

On Dark Matter and Any Complement to Newton's Law of Gravitation
– My Personal View Based on Our New Discovery

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Abstract

Our latest research shows that electromagnetic field will be generated when two objects collide with each other under an impact force, even if a tiny force. Here, objects were blown by wind to verify that there will be electromagnetic field generated by friction between the surface of the planet and the interstellar gas and dust (interstellar atmosphere). Ten objects that are easy to be found on the earth were chosen to prove it. The results show electromagnetic field will be generated when the wind blows these objects. The stronger the wind blows, the stronger the electromagnetic field will be. Based on this new discovery, we speculate that electromagnetic field can be generated by the friction between the surface of galaxy and the interstellar atmosphere. The ultra-high-speed rotation and revolution of galaxies leads to super strong electromagnetic field and other energy field, which resulted in the super strong gravity. The generated energy radiates outward in the form of electromagnetic waves or other waves that can't be detected now, but is distributed throughout the outer space. That is what scientists called dark energy and dark matter. The resulting gravity is called external gravity here. The centripetal force is the result of external gravity and Newtonian gravitation according to the existed outward gravity. On this basis, we perfect and supplement the Newton's gravity. Newton's formula of universal gravitation is based on ideal conditions that objects of the system are not affected by external forces. Neglecting the interaction of other planets, we give two simple models to discuss the relationship between the

centripetal force, the universal gravitation and the external gravitation produced by the interaction between sun and a planet. The existence of external and inherent gravity explains the existence of dark matter, and the fact that the rotation speed of galaxies is different from that calculated by universal gravitation. It is a good interpretation of some discovered phenomena about dark matter in the past. Where there are moving galaxies, there are dark matter and dark energy. Dark matter and dark energy are everywhere and flooded in the outer space. The centripetal force of planetary motion is the result of the combined action of universal gravitation and electromagnetic force.

Key words

Dark matter; electromagnetic field; electromagnetic energy; Newton's of gravitation; dark energy

1. Introduction

Dark matter is extremely small that cannot be observed nor be detected directly. Dark matter cannot emit light, but it can interfere with the light or gravity of stars directly. It is difficult to feel the existence of dark matter obviously. [1, 2] Dark matter was first proposed and inferred by Fritz in 1932. The spiral galaxy spins faster than the speed predicted by Newton's laws of gravity. Based on this discovery, he speculated that there must be existed dark matter, which can ensure the spiral galaxy do not leave the galaxy due to the excessive centrifugal force. [3, 4] Since the 1970s, scientists have found that the new world cannot cause such a large amount of gravity by itself according to the gravitational effect between many celestial bodies. Newton's gravity governing the motions of celestial bodies is not unified here. Thus, the theory of dark matter is widely accepted.[4] In 2006, American astronomers studied the galaxy using the Chandra X-ray, and the whole collision process between two galaxies was observed accidentally.[5, 6] Galaxy clusters collide violently, separating the dark matter from normal matter. Some influential work has also proved the existence of dark matter.[7-10] Recently, the Dark Matter Particle Explorer recorded about 2.8 billion high-energy cosmic-ray events in the past 530 days, and there are about 1.5 million electron cosmic

rays with an electron voltage of more than 25 GeV.[11] Astronomers speculate that the exploration and research of dark matter will lead to a new revolution in physics.[4]

Everything that we know about science is temporary, which is the product of the existing human knowledge and up to date understanding. There is not a theory that is absolutely so clear or firm that it cannot be changed. What we have already known are ideas that we constructed to be correct based on our capabilities, which makes them closest to the truth. It proves the existence of dark matter and the rigorous definition of gravitation by the research on dark matter. [12]

We have found that electromagnetic field will be generated when two objects collide with each other under a force, even if a tiny force. In this paper, objects were blown by wind to verify that there would be electromagnetic field generated by friction between the surface of planet and the interstellar gas and dust (interstellar atmosphere). Eleven objects that are easy to be found were chosen in the experiments. The results show that electromagnetic field will be generated, when the wind blows these objects. The stronger the wind blows, the stronger the electromagnetic field will be. Thus, we inferred that the electromagnetic field would be generated by the friction between the surface of galaxy and its surrounding interstellar atmosphere. The ultra-high-speed rotation and revolution of galaxies leads to super strong electromagnetic field and other energy field, which resulted in the generated super strong gravity (outward gravity). The centripetal force is the result of external gravity and Newtonian gravitation according to the existed outward gravity. The generated energy radiates outward in the form of electromagnetic waves or other waves and distributed throughout the out space. That is called dark energy and dark matter by scientists. These findings and conjectures explain the existence of dark matter and the error of galaxy velocity calculated by Newton's universal gravitation formula. Therefore, the movement of all things causes everything to be charged. Perhaps universal gravity and coulomb gravity are the two manifestations of one formula.

