of basic attribute between the two objects placed in horizontal direction.

That is to say, the universal gravitation between the objects does not exist between any two objects. The universal gravitation between the two objects works with the aid of force transport by magneton as the medium. If the magnetic line field of gravitation does not exist between the two objects, or if the magnetic lines of gravitation do not reach between the two objects, there will be no universal gravitation. If there is no magnetic field of gravitation between the two objects, the universal gravitation cannot be generated spontaneously. The range of universal gravitation is determined by the range of magnetic field system of gravitation that can be reached mutually. This magnetic line field can be spontaneous, or enclosed by external magnetism.

The nature of universal gravitation being transported by medium makes us know that the action at a distance cannot exist in the absence of medium. The generation and transport of universal gravitation have to be mediated by magneton (graviton). This magnetic medium is the external magneton line field of gravitation that can reach and enclose the two objects. It can also be the magnetic line field between the two objects. If there is no medium between the two objects to transport force, there will be no gravitation between the two objects that is not mediated.

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# Attenuation of the universal gravitational constant

It can be known from the theoretical formula<sub>a</sub> for the universal gravitational constant that once the relative cutting speed of magnetic fields and lines of gravitation of the two parties decreases, the universal gravitational constant will be attenuated. Next, we will calculate the attenuation rate. From the number of calcium carbonate bands on the corals, people will know that in the Cambrian period (570 million years ago), i.e. the oldest times of fossils, a day on Earth was only 20.47 hours, and there were 428 days in a year. In the early Ordovician period (500 million years ago), a day on Earth was 21.4 hours, and there were 409 days in a year. According to the formula<sub>a</sub> for universal gravitational constant, the annual attenuation rate from 570 million years ago to 500 million years ago is

$$\Delta G = kg\phi_{\text{magnetism}} \frac{n}{s^2} \times (0.65924137 M_r^{1/2}) \times [542.79976 \text{ m/s} + X \text{ m/s}] - kg\phi_{\text{magnetism}} \frac{n}{s^2} \times (0.65924137 M_r^{1/2}) \times [519.210799 \text{ m/s} + X \text{ m/s}] \text{ (formula 23)}$$

where 542.79976 m/s is the linear speed of the Earth 570 million years ago; 519.210799 m/s is the linear speed of the Earth 500 million years ago; +X is the speed of the sun sweeping over the Earth. The same below.

$$\Delta G = kg\phi_{\text{magnetism}} \frac{n}{s^2} \times (0.65924137 M_r^{1/2}) \times 23.588961517 \text{ m/s}$$

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$$\Delta G/G = 23.588961517 / 435712.0513 = 0.00005413887782$$

The annual variation rate was  $0.00005413887782 / 70000000$  year  $= 0.07734125403 \times 10^{-11} / \text{year}$ . In the middle Devonian period (370 million years ago), there were about 398 days in a year on the Earth, and a day lasted for 22 hours; from 500 million years ago to 370 million years ago, the attenuation rate was

$$(519.210799 \quad \text{m/s} - 505.05050505 \quad \text{m/s}) / 435688.4623 \text{ m/s} = 0.00003250096164 / 130000000 \text{ year} = 0.02500073972 \times 10^{-11} / \text{year}$$

In the Carboniferous period (32 million years ago), a year had 387 days. A day lasted for 22.625323 hours. From these we obtain

$$\Delta G/G = 13.95868231 / 435674.302 = 0.00003203926017$$

The annual variation rate was  $0.00003203926017 / 50000000$  year  $= 0.06407852033 \times 10^{-11} / \text{year}$  (Formula<sup>24</sup>).

One year of nowadays has 386 days, and a day has 24 hours.

$$\Delta G/G = 26.091822691 / 435660.3433 = 0.00006456603208$$

The annual variation rate is  $0.00006456603208 / 320000000$  year  $= 0.02017688502 \times 10^{-11} / \text{year}$ . The mean annual variation rate from 570 million years ago to the present is

$$77.79976 / 435712.0513 = 0.0001785577419 / 570000000 \text{ years} = 0.03132591963 \times 10^{-11} / \text{year} \text{ (Formula 25)}$$

According to the above calculation, it can be known that this is basically consistent with the gravitation theory with variable gravitational

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constant established by Brans, G. and Dicke and also with the variation rate of G value  $((0.007 \sim 0.8) \times 10^{-11}/\text{year})$  calculated by Brans and Dicke's scalar-tensor theory.

