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Decay and Spin are the Foundations of Physics

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Abstract: Decay, spin, and their relationship to the interaction of matter are presented here. The reversible decay reaction is the source of interactions. Charge and Coulomb force are ubiquitous among spin systems. All the interactions are unified to inertia force and coriolis force in spin systems which are described by Newton's Second Law.

Keywords: decay, spin, interaction, field.

1. The Question about Unified Field Theory

The question about the unified field theory is a fundamental one in physics. The decay reaction and spin motion are keys to this question. They are the foundation of physics. On the interaction between substances, I insist on the behavior of matter. Substances can only interact with each other by the transformation of the substance itself, by radiating and absorbing some kinds of matter. I oppose the mainstream field theory where they all think that there is a special matter called "field" around a substance, and these substances interact with each other through this special field. I can prove that this field doesn't exist just as the phlogiston and aether in history. This is the challenge I put to modern physics. Next I explain the interior mechanism of all kinds of attraction and repulsion force by introducing the most fundamental existence and motion modes of matter—decay and spin and their relationship to the interaction of substances, so as to prove my above viewpoint.

2. Decay-Anti-Decay Dynamic Equilibrium System

Decay is the most fundamental existing mode of matter in universe. Take Newton's dropping apple as an example. With our eyes, the apple seems invariable in a short period. But there are complicated changes inside the apple. Among numerous changes, there is a most fundamental one happens among the most fundamental particles inside the apple. It radiates a kind of fundamental element of which all substances are composed. This fundamental element was called mass-magnetic

quantum and this decay was called mass-magnetic decay.

Decay is a reversible reaction. There is an anti-decay absorption comes along with the decay radiation. This makes the system being in a dynamic equilibrium of radiation and absorption. Every particle, every substance, every planet, every star, every galaxy and the whole universe are one of these equilibrium systems. Take the elemental particle as an example; every particle corresponds to one reversible decay reaction. The equilibrium state of this reaction affects the mass, lifetime and other characteristics. This is the task of micro-chemistry. In a definite condition, the decay reaction is in a certain equilibrium state. This makes the particle stay in a comparatively steady state. When the condition is changed, the equilibrium will be moved correspondingly and make changes to the system. For instance, when the equilibrium moves to the decay direction, it will ultimately result in annihilation of particles. And when it moves to the anti-decay direction, it will result in creation of new particles.

3. The Essence of Gravitation

Consider a resting independent matter system A. Here, resting means no flattening motion and rotation, or spin, and independent means wasn't being located in the decay radiating space of other matter systems. At this condition, the decay radiation and anti-decay absorption are isotropy. It is to say that the probability in every direction is the same. The whole system is in a state of momentum balance. So there is no force represented in this system. See figure 3-1 below.

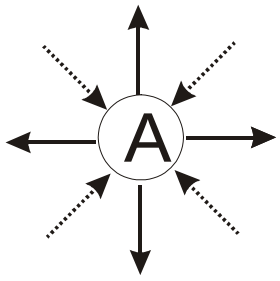

Fig.3-1. An independent matter system.

Reconsider system A when it was located in the radiation space of another system B, at this time, the density and moving direction of the mass-magnetic quanta around system A is no longer isotropy. And absorption intensity is in direct proportion to the quantum density in the space while radiation is in reverse proportion to it. So, the absorption in direction B is stronger and the radiation is weaker than that of any other direction. The momentum balance of the system is broken. System A gets acceleration in direction B and appears as a force. Yet there is no force exerts in system A. The same course was happened in system B. Apparently there seems a force between these two systems. This is the gravitation that Newton supposed. The above course can be briefly illustrated with Fig.3-2.

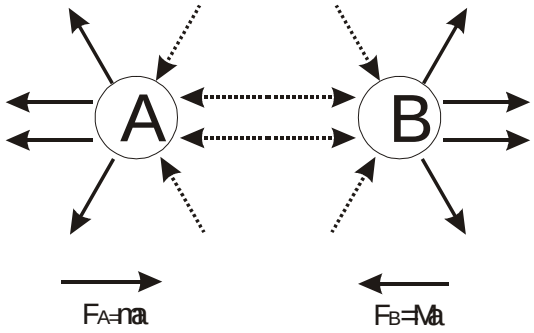

Fig.3-2. The gravitation between two matter systems.