2. Results and discussions

Are there any electromagnetic field generated owing to the planet's rapid rotation and revolution? Ten objects were used to confirm that there is an electromagnetic field generated when objects are blown by wind. The objects included water, mud, rock, ceramic tile, fur, grass, tree, brass board, cardboard, acrylic plate. It is difficult to know what exist on the planet's surface exactly, so we chose many kinds of materials possibly to mimic them. Then we tried to prove that the generation of electromagnetic field comes from the constant friction between planet and interstellar atmosphere. Firstly, water was blown by wind to imitate the friction between the ocean and atmosphere. The mud, rock, and ceramic tile were chosen to simulate the surface of ground. The fur, grass and tree were selected to mimic the possible creature on planets. At the same time, the brass board, cardboard, and acrylic plate were proposed to mimic the other elements on surface of planets. Figure 1a shows a schematic diagram of the experimental setup for detecting electromagnetic field generated by the friction between the objects and wind. The electrometer can measure the electrical signals of the experimental setup when the objects were rubbed by the wind from the air blower respectively. It can be seen if there was a generated electromagnetic field. Figure 1b-j show the voltage and current generated by the friction between the objects and the wind at a wind speed of 10 m/s. We can see both the voltage and current were obvious. Although the electric signals are different, the electromagnetic field can be generated as long as the objects are blown by the wind. It also indirectly proves that there will be continuous electromagnetic field generated by the ceaseless friction between the planet's surface and interstellar atmosphere, which resulted from the ceaseless rotation and revolution of planets. Therefore, electromagnetic force will always be existed on the planet.