By calculation in these three time periods we find that the attenuation rate of universal gravitational constant slows down. This conforms to the step-like decreasing pattern of the momentum of galaxy. The attenuation of the total momentum of galaxy and the decreasing of universal gravitational constant are also demonstrated. The fluctuation in this period basically corresponds to the splitting of the Earth's continent. The continental drift is fundamentally caused by the attenuation of universal gravitation and Coulomb's force.

From an overall view of the universe, we can obtain the standard attenuation of universal gravitational constant. In the current galaxy, there can be a galaxy with independent universal gravitation. Thus, the basic factors affecting the total momentum (not total energy) of the galaxy can only be the resistance to the stuffing of ether electromagnetism (the electromagnetic wave in galaxy emits energy). Thus, when the gyration velocity and peculiar velocity of the galaxy decrease, the momentum acquired by the solar system will decrease accordingly. The spinning speed of the sun slows down, and the universal gravitational constant reduces. (This resembles a large balance wheel system. When the swing speed and the force reduce, the operational speed of each smaller balance

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wheel system will also decrease).

(Note): The attenuation rate of the Earth's universal gravitational constant can be calculated. From the perspective of the cosmos, the attenuation of the universal gravitational constant may give rise to the large-number problem of proton. When the universal gravitational constant is very large, the cutting speed of universal gravitation is fast and the cutting impact is high. Therefore the cutting depth on a huge mass system will be larger, and the effect of universal gravitation will be deeper. The effective amount and mass of cutting of universal gravitation will increase. This indicates that the smaller the universal gravitational constant, the more obvious the effect of "small horse pulling the larger cart". Therefore, the large-number effect will become more prominent. This can be the result of the gravitation shielding effect of the huge mass system itself. The decrease of cutting coefficient will amplify the gravitation shielding effect. The dense objects have shielding effect on gravitation, which is manifested as the fact that the inertial mass resisting the variation of motion state is in direct proportion to the total number of nucleons. The gravitational mass measuring the intensity of gravitation is only in direct proportion to the non-shielded number of nucleons. When the gravitational constant decreases, the weight of the surface layer of huge celestial body reduces. As a consequence, the celestial body expands, the matter density decreases, and the shielding effect is

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weakened. Thus, more nucleons contribute to the external gravitation. As the gravitational mass increases, the number of nucleons in the celestial body increases. But this does not indicate the creation of new matter. As the surface area of gravitation shielding layer of celestial body increases with the square of time, the gravitational mass and the number of nucleons also increase with the square of time. This precisely satisfies the large-number hypothesis. Although the large-number hypothesis and its inferences and the explanations by others are speculative in nature, it is agreed that the observations prove the action of some unknown laws in nature. The discovery of these unknown laws is strongly dependent on the research of G value.

## Gravitation between the moon and the Earth

After we have determined the real magneton force line of gravitation, a more clear understanding can be gained on the gravitation between the astral bodies. The problem of the moon's orbit can be described below.

The magnetic lines of the Earth's gravitation are realistic. They resemble the thin ropes, with authenticity and tensile strength. The moon that has a certain distance from the Earth's surface is completely enveloped in the Earth's gravitational line field by the magneton force line. It is bound and dragged by the Earth's gravitational lines. Thus, the moon is secured in the outer space of Earth. The movement of the moon

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is first of all the synchronized inertial motion caused by the Earth's magnetic lines. Simultaneously, it is dragged by the Earth's gravitational lines. The non-rigid body generated in the dragging process and the transport of unequal momentum make the disc of the moon to move much slower than that of the Earth. The initial dynamics of the moon comes from the transport of the momentum of the Earth. The exogenous angular momentum acquired in the moving process helps the moon to maintain the dynamic energy to get away from the Earth. The external magnetism, such as the magnetism of galaxy and the sun, cuts and drags the magnetic lines of the Earth that envelop the moon. The Earth will generate universal gravitation and contraction to the moon at any time, bringing the moon closer to the Earth. When this pull from the cutting precession gravitation balances with the centrifugal force of the moon, the moon will revolve around the Earth along a stable orbit.