From above we can see clearly that gravitation and inertia force are the same. They are a measurement of changes in motion states of substances. They are a vector image of accelerations in space. They are not independent objects. They are described by Newton's Second Law. The above gravitation can be expressed by the following equation

$$F = \frac{dm}{dt}C \qquad 3\text{-}1$$

where $\frac{dm}{dt}$ is the mass the system absorbs from the radiation space of other matter systems in a unit time. C is the radiation speed of mass-magnetic quantum and light. Obviously, $\frac{dm}{dt}$ is in direct proportion to the mass m of the system itself and the quantum density D in space. And D is in direct proportion to the mass M of the radiating source system and is in reverse proportion to the square of distance r (the Gauss's Law). So we can assume that

$$\frac{dm}{dt} = Z\frac{Mm}{r^2} \qquad 3\text{-}2$$

$$F = ZC\frac{Mm}{r^2} \qquad 3\text{-}3$$

This is the gravitation equation. Compare with the Newton's equation the proportion constant is confirmed to be $Z = 2.224\times10^{-19}\,m^2s^{-1}kg^{-1}$. Equation 3-3 indicates that the gravitation is in direct proportion to the light speed C. This gives a new solution to the energy mechanism of superluminal sources.

Look back to the long history of the knowledge of force. Aristotle's thought was that force is the factor what maintains the motion of substances. Newton's thought was that force is the factor that changes the motion of substances. But my thought is that force is only the vector image of accelerations. It is only a measurement of changes of motion. There is no such an object as force between substances so there is no field related to non-existent force. The reason why apples drop to the ground and why the moon moves around the Earth is not the force the Earth exerts to them, it's

the change of self-matter inside them. The Earth only radiates mass-magnetic quanta and changes the quantum density around its space and it's only an exterior condition to their changes and motion.

4. The Equivalent Principle of Magnetism and Spin

Gravitation is the inertia force from the tangential accelerations. The magnetic force is the inertia force from the normal accelerations in rotation or spin systems. The Coulomb force is the magnetic force between spin systems. They all come from the radiation and absorption of mass-magnetic quanta. Next, I want to introduce the equivalent principle of magnetism and spin.

Let's look at the experimental result for gyroscopes moving in a spinning dish. In this case of centrifugal force counteracting gravitation, the spinning gyroscopes are in a circumferential motion state inside the spinning system in two directions corresponding to the spinning direction. See figure 4-1. This is the result of coriolis force of a spin system in another spin system. The motion of a spin system inside another spin system is equivalent to the motion of a charge in a magnetic field. If you're inside a spin system and if you can't see the spin of the gyroscope, you won't be able to distinguish if it's a spin gyroscope or a charge. This is the Equivalent Principle of Magnetism and Spin. I suggested this principle more than ten years ago but I just proved it with my little son's toy gyroscopes last year. You can repeat this experiment easily. And if you're lucky to do this in the poles of the Earth, it will be easier as the Earth itself is an idea spin system.

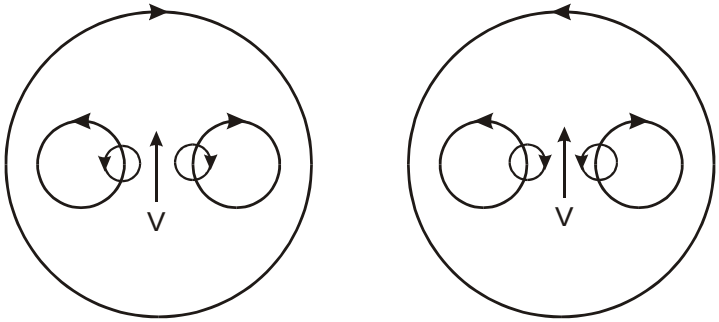

Fig. 4-1 Spin systems inside another spin system.