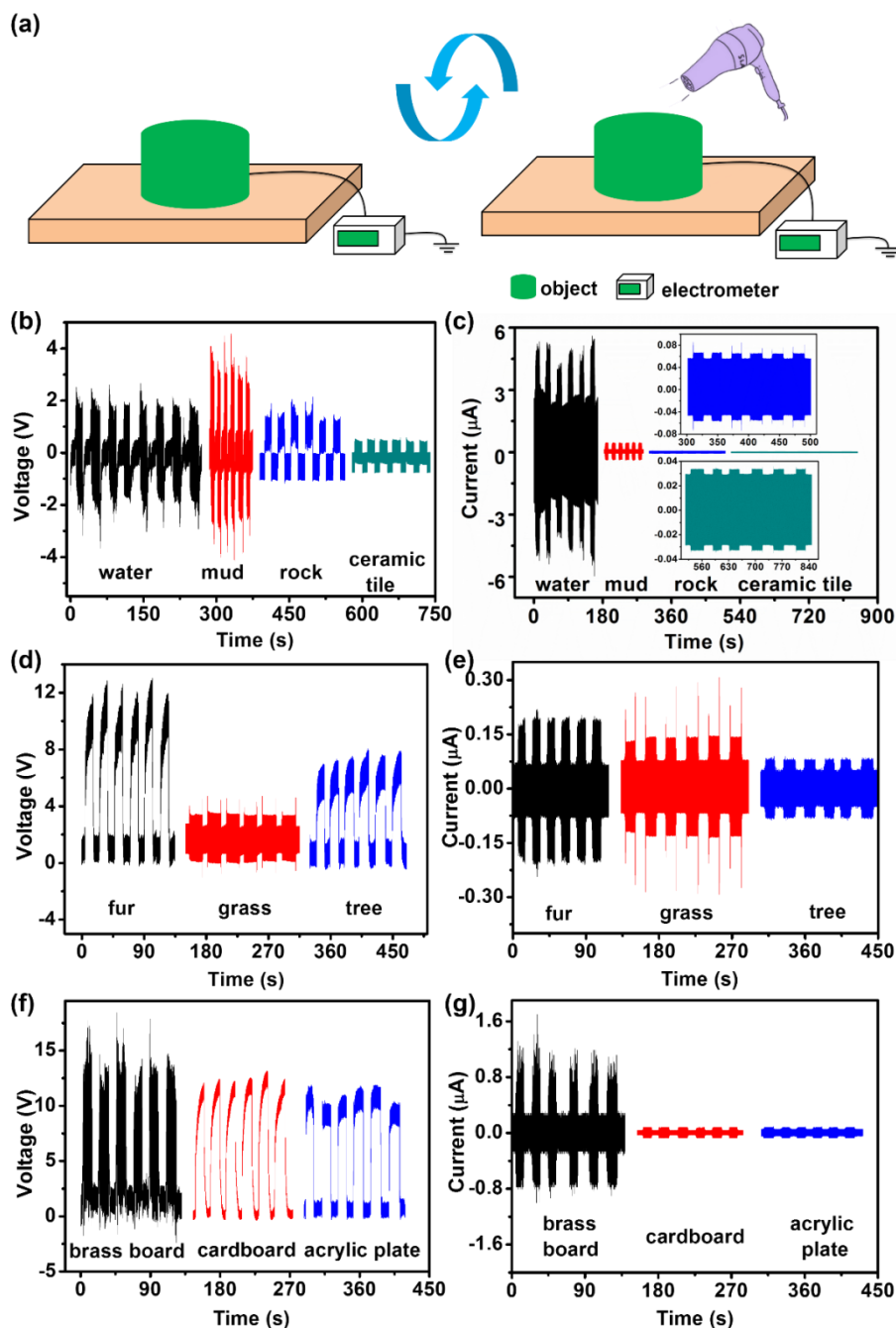


Figure 1. (a) Schematic diagram of the experimental setup of the detection for electromagnetic field generated by the friction between objects and wind; (b, c) The voltage and current detected by the friction between objects (water, mud, rock and ceramic tile) and the wind at a wind speed of 10 m/s; (d, e) The voltage and current detected by the friction between objects (fur, grass and tree) and the wind at a wind speed of 10 m/s; (f, g) The voltage and current detected by the friction between objects (brass board, cardboard and acrylic plate) and the wind at a wind speed of 10 m/s.

How much electromagnetic field can be produced by the planet's friction with the interstellar atmosphere when it moves at a high speed? We tried to derive indirectly the strength of the electromagnetic field that may arise from friction between the planet and interstellar atmosphere under the high-speed motion of planet by experiments. Due to the limited experimental conditions, the objects were blown with different speeds of wind at low wind speeds, and the chemical fiber cloth was shaken vigorously to make it rub against atmosphere. Figure 2a-b show the voltage and current generated by the friction between the rock and the atmosphere under strong wind (wind speed: 10 m/s) and weak wind (wind speed: 5 m/s), respectively. Figure 2c-d show the voltage and current generated by the friction between the fur and the atmosphere under the strong and weak wind, respectively. Figure 2e-f show the voltage and current generated by the friction between the brass and the atmosphere under the strong and weak wind, respectively. It can be seen that the strength of the electromagnetic field generated by the friction of three objects with the atmosphere is different at different wind speeds. The larger the wind, the faster the friction between the object and the atmosphere, and the stronger the electromagnetic field generated. In other words, the faster the object moves in the atmosphere, the greater the intensity of the electromagnetic field.

