The origin of the gravitational force, inertia and kinematics of comic bodies

Wei Fan（凡伟）

Yunnan Qingtou Culture Communication Co., Ltd. 650000 Kunming Yunnan China

Abstract：

In physics, the mysterious origin of the gravitational force, inertia and the source of the kinetic energy of stars have long been unsolved problems. In the recent research，I have tried to jump out of the constraint of Newton's laws and classical mechanics and tried to figure out sources of those universal laws with Potential Theory, and eventually solved problems above.

Key words：Gravitational force；Inertia；Rotation；Resolution；Free fall

Introduction：

As we all know，Sir Issac Newton was born in an era where creationism was mainstream thought. There was no science in that era, and Newton's theory of mechanics was a category of theology. His main idea was to prove that motions of stars satisfy the mechanism of Creationism and the First Cause by performing researches, thus he could prove the existence of God. In a way, Newton's mechanics was a theological theory in that era. As Charles Robert Darwin falsified creationism, therefore, only the idea of using classical mechanics to explain phenomenon in our universe was accepted by nowadays' scientists，and we deliberately avoided the theological idea in his theory. Avoiding the problem does not solve it. Therefore，from the prospective of modern science，this is the drawback of Newton's mechanics. Meanwhile，Newton believed in the existence of universal gravitational force，but he could not explain the source of the force, neither how the force acting on an infinite distance；Newton thought stars move in ellipse orbitals, but could not point out the cause of such motions；Newton believed planets were orbiting the star as well as rotating，but he could not explain the origin of that；Newton believed in the existence of inertia，but he could not explain the origin of inertia；At the same time，Galileo believed in the existence of free fall，but Newton's mechanics could not explain the cause of such motion. These are all drawbacks of the classical mechanics. However in Einstein's General Relativity，he tried to explain the source of the gravity with the curvature of space-time. Although this was an inspiring idea，Einstein could not explain how does matter bend the space-time. Meanwhile, the hypothesis that matter will bend the space-time means the certain existence of gravity. Therefore，General relativity is problematic as the causal relationship is reversed and it argues in a circle. At the same time，both Newton's mechanics and Einstein's relativity gave explanations to natural phenomenon from the prospective of mechanics. In this paper，I tried to get away from the constraints of mechanics，and use Potential Theory to explain phenomenon which used to be explained

E-mail:2291341425@qq.com

with classical mechanics or relativity，and tackled problems which could not be explained by the previous theories thereby we set up a new system which can take the place of classical mechanics and relativity.

1：The origin of matter, space and gravity

Throughout the history of science, there was no one has ever tried to explain the origin of matter, space and gravity, and there was no one has ever tried to unify them.(some people even think this is a philosophical problem without answer)

We can construct models for matter, space and gravity as following（assumptions and definitions）：there exists a minimum unit for all matters，which we defined as ： ground substance，labeled as dv；the space S is made up of ground substance dv，which is：$S=\iiint_{\Omega} dv$，the space condenses form matter, so $M=S\cdot k=\iiint_{\Omega} dv\cdot k$， where k is the coefficient of condensation，so we can that the space is the ground-substance form of matter, $S=\iiint_{\Omega} dv=\frac{M}{k}$，and matter is the condensed form of the space $M=S\cdot k$； as there is a universal density of the ground substance for the universe which we defined as 1, and as matter is formed by the ground substance, $M=\iiint_{\Omega} dv\cdot k$，which leads to a decrease in the density of the ground substance around the matter formed, $\rho\prec 1$，and this lead to a linear change in the density of the ground substance, $\nabla\rho\propto\nabla u$，the gradient of change in the density equals the gradient of the change in gravitational potential, $\nabla u=\nabla P$， thus，the origin of gravity is gradient of change in the density of the ground substance which forms matter， for short： space - gradient, so the gravitational field is a field of the space potential. In this way，the field strength E is proportional to the divergence of the density of ground substance , $\nabla\cdot\vec{A}$, at $\vec{A}(x,y,z)$， which can be written as：

$$E\propto div\vec{A}=\frac{\partial P}{\partial x}+\frac{\partial Q}{\partial y}+\frac{\partial R}{\partial z}=\nabla\cdot\vec{A} \qquad (1)$$

Thus, the gravitational field is not radial but contracted. So the gravitational field is a negative-source field， $div\vec{A}<0$. Negative-source means the field comes from the high altitude instead of the centre of the earth. This is the difference between my theory and Newtonian theory.