5. The Essence of Coulomb Force

The experiment of the equivalent of magnetism and spin gives us a hint that charge is a spin system and magnetic force is the coriolis force inside a spin system. The Coulomb force is the coriolis force between two spin systems. So charge is a measurement of the interaction of spin system. Where there is a spin system, there is a charge. No spin, no charge. Here spin system is not only limited to particles with charge. Coulomb force is ubiquitous among spin systems. Here I cannot discuss this

in details because of time but rather just give the conclusions as follows:

（1） Mass-magnetic quantum is a kind of spin element. All kinds of interaction come from radiating and absorbing them. Different motion state corresponds to different interaction.

（2） Gravitation is the inertia force from the tangential accelerations. Magnetic force is the inertia force from the normal accelerations. It was caused by spin motions. Coulomb force is the magnetic force between among spin systems. It was caused by radiating or absorbing the spin quanta from a spin system.

（3） There is only gravitation between two resting bodies, no spinning systems.

（4） Besides gravitation, there is magnetic force between two moving systems and between a moving system and a spin system.

（5） Besides the above forces, there is the Coulomb force between two spin systems.

（6） In natural states, the Coulomb force between two spin systems with the same spin direction is a repulsion force. The Coulomb force between two spin systems with different spin direction is attraction force.

（7） In controlled states, the Coulomb force between two spin systems with the same spin direction can be attraction force. The Coulomb force between two spin systems with different spin direction can be a repulsion force. For example, there is a certain Coulomb attraction force (in fact magnetic attraction force) between two electrons in the electric field.

（8） No nuclear force among nucleons inside nucleus. The Coulomb forces among the controlled charges are attraction force.

（9） Charge is a measurement of interaction of a spin system. No spin, no charge.

（10） There is a charge in every spin system. And there is Coulomb force between two spin systems. The charge of elementary particles is quantum. But the charge of macro spin systems is non-quantum. The Coulomb force between macro spin systems is non-quantum, though the non-quantum Coulomb force holds the Coulomb’s Law.

6. Non-quantum Charge and its Experiments

Charge is only a measurement of spin. The vortices in fluids, spinning gyroscopes, rotating Earth, sun, stars, and galaxies all have non-quantum charges and non-Coulomb force between them. It can be attraction or repulsion force that corresponds to their spin direction. There is a magnetic field around them. When they move in a magnetic field, they will encounter a Lorentz force from the field. The motion of a galaxy can be described by the same rules as an atom or a particle. Here I only give out some observation or experiment to test the non-quantum charge.

Besides the above experiment on the equivalent principle of magnetism and spin, observe the result of the non-Coulomb force of stars and galaxies is a practical way to test the existence of non-quantum charge and non-quantum Coulomb force. Take the sun as an example, the sun moves at a speed of 220 km/s in a distance of 26000 light-years. But the speed from the gravitation of the Milky Way is only 160 km/s. the

other 60km/s was thought to be from dark matter in Milky Way. But there is no dark matter inside our galaxy. I propose that this 60 km/s is from the non-Coulomb force between the sun and the galaxy and the magnetic force from the background magnetic field. The same things happen in the ring galaxies where there is no sufficient gravitation from their center. It will be easier to observe.

An accurate experiment can be used for the famous Cavendish experiment, which was used to test gravitation. The only change we must do is to replace the two balls with two spinning gyroscopes. Measuring the difference of force between these two gyroscopes in different spin direction or speed, we can test the non-Coulomb force easily. But unluckily, I cannot do this experiment because of poor conditions. I hope that those with the ability, can finish this testing task. I believe it will be an important, epoch-making experiment.

7. Conclusions

All the interactions come from the same source—decay and spin. Magnetism and spin are equivalent. Coulomb force is universal among the spin systems. Non-quantum charges and Non-quantum Coulomb forces can be tested by observations and experiments.

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Journal Home Page