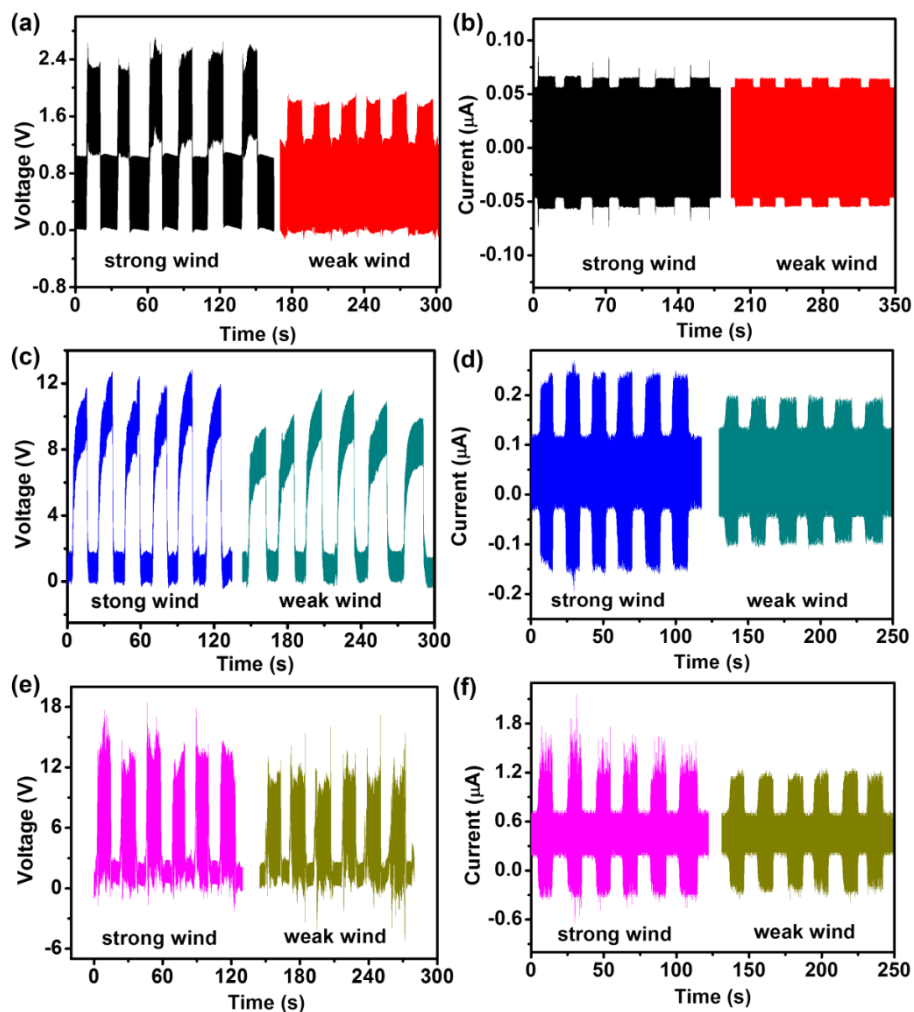


Figure 2. (a, b) The voltage and current generated by the friction between the rock and the atmosphere under the wind (strong wind: 10 m/s; weak wind: 5 m/s); (c,d) The voltage and current generated by the friction between the fur and the atmosphere under the wind (strong wind: 10 m/s; weak wind: 5 m/s); (e, f) The voltage and current generated by the friction between the brass and the atmosphere under the wind (strong wind: 10 m/s; weak wind: 5 m/s).

The faster the object moves in the atmosphere, the stronger the electromagnetic field. How strong can it be? Figure 3a-b show the voltage and current generated by the chemical fiber fabric blown by the wind at a wind speed of 10 m/s. It can be seen that there were tiny generated electromagnetic fields. How strong electromagnetic field will be generated under the high-speed wind? We quickly shook the chemical fiber fabric in

hands to see how strong the electromagnetic field would be. (It is equivalent to increasing the wind speed and increasing the friction between the atmosphere and the chemical fiber fabric). Figure 3c demonstrates that the fluorescent tube in the hand can be driven wirelessly by quickly moving the chemical fiber fabric. Figure 3d shows the fluorescent tube and chemical fiber fabric used in the experiment. As shown in Figure 3e, the fluorescent tube was driven as the fabric was shaken quickly and vigorously. The fluorescent tube flickered due to the changed electromagnetic field generated by shaking the fabric. (Movie S1) It is difficult to measure the friction between the chemical fiber fabric and the atmosphere, which is equivalent to how fast the fabric moves in the air. However, we can judge qualitatively the speed of the chemical fiber fabric is much smaller than the moving speed of the planets. The fluorescent tube can be driven by the electromagnetic field generated by shaking the chemical fiber fabric. Moreover, only the generated electromagnetic fields (electron particles) can be detected now. Therefore, it can be speculated that the strong energy fields can be generated by the constant friction between the constantly moving planets and the interstellar atmosphere.

There must be other types of energy fields (microparticle field of different sizes particles) that have not been detected in the friction process. It is unimaginable and immeasurable how strong energy wave radiated into the universe by planets in the process of continuous movement. Energy is mass, which is based on the Einstein's mass-energy equation of $E=mc^2$. How much matter will be produced by a planet during its rapid rotation and revolution? The matter should be what scientists call dark matter/dark energy that fills the whole universe. We can further deduce that there is a strong electromagnetic attraction between the planets, because of the strong electromagnetic field existed on the surface of moving planets. There will be gravitational acceleration on the surface of planets. The gravitational acceleration of earth is g . The magnitude of gravitational acceleration on the surface of planets is varies, which depends on their own conditions and surroundings.