Thus，the gradient of gravitational potential equals gradient of the density of ground substance of free space.

$$\nabla P=\frac{\partial P}{\partial x}\vec{i}+\frac{\partial P}{\partial y}\vec{j}+\frac{\partial P}{\partial z}\vec{k}\Leftrightarrow\nabla u=\frac{\partial u}{\partial x}\vec{i}+\frac{\partial u}{\partial y}\vec{j}+\frac{\partial u}{\partial z}\vec{k} \qquad (2)$$

From the equation above，the source of gravity or gradient of gravitational potential is the gradient of density of ground substance，so we can raise a feasible explanation to the source of gravity .Still due to the negative-source feature of gravity，the gravitational force is not attraction from a body，but a pushing force due to potential from high attitude。So ，we can also say that gravity does not exist in the universe. It is only an effect of potential energy in high altitude.

As free space is made up of ground substance，and the ground substance forms a linear distribution，thus，we can also say, the gradient of free space equals the gradient of gravitational potential，which is expressed as：

$$\nabla P=\frac{\partial P}{\partial x}\vec{i}+\frac{\partial P}{\partial y}\vec{j}+\frac{\partial P}{\partial z}\vec{k}=\nabla V=\frac{\partial V}{\partial x}\vec{i}+\frac{\partial V}{\partial y}\vec{j}+\frac{\partial V}{\partial z}\vec{k} \qquad (3)$$

From the equation above，the source of space is still a field of gravitational potential，so space is not flat，but shows a linear distribution，meanwhile，the macro universe is the result of combining an infinite number of gravitational fields.

Thus，the strength of the gradient of gravitational potential equals the strength of gradient of space ，considering the strength of gradient of gravitational potential is the negative gradient of gravitational potential, $E=-\nabla P$ .Therefore，the strength of space- gradient field is the negative of the gradient of gravitational potential.

$$E=-\nabla V=-\nabla P=-\left(\frac{\partial P}{\partial x}\vec{i}+\frac{\partial P}{\partial y}\vec{j}+\frac{\partial P}{\partial z}\vec{k}\right) \quad (4)$$

Due the fact that the gravitational potential is indeed space potential. In the following expressions I will use space potential to substitute gravitational potential，so that we can get rid of constraints of classical mechanics），Therefore，from Newton's mechanics，the relationship between the magnitude of space potential and mass and distance can be expressed as：

$$P=G\frac{M}{r} \quad (5)$$

Substitute（5）into（4），we can deduce the relationship between the strength of space gradient field and mass and distance：

$$E=-\nabla V=-\nabla P=-\nabla G\frac{M}{r} \quad (6)$$

From this，the strength is proportional to the mass of the body，and is inversely proportional to distance. As gravitational potential is space potential，then，for the potential energy for a test mass in the space can be expressed as:

$$E_P=mgh \quad (7)$$

As gravitational potential energy is spatial potential energy（P.S：We will use spatial potential energy to substitute gravitational potential energy in the following passage），Then the relationship between spatial potential energy and distance can be expressed as :

$$E=-\frac{GMm}{r} \quad (8)$$

The interaction of spatial gradient potential between two bodies fulfills the Newton's law of universal gravity.

$$\vec{F}=-G\frac{Mm}{r^3}\vec{r} \quad (9)$$

From the equation above，the origin of gravity is the thrust from high altitude or the gradient of spatial potential ，we use gradient of spatial potential or the gradient of spatial density） to explain gravity. The interaction between two bodies is the interaction between the gradient of spatial potential of two bodies, and the magnitude of the interaction is proportional to the mass of the body, and inversely proportional to the square of distance.

Therefore，as we can see，gravity does not exist，the nature of gravity is the effect of thrust from high altitude. Which is saying that free fall of an apple is due to the thrust instead of the attraction from the earth. This can solve the question that why gravity in Newton's theory can act on an infinite distance.

Summary： From the proof above，we find out that matter is the condensed form of space，and space is the ground-substance form（which is also the gravitational field），space is consist of ground substance ; gravity is thrust from high altitude instead of attraction. Which means that Newton's theory which describes gravity as an attractive force is thoroughly wrong；and we do not need a theory of curvature of space-time to explain gravity.（the space-tome model in General Relativity has

the problem of causal inversion and circular reasoning as the assumption that matter will curve the space-time itself implies the existence of gravity）.So , Einstein's general relativity is also incorrect.