In terms of gravitation and gravity, one gravitational field system can have one set or several sets of line system that are valid simultaneously. The directions of action all point to the incurvation of the magnetic lines of gravitation. According to the structure of the sun's magnetism and the Earth's magnetism, the weight of the object in the day is smaller than that in the night on Earth. Because of the equivalence of weight (equivalence between mass and balance weight) and the occupation of the magnetic field, when the object is weighed in static state, the difference of weight between day and night cannot be shown.

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The two are shown as identical. There is some difference in the detachment of gravity. When the direction of curvature and structure of the sun's magnetism completely overlap with that of the Earth's magnetic lines, the gravity to get away from the Earth (in the night) has to plus the force to pull apart the curving magnetism of sun. Thus, more force is required. It will be easier to get away from the Earth in the day when the direction of curvature is opposite. The changes of positions will cause the moving object to acquire the corresponding variation of the sun's angular momentum of rotation. This will partially counteract the changes caused by the bending direction of the magnetic lines. Therefore, the gravity difference between day and night cannot be completely shown or recognized. When the two magnetic lines bend at a certain inclusion angle, there will form a most stable intersection angle field of gravitation system. It will become the window to get away from the Earth's gravitation.

When the object is located in several intersecting magnetic fields or gravitational fields at the same time, the object will always move in the direction perpendicular to the cutting and bending direction of the magnetic lines. The cutting and being cut of universal gravitation and gravitational acceleration are mutual. In the cutting process, the work done by the both parties is equivalent (the work done by the dragging on the two parties will differ with the bending degree of magnetic lines). For the party with large bending degree, the momentum work equivalent to

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that of the party with small bending degree has to be provided first before the completely valid work of this party. This may actually decrease the observed results. The relevant parties show the effects of work being done in different ways, such as displacement, expansion of some volume and other modes of energy consumption. When the moon above the Earth generates a gravity towards the Earth after being cut by the sun's magnetic lines, the moon also drags the Earth towards itself. However, since the potential energy of the Earth is too large, the moon cannot move it. So this portion of work done by the moon can be only converted to the corresponding portion of the Earth. The elongation of the magnetic link of the mass structure is presented as the expansion of the corresponding portion of the Earth, thereby generating the solid Earth tide. The moon, as the third party, has the minimum potential energy. It can only revolve around the Earth with certain volume compressed. This process of orbital change may also cause the rhythmic expansion and contraction of the moon, which resembles the respiration of the moon.

Because of the equivalence of the cutting of gravitation, the astral bodies with very large spinning speed and low density of magnetic lines cannot acquire satellites or planets. This is the basis to determine the capture between the astral bodies.

## Summary

Universal gravitation exists within a certain range and is not infinite. Its upper limit is the maximum diameter of the independent galaxy. The

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lower limit is 0.795774729 unit of magneton radius. In some situations, there will be no universal gravitation between the magnetic fields of gravitation that are completely independent. All the active magnetic systems have to be based on the principle of magnetic lines. They are valid to gravitation to a certain extent. As the situation changes, the impact also varies significantly. Such range and quantitiveness of universal gravitation and the comparability of inertial momentum can address the gravitational paradox. They make the universe more complex and colorful, and bring variability to our understanding of the universe, with more parameters introduced. The model of the Earth's gravitational acceleration also applies to other planets and the gravitational space with tiny mass.