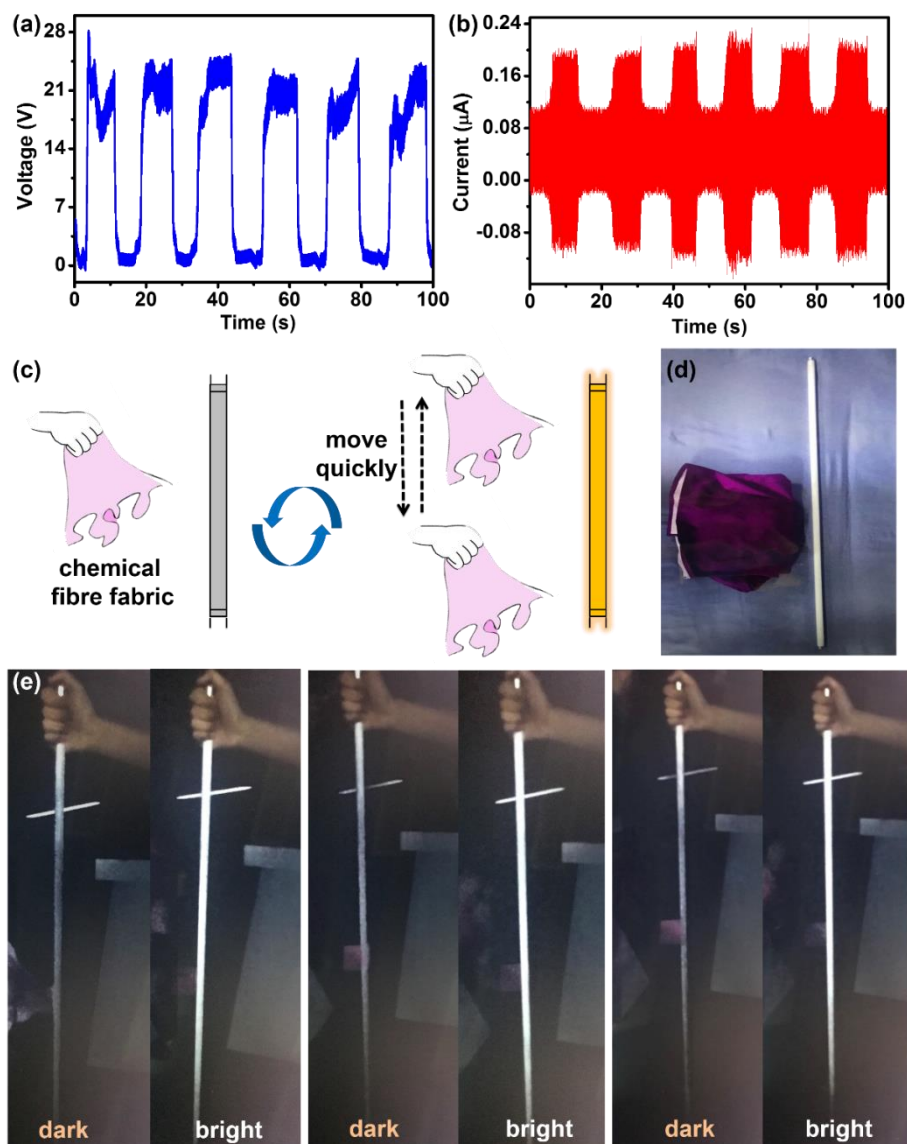


Figure 3. (a, b) The voltage and current generated by the chemical fiber fabric blown by the wind; (c, d) Schematic diagram and photo of the experimental setup; (e) The fluorescent tube driven by the moving chemical fiber fabric.