2：The origin of motion, velocity, acceleration, inertia and fore

2.1：We all know that a body can perform motion. But why is that happening?? What causes the motion？We can not give an answer.而 Classical physics only gave a mathematical description ，but had never tried to give a physical explanation or definition. In general，when the position of an object changes， we say this object can move.

In classical mechanics，position vector for an object in a flat space is：

$$\vec{r}=x\vec{i}+y\vec{j}+z\vec{k} \qquad (10)$$

As the space is not flat，but forms a gradient distribution，then，the position vector should be changed to a vector under the gradient space ,which is equivalent to calculate the gradient of the potential of the position vector in the flat space:

$$\nabla r=\nabla P=\left(\frac{\partial}{\partial x}\vec{i}+\frac{\partial}{\partial y}\vec{j}+\frac{\partial}{\partial z}\vec{k}\right)P \qquad (11)$$

Considering the kinematic equation in the flat space：

$$\vec{r}(t)=x(t)\vec{i}+y(t)\vec{j}+z(t)\vec{k} \qquad (12)$$

As the space is not flat，but forms a gradient distribution，Thus，the real kinematic equation should describe the motion of an object in the gradient space. Therefore，the motion of an object in the gradient space can be described as：

$$\nabla r(t)=\nabla P(t)=\frac{\partial P}{\partial x}(t)\vec{i}+\frac{\partial P}{\partial y}(t)\vec{j}+\frac{\partial P}{\partial z}(t)\vec{k} \qquad (13)$$

Equation（12），in classical mechanics，is a function of coordinates about time，which is only a mathematical expression without any actual physical meaning；From equation（13），in the gradient space，the motion of an object is described as a function of its gradient potential about time，which is：the origin of motion is the changing of gradient potential about time. As the precondition for changing the gradient potential is experiencing an actuating quantity, an impulse of gradient potential will be produced after an object experiencing an impulse. $I_{\nabla P}=\int \nabla P\cdot dt$, which causes the motion. So motion can be defined as an object experiences an impulse of gradient potential ，which leads to change of its spatial potential gradient，such change is seen as motion. Thus, we define motion physically as well as clarify the origin of motion.

Generally，in classical theory，we do not know the origin of velocity，but only the mathematical expression which has no physical meaning. That is expressed as:

$$\vec{v}=\frac{d\vec{r}}{dt} \qquad (14)$$

Deduced from（11），the position vector under gradient space $\nabla r=\nabla P$ ，then velocity has its own physical meaning in the gradient space，which is：

$$\vec{v}=\frac{d\nabla P}{dt} \qquad (15)$$

From the equation above，the magnitude of velocity in classical mechanics shows the rate of change of gradient of spatial potential against time. Thus, we defined velocity in a physical way for the first time as well as explained the origin of velocity. From the theory above，only when the gradient of spatial potential of an object changes then the object will have velocity and perform motion. Thus we

have given an origin of velocity from another prospective. In general，in classical physics，we do not know the origin of acceleration，and our definition do not has any physical meaning，which is：

$$\vec{a} = \frac{d\vec{v}}{dt} \qquad (16)$$

In the gradient space，as $\vec{v} = \frac{d\nabla P}{dt}$，therefore，the acceleration of a body can be expressed as：

$$\vec{a} = \frac{d^2\nabla P}{dt^2} \qquad (17)$$

From the equation above，the acceleration of a body expresses the rate of change in the rate of change of the gradient of its spatial potential. Thus we defined acceleration for the first time and explained the origin of it..

2.2：From Newton's first law, we know that everything has inertia，which is ："An object do not need any external force to maintain its current state of motion. An object will stay still or move in a straight line with constant speed." However，what is the origin of inertia？Why no external force is required to keep the state of motion of an object？Why will an object keep moving in a straight line ？This has always been a mystery.