Thus, the following conclusions can be reached. In the universe, there is no force space without mass, and no curvature without mass. There is no mechanics without mass and no energy without mass. Every space has to have mass as the reference. Every mechanics has to be determined by the movement of mass. Under the condition of realistic force lines, gravitation is also the result of the movement of mass. The extension of the fundamental and simplest mechanics is the same as the fundamental mechanics itself. In the theory of relativity, the pure vacuum without the force lines of mass cannot form the bending of the force space. Without the mechanical action of the real force line, the motion

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state of the object cannot be changed. This is the spatial curvature and source of universal gravitation in the real sense. It is the universal gravitation between any objects. This conforms to the principle of classical mechanics.

**Discussion and outlook:** In order to enhance the understanding of the intrinsic gravitation, the following work can be done:

1. Since the elements such as He have very few extranuclear electrons and lack magnetic pillar of electron, the nuclei of the element He are not easy to get close. As a result, there is the shielding effect of the magnetic lines of gravitation. Using the He<sup>3</sup> sphere with interlayer high-pressure density, it is easy to create the weightless space.
2. Since the side of magnetic line is not subjected to stress, by applying permanent paramagnetism of high intensity on the graphite sphere, the weightless body can be created. This is the basic idea for the manufacture of space vehicle.
3. Using the compressed He<sup>3</sup> and covering high-intensity magnetism, the space and work cell without gravity and elastic force can be created. Thus, the conditions are provided for the industries without hardness and gravity.
4. Using the idea in 3 and by removing the electromagnetic wave as the medium, the phonon microscope with the highest precision can be manufactured, so as to observe the shape of quark.

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It can be predicted so far that 1 the core of superconductor loses the gravity; 2. The central positions of Tokamak and nuclear fusion reactor experience significant weight loss. 3. Superfluid will abnormally lose elastic force.

The views of point in this article can explain the following phenomena: 1. A group of French, Germany and Russian scientists published an article titled "Quantum state of neutron in the Earth's gravitational field". They cooled the neutron to absolute zero degree and made the neutron move in the gravity field. A detector was used to observe the falling process of neutron. The results show that the falling of neutron is not continuous, but the neutron jumps from one position to another. This experiment demonstrates that the gravitation is not uniform over the mass. The principle of point of application of force and gravitational lines can be proved and used to account for this phenomenon. 2. At the beginning of start up, the lifter always has the inertia to get away from the Earth in one movement direction, movement potential. This conforms to the idea that the strong magnetism shields the quark vortex and also the gravity to a certain extent. 3. The weight loss of the high-speed revolving disc conforms to the principle of synthesis of magnetic lines of gravitation in object moving at a high speed. Therefore, the object on the revolving disc loses weight. 4. The weight loss of the object on the superconductor conforms to the principle of strong magnetic

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field and high-density He3 shield the magnetic lines of gravitation. 5. By the action process of Coulomb's force it can be found that without the cutting of external magnetism of gravitation, the object will lose the elastic force. This indicates that the elastic force is not the intrinsic force but the exogenous force of an object. In structural mechanics, the cutting of external magnetism of gravitation also applies to the link and bond of electron (chemical bond). Therefore, the electron will produce a force that drives it towards the nucleus at any time. The contraction of the links between the molecules (cutting the molecular chain and molecular force) during the cutting process is manifested as the contracting solid cohesion of the object. If the cutting of external magnetism of gravitation stops or is weakened, the extranuclear electron will move further away from the nucleus. The intermolecular distance is easier to pull apart. The object on the whole will show greater plasticity and lose the elastic force to a certain extent. It is demonstrated from this angle that the elastic force of the matter is not the attribute force of mass, but the result of cutting and precession of universal gravitation. Without the cutting of universal gravitation, the matter will have no elastic force. If there is not work done by the cutting of universal gravitation, the stone will be easily deformed as a dough. This theory shows that the chemical bond can be stretched and contracted. The stretching and contracting process affects the state and properties of the matter. The fundamental force for the stretching and

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contraction of chemical bond is the work done by the cutting of universal gravitation. This also indicates that so far we have not yet discovered the gravitational lines as a realistic existence and in such a huge amount. The gravitational field is a realistic force line field with the mass of dark matter.