It is recognized that friction can produce electromagnetic field and gravitation. We use the most common triboelectric phenomenon to review the gravitation produced by triboelectricity. Accordingly, the establishing conditions of universal gravitation law were analyzed. Figure 4a-b show the principle and photograph of triboelectric device, respectively. Many tin-foil balls were placed in the base of the box, and the box is covered with an acrylic board. If the acrylic board was rubbed with hand, it would

produce gravitation due to the generated electromagnetic field by friction. (Figure 4c-d) Then, tin-foil balls were attracted by the continuous gravitation. They were moving up and down, some of them were even drawn onto the acrylic board, as shown in Figure 4e-f. (Movie S2) Tin-foil balls will also attract the acrylic board, which is the reaction force of acrylic board to attract tin-foil balls. Here, the action force and reaction force generated by the electromagnetic field produced by friction are all called external gravitation. As for the definition of the law of universal gravitation, it belongs to the law of Natural Science. It is the gravitation that exists in all interactions between any two objects. It's proportional to the mass of two objects, and inversely proportional to the square of the distance between them. The above experiments show that the gravitation between the static tin-foil balls and the static acrylic board is equal to the universal gravitation. When we rub the acrylic board, electromagnetic field will be generated. It is obvious that gravitation should be the sum of gravitation and electromagnetic force at this time. That is to say, the formula of universal gravitation can calculate the gravitation between two objects only when they are not affected by external forces. Therefore, the definition of gravitation should be described more accurately. In nature, any two objects are attracted to each other. It's proportional to the two mass of two objects and inversely proportional to the square of the distance between them when the objects are not affected by external forces. When gravity is calculated by the formula of universal gravitation regardless of the existence of external forces, there will be errors.

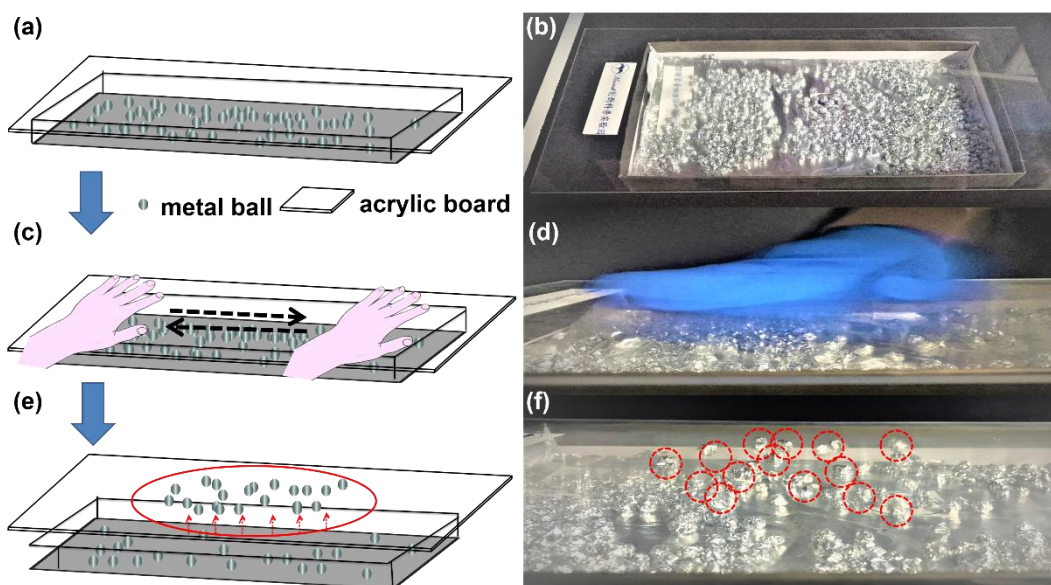


Figure 4. (a, b) The principle and photo of triboelectric device; (c, d) The principle and photo of triboelectric device rubbed by hand; (e, f) The tin-foil balls attracted by the continuous gravitation.

Next, the relationship between centripetal forces and universal gravitation is discussed. We assume that the planet and the sun are standard spheres, which are independent of each other and unaffected by the forces of other planets. There is a super-strong electromagnetic field on the surface of each moving planet, and there is a super-strong electromagnetic gravitational force between the planet and other planet. In addition, the moving planet constantly radiates dark matter outwards. Dark matter also exerts gravity on the planet, which is the reaction force of electromagnetic gravitational force. These were called the external gravity. It is assumed that the centripetal force between the planet and the sun points to the center of the sphere, which is in a straight line with the combined force of universal gravitation and external gravity.