From the deduction above，considering inertia motion as one kind of motion，we can use kinematic equations in gradient space so we can use the kinematic equations in gradient space to express the motion equations and velocity equations, which is:

$$\begin{cases} \nabla r(t) = \nabla P(t) = \left(\frac{\partial}{\partial x}(t)\vec{i} + \frac{\partial}{\partial y}(t)\vec{j} + \frac{\partial}{\partial z}(t)\vec{k} \right) P \\ \vec{v} = \frac{d\nabla P}{dt} \end{cases} \qquad (18)$$

From the definition and deduction above, we can know that the motion of an object stands for the impulse of gradient potential after experience an impulsive quantity, which leads to the gradient of its spatial potential varies with time. Such change is seen as motion, which means that，when an object is isolated from and impulsive quantity，the gradient of its spatial potential will keep the same，then the object will not move and stay still. So ability to perform motion is not an inherent property of an object.（Newton wrongly thought keeping moving with constant velocity if no external force is acting was an inherent property of any object., which means that，force in Newton's mechanics changes the gradient of the spatial potential of the body，as any object will experience gravity which reduces its spatial potential(causes it to fall to the ground), which means that the motion of an object needs spatial potential to maintain(without spatial potential there will be no motion, and body will not move along the equal-potential line. For a better understanding，we can change the spatial potential into kinetic energy, so changing an object's gradient of spatial potential is equivalent to changing its spatial potential energy, and space of the potential energy can be expressed as with gravitational potential energy $E_p = mgh$, because the origin of the potential energy is kinetic energy, the kinetic energy is a kind of expression of the potential energy, can be mutual transformation, so the space potential energy is the kinetic energy at the same time here $E = \frac{1}{2}mv^2$. Considering that the energy required to maintain an object's inertial motion is the energy required to resist gravity, we can define this energy in a special way: dynamic potential energy. The mathematical expression

is:. $E = mgh = \frac{1}{2}mv^2$ Therefore, we can also draw the conclusion that "the motion of an object needs dynamic potential energy (kinetic energy) to maintain. When the object is not under stress, it always remains relatively static and does not move in a straight line at a uniform speed". $E = mgh = \frac{1}{2}mv^2$ The mathematical definition is:

$$\begin{cases} E = mgh = \frac{1}{2}mv^2 \succ 0 \Rightarrow v \succ 0 \\ E = mgh = \frac{1}{2}mv^2 = 0 \Rightarrow v = 0 \end{cases} \quad (19)$$

Where, $E = mgh = \frac{1}{2}mv^2$ is the dynamic potential energy, v is the velocity, so we give a new definition of inertial motion. It can be seen from the above equation that inertial motion is the cushioning motion of the dynamic potential energy of an object when it is consumed by gravity. Therefore, the inertial motion of an object is the process in which the dynamic potential energy of the object is consumed by the gravity generated by the object in the gravity system after it leaves the stressed object. Thus, I explained the origin of inertial motion, discovered that Galileo and Newton had the wrong definition of inertia, and corrected it.

In the textbook, Galileo and Newton agreed that the motion of an object does not require force to sustain it, but they never explained what it needs to sustain its motion. They even think that motion is an intrinsic property of an object, and an object will keep moving even when it is not under stress. At the same time, although Galileo and Newton discovered the existence of inertial motion, they could not explain the origin of inertial motion, which is the third shortcoming of the Newtonian law. However, I have successfully solved these three problems in the research here.

2.3: at the same time, there has never been a definite definition of the origin of force in the history of science, so we do not know the origin of force all the time.

According to Newton's second law $\overrightarrow{F} = m\vec{a}$, because the acceleration is the object of the spatial potential gradient of the rate of change of rate of change over time $\vec{a} = \frac{d^2\nabla P}{dt^2}$, the force can be defined as: the quality of the object and the space of potential gradient over time and the rate of change of the rate of change of the product, i.e., the space of the object to have potential gradient variation of the rate of change of size. Expressed as:

$$\overrightarrow{F} = m\vec{a} = m\frac{d^2\nabla P}{dt^2} \quad (20)$$

It can be seen from the above formula that force is a mathematical quantitative concept and does not exist as a special object, that is to say, force does not exist.

So we can predict that it is impossible to build a grand unified model of four basic interactions. Because there is no force in the world, there is no physical sense in unifying the four mathematical quantification concepts. Even if some kind of unity is to be achieved, it can only be achieved by first explaining the origin of the four fundamental forces, their internal relations, and then they themselves are unified. It can also be seen that a force applied to an object is a gradient that changes the space potential of the object. Therefore, force is an action

potential energy.

When the rate of change of the gradient $\vec{g}$ of the space potential of an object maintains a constant rate, i.e. $\vec{a} = \frac{d^2 \nabla P}{dt^2} = \vec{g}$. It can explain the free fall movement, and the force can be expressed as:

$$\vec{F} = m\vec{a} = m\frac{d^2 \nabla P}{dt^2} = m\vec{g} \qquad (21)$$

It can be seen from the above equation that the motion principle of free fall is the same as that of conventional motion.

