

## Matter Principle

Jijie Wang

School of materials science and engineering  
Shenyang Aerospace University  
Shenyang, China  
wangjijiesy@sohu.com

**Abstract**—Based on the dialectics of materialism and the basic principle development of physical science, a model about force and matter existent fashion was promoted. The concept of Force Particle and its field was defined. Gravitation and repulsion force are thought induced by the impacting effect of Force Particle filed of microcosmic on the objects of our world. The existence of matter and its movement are impartibility. The reciprocate reverse revolution around each other of the objects is the base of their existence, and for the double-object-system, the spin directions must be opposition. The relationship of FPs on space and time was also discussed briefly.

**Keywords**—matter; Macro Universe; Grade of Matter World; force particle; spin; double-object-system; analogism method

### I. INTRODUCTION

The existence of human being endows the world of matter with significance. Since the appearance of human being, they have been exploring the matter world, and the process benefits the human being themselves[1]. However, it seems that people could never answer the question as to the ultimate about the conformation of matter, and it can only be cognized bit by bit as the research coming into the matter world is going on. It is harder to direct our observation to the most macro or the most micro matter world with the existing scientific means.

The development of physics has made thorough explanation on the behavior of force[2]. However, there are few reasonable theories about the essence of the force and the existing mode of matter.

Based on materialism, matter and movement is inseparable [3]. The movement of matter brings the combinations of matter and its idiographic configuration. It is reasonable to assume that the properties and laws of macrocosmic and microcosmic worlds are in conformity with each other. The analysis method used here to unite the law of macrocosmic and microcosmic worlds is named Analogism Method.

This paper is going to discuss the interior relationship of matter, force and movement, and puts forward the assumption of existing mode of matter and material mechanism of the force.

### II. ESSENTIAL PRECONDITION

First of all, it is necessary to define the Macro Universe (MU): It includes the universe that can be detected (our universe / observable universe) and the universe can not be detected (beyond the exploring ability of human beings in both of big and small directions. ).