We made the models of relationship between centripetal forces and universal gravitation. As shown in Figure 5, F_{CF} is centripetal force. F_{ug} stands for universal gravitation. F_{og} represents the combined force of external gravity, and the electromagnetic force generated by the sun is defined as F_{og1} , which attracts to the planets. As the planet rotates around the sun, the planet's surface produces a super strong

electromagnetic field, constantly releasing dark matter. At this point, the electromagnetic gravity of dark matter on the planet is defined as F_{og2} . M_1 and M_2 represent the mass of the sun and the planet, respectively. G is the gravitational constant, R is the distance between the centers of two spheres, and V is the rotational velocity of the planet. We can qualitatively analyze the relationship between velocity and universal gravitation from the formula of centripetal force. Due to the uncertainty of the direction that dark matter forced by gravitational attraction of the planet, we divided the discussion into three cases. As shown in Figure 5a, when the combined force of external gravity) is greater than zero and points toward the center of the sun, the centripetal force is greater than the universal gravitation, the rotational velocity of the planet calculated by the universal gravitation is smaller than the actual rotational velocity of the planet. Next, when the combined force of external gravity is zero, and the universal gravitation acts as the centrifugal force, the rotational velocity of the planet calculated by the universal gravitation is about the same as the actual rotational velocity of the planet. (Figure 5b) Thirdly, when the combined force of external gravity is greater than zero and points in the opposite direction to the center point of the sun, and the centripetal force is less than the universal gravitation, the rotational velocity of the planet calculated by the universal gravitation will be greater than the actual rotational velocity of the planet. (Figure 5c)