Conclusion: according to the above derivation, we have given the exact physical definitions of motion, velocity, acceleration, inertia and force respectively from the perspective of the gradient of space potential, and explained their origin, thus establishing a new set of physical principles, namely, "kinematics". At the same time, it can be seen that in our kinematic potential system, the concept of force is not required to explain the physical phenomena that can be explained by Newtonian mechanics, as well as the origin of motion, velocity, acceleration, inertia and force that cannot be explained by Newtonian mechanics.

3: Some physical problems that cannot be explained by Newtonian mechanics

3.1: Why do apples fall, and why don't stars and moon fall?

When we were young, we were curious about why the stars and the moon were floating in the sky. Why don't you fall? Today I'll explain the problem.

Usually, every object in its surroundings to create a space of potential gradient ∇P, small object will fall to the big, depends on the large objects in a small objects in space position of space whether potential gradient ∇P_M is greater than the small space of the object itself potential gradient ∇P_m, i.e. $\nabla P_M \succ \nabla P_m$, considering the existence of other objects around small objects, the existence of a small object function, therefore, small objects on the actual meaning of the space of the space of potential gradient ∇P_0 is equal to its own potential gradient $\nabla P_{\pm n}$, coupled with the positive and negative space potential gradient generated by other objects (including $+n$ said ∇P_0 lager, $-n$ said ∇P_0 smaller), $\nabla P_m = \nabla P_0 + \nabla P_{\pm n}$ i.e.,.

Therefore, why does the object (apple) fall down to meet the following conditions:

$$\begin{cases} \nabla P_M \succ \nabla P_m \\ \nabla P = \nabla G\dfrac{M}{r} \\ \nabla P_m = \nabla P_0 \pm \nabla P_n \end{cases} \qquad (22)$$

On the contrary, when the space potential gradient generated by a large object at the position of a small object in space is less than or equal to the space potential gradient possessed by a small object $\nabla P_M \le \nabla P_m$, that is:, the small object will not fall towards the large object, so why the star and the moon will not fall down satisfies the relationship:

$$\begin{cases} \nabla P_M \le \nabla P_m \\ \nabla P = \nabla G\dfrac{M}{r} \\ \nabla P_m = \nabla P_0 \pm \nabla P_n \end{cases} \qquad (23)$$

At the same time, it can also be used to explain the electron orbital motion model of the microscopic nucleus, which can effectively explain why the electron's momentum will

not fall to the nucleus after it has lost its momentum.

When the effect of other celestial bodies on the space potential gradient of the moon is ignored, since the average distance between the earth and the moon is $384401000m$, the mass of the earth is $5.98\times10^{24}\text{kg}$, and the mass of the moon is $7.35\times10^{22}\text{kg}$, put into the upper equation, the space potential gradient generated by the earth at the center of gravity of the moon is:

$$\nabla P_M = \nabla G\frac{M}{r} = \nabla G\frac{5.98\times10^{24}\text{kg}}{384401000\text{m}} \qquad (24)$$

For the space potential gradient generated by the moon at its own position, the unit length (k is the unit of undetermined length) is selected. Then, the space potential gradient generated by the moon at its own center of gravity is: $1k$

$$\nabla P_m = \nabla G\frac{M}{r} = \nabla G\frac{7.35\times10^{22}\text{kg}}{1m} \qquad (25)$$

Among them:

$$\nabla P_M = \nabla G\frac{5.98\times10^{24}\text{kg}}{384401000\text{m}} \prec \nabla P_m = \nabla G\frac{7.35\times10^{22}\text{kg}}{1m} \qquad (26)$$

Therefore, the space potential gradient generated by the moon in its own position is greater than the space potential gradient generated by the earth in the position of the moon. Therefore, the moon will never fall down, and so will the stars.

3.2: origin of star (earth) rotation

From the above derivation, it can be found that the essence of motion is that the space potential gradient increases after the object is subjected to the action amount, generating a momentum of gradient potential, which causes the space potential gradient to change with time, expressed in a sporty way, mathematically expressed as: $\vec{v} = \frac{d\nabla P}{dt}$ So, to the rotation of the object, the object of irregular shape and density distribution is not uniform, causing the astral center and geometric center don't overlap, as the focus of stars around other stars of perturbation (action), can let a focus to create a velocity, displacement of center of gravity of the stars is expressed in the form of spin, mathematical expressions for the:

$$\vec{v} = \frac{d\left(\nabla P \pm x\right)}{dt} \qquad (27)$$

Where, v is the velocity, ∇P is the gradient of the center of gravity potential, t is the time, x is the gradient of the perturbation potential. It can be seen that when the star is slightly disturbed and x changes, the center of gravity velocity of the star will change, and this change of center of gravity velocity will be reflected by the rotation of the star. The trajectory can be expressed by the equation of motion $\nabla r(t) = \nabla P(t) = \frac{\partial P}{\partial x}(t)\vec{i} + \frac{\partial P}{\partial y}(t)\vec{j} + \frac{\partial P}{\partial z}(t)\vec{k}$ .From this, we can see that the dynamic origin of the rotation of stars comes from the perturbation of other stars around them. We can also see that the rotation of stars does not require god's first impetus.

3.3: origin of star revolution and elliptical orbit motion

Because sports is the essence of object space potential gradient changed over time, so, for the revolution of the stars, when the stars orbit around other stars of perturbation potential gradient, stars orbit potential gradient will change, the disturbance of astral orbit potential gradient of the change, will be displayed in the form of revolution. The mathematical expression is:

$$\vec{v} = \frac{d\left(\nabla P \pm x\right)}{dt} \tag{28}$$

Where, v is the velocity, ∇P is the gradient of the orbital potential, t is the time, x is the gradient of the perturbation potential. From this we can see that the perturbation of the gradient of the orbital potential of a star is expressed in the form of revolution. Where, its motion trajectory can be expressed by the motion equation $\nabla r(t) = \nabla P(t) = \frac{\partial P}{\partial x}(t)\vec{i} + \frac{\partial P}{\partial y}(t)\vec{j} + \frac{\partial P}{\partial z}(t)\vec{k}$, from which we can see that the dynamic origin of star revolution is from the perturbation of other nearby stars. So, we can see that the revolution of the stars does not require or have the first force of god.

In the process of stellar revolution, the change of the gradient of orbital potential will be represented by elliptical orbit motion. Therefore, the origin of elliptical orbit motion of stars is the change of the gradient of orbital potential after the star is slightly disturbed.

Summary: through the above research, we found that the star's rotation and revolution of origin from the center of gravity of the stars perturbation, leading to other stars around potential gradient and the change of the rail potential gradient, this kind of change, respectively, in the form of rotation and revolution of expression comes out, does not need god first driving force (the original kinetic energy that is to say, even if the stars, the stars of the original kinetic energy can only decide which orbit stars in potential plane rotation and revolution, and will not lead to the stars of rotation and revolution. Astral rotation and revolution does not need the original kinetic energy). At the same time, the origin of elliptical orbital motion of stars is that the gradient of orbital potential of stars changes in the form of elliptical orbital motion. Finally, we find that the rotation and revolution of stars do not have internal kinetic energy, nor do they need kinetic energy, but only a change of potential energy. Therefore, I use my new theory (kinematics) to explain the dynamic origin of the rotation and revolution of stars, as well as the origin of elliptical orbit motion of stars. Because my new theory can explain what Newtonian mechanics can explain, and what Newtonian mechanics cannot explain, I have achieved a substitution for Newtonian mechanics.

3.4: origin of free fall movement

Aristotle believed that heavy objects fall faster than light objects, and the greater the mass of an object, the faster it falls. In 1636 Galileo proposed the law of free fall motion. He believed that light objects and heavy objects landed at the same time. Although Galileo's law of free fall motion can describe the phenomena and laws of free fall motion, it cannot explain the origin of free fall motion. So he knows that the motion of an object is independent of its mass, but he doesn't know why its falling speed is independent of its mass. What causes light objects and heavy objects to land at the same time?

According to the above derivation, we know that space is essentially a gravitational potential gradient field. The apple falls down because it is pushed by the potential energy from high altitude. So, the free fall motion of an object is actually the downward motion along the gradient space due to the thrust of the high potential energy.

At the same time, let's consider the question: are there any forces and counterforces between the two blackboard erasers in the falling process of free fall motion? When we

studied physics in high school, we found that there is no force or reaction between two superimposed blackboards in free fall motion because they have the same acceleration. In other words, in the process of free fall movement, the two superimposed blackboard erasers in the hand cannot be regarded as a whole, and their mass cannot be superimposed.