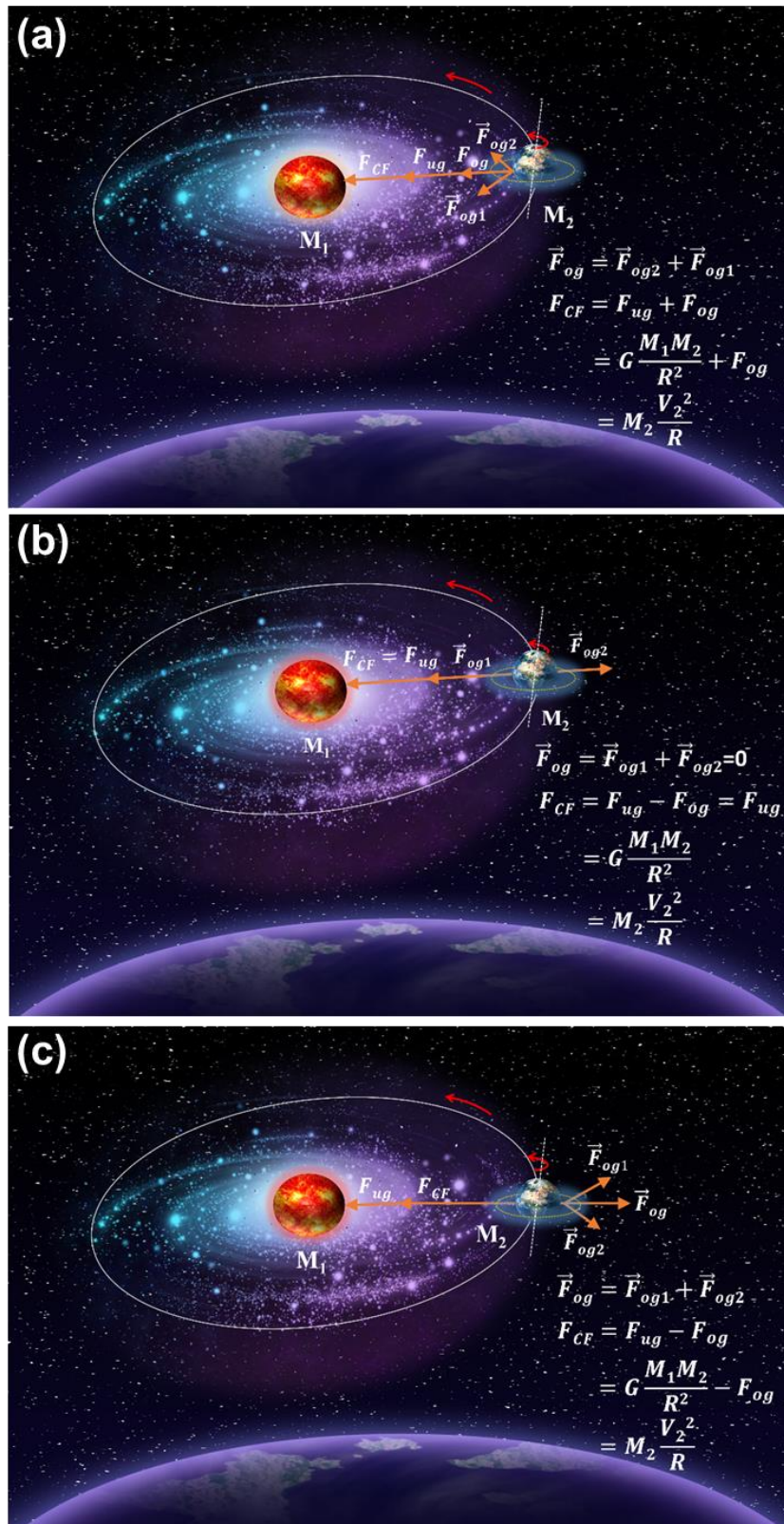


Figure 5. The model of relationship between centripetal forces and universal gravitation.
 (a) F_{og} is greater than zero and points toward the center of the sun; (b) F_{og} is zero; (c)
 F_{og} is greater than zero and points in the opposite direction to the center point.

The three cases of model above are under ideal conditions. In fact, there are various planets in each galaxy and every planet interacts with each other, and the shape of each planet is not a pure sphere. In addition, the centripetal force and universal gravitation between two planets are not in a straight line all the time. The direction and magnitude of external gravity caused by the friction by planets' movement is variational. Hence, the movement of planet is extremely complicated, and the pathway of movement is a wide pathway that allows spiral-like movement. This zigzag pathway must be an irregular annulus that approximates to ellipse. The universal gravity, centripetal force, external gravity and rotational velocity of the planet are not fixed values, which is fluctuating within a certain range.

3. Conclusions

In conclusions, it was found that the electromagnetic field will be generated when objects are under force, even a very tiny force like the wind blowing. This proves indirectly that super strong electromagnetic field combined by super strong electromagnetic attraction will be produced because of ceaseless friction between the planet and interstellar atmosphere. The generated energy radiates outward in the form of electromagnetic waves or other matter waves, which cannot be detected now and spread throughout the out space. We think these matter waves are what scientists call dark matter/dark energy. Where there are moving galaxies, there are dark matter and dark energy. Dark matter and dark energy are everywhere and flooded in the whole universe.

The moving celestial bodies and planets are huge and charged. The gravitation between celestial bodies is the result of the joint action of universal gravitation and external electromagnetic gravitation. Regarding universal gravity as centripetal force will lead to errors, even wrong results. Newton's universal gravitation can be used to calculate the gravitation between objects only when two objects are not affected by external forces. In other words, the calculation result is correct only when it is not electrified. Maybe the universal gravitation should be the result of both the mass and

the electricity of the two objects, because of the existing dark matter around them.

4. Experimental methods

Objects blown by wind for generating electromagnetic energy: Water, mud, rock, ceramic tile, fur, grass, tree, 2 mm brass board, cardboard, and 3 mm acrylic plate were used in turn to generate the electromagnetic field by being blown by the wind (wind speed: 10 m/s) from the air blower. Each object was connected to electrometer by wire. Next, blow the object by the blower periodically, and the electrical signals can be detected.

Objects blown by different wind for generating electromagnetic energy: The strong wind (wind speed: 10 m/s) and the weak wind (wind speed: 5 m/s) were used to blow against the stone, fur, and 3 mm acrylic plate, respectively. Each object was connected to electrometer to measure the voltage and current.

The friction between chemical fiber fabric and air for generating electromagnetic energy: The chemical fiber fabric was blown by an air blower. The electrometer was connected to the fabric to measure the voltage and current. The chemical fiber fabric was moved quickly by hand, which can generate strong electromagnetic field energy and drive the fluorescent tube wirelessly.

The tin foil balls attracted by the force of electromagnetic field: The acrylic plate was placed on top of the box containing the tin foil ball. The acrylic plate was quickly rubbed by hand with glove. The tin foil balls can be attracted to the acrylic plate due to the electrostatic attraction.

Electrical measurement: The current was measured by an electrometer (Keithley 6514) with computer measurement software written in LabVIEW. The voltage was measured by a digital storage oscilloscope (DSO-X 2014A).

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Acknowledgements

Patents have been filed to protect the reported inventions.