We can enlarge the reasoning: because the eraser is atoms, even the same an eraser in the process of free fall, between the upper and the lower layer atoms on the blackboard eraser, actually there is no action and reaction, also a blackboard eraser in free fall in the process can be seen as a heap of independent of each other in the free fall of the atom, so the quality between atoms and atomic cannot achieve, therefore, an eraser free fall, its speed has nothing to do with the quality of an eraser.

Considering that the falling speed of all kinds of materials is the same, we can define the object of action of high potential energy as the same minimum unit of all kinds of materials: matrix dv. Since the mass of an object cannot be superimposed in the process of free fall motion, it can be concluded that the object of gravity is not the overall mass M, but the individual matrix of the component dv. Therefore, the object must be independent of the overall mass M of the object in the process of free fall motion. This is the origin of free fall motion.

The mathematical expression is:

$$gndv \Rightarrow Mg\left(M = ndv\right) \tag{29}$$

Where, dv refers to the matrix, n is the number of substrates, M is the total mass of the object, and g is the gravitational acceleration, which is collectively expressed as: the motion of free falling body is that the substrates dv of the substance are pushed down along the gradient space by the high potential energy, which is expressed in the form of overall falling at a macro level. So, I explained the origin of free fall motion.

As can be seen from the above formula, we predict the existence of a new substance, namely, "matrix".

4:

Through the above research, I propose a set of feasible new theories which can replace Newton mechanics and Einstein's general relativity. I can explain the problems that Newtonian mechanics and Einstein's general theory of relativity can explain, and I can also explain the problems that they can't explain, so I realized the substitution of Newtonian mechanics and general relativity. Of course, new theories always inevitably have some loopholes, there are still many problems to be solved. So, if you find that there is something wrong with my theory, I hope you can tell me as soon as possible, and I will improve it. In addition, if you are a staunch defender of Newtonian mechanics and Einstein's general theory of relativity, which has led to the opposition of our academic views, we also hope to gain your understanding (after all, mainstream science represents only the present, and doubt represents the future). In addition, my theory is not absolute truth and can be completely replaced. I hope that future generations can soon overturn my theory and seek a new theory that is closer to truth and promote the development of human civilization.

To my successor:

A: we have always believed that experiments are the

only criterion for testing truth. A scientific theory is correct as long as it is tested experimentally, but it is actually a wrong idea. In fact, experimentation is only a necessary condition for testing truth, not the only criterion, because it does not prove any scientific theory to be correct, and it only makes a scientific theory seem more correct. Because there are many different theories for explaining the same experimental phenomenon, no one can be sure that the experiment only verifies your theory, not any other theory or other theory. So, I hope you don't believe in authority, but be bold enough to question theories that have been tested by countless experiments. (including my theory)

B: any scientific theory is a phased interpretation of the cognitive level of the time of human development. With the progress of The Times and the deepening of human cognitive level, we can always put forward theories that are closer to truth according to the new cognitive level to replace traditional theories.

In this paper, I only put forward a new theory that is closer to truth based on Newtonian mechanics combined with the cognitive level of my age. That is, my theory is only the stage explanation in the human development process, not the final truth. As human cognition progresses, you can replace my theory with a new set of doctrines that are closer to truth through the level of certification in your time. Of course, this does not mean that your theory is absolutely correct, and your theory is also only a periodic interpretation of human development, and will be replaced by new theories proposed by your later generations. So, I'd like to welcome you to disprove my theory a little bit earlier, and to seek a new theory that is closer to the truth.

C: if you are lucky enough to present a scientific opinion that represents the "correct time" of the next era and cannot be published, stick to yourself and the truth.

Because that means you're trying to publish your heliocentric views in journals that support geocentrism; Evolutionary views are published in journals that support creationism through peer review by priests or popes. It's not just a belief shock, it's also hurting the other party's vested interests. It is inevitable that the reviewer will reject your work for reasons that violate the accepted scientific standards.

At the same time, because the object of this paper is a most basic physics issue and innovations come from first-hand knowledge and experience, there is no reference work for us to draw on, so we have decided to cite a textbook in order to show our respect for the work of the predecessors..

Reference:

【1】San-Hui Zhang,College physics (third editio（Tsinghua university press, Beijing 9,2008 ）chap.1-2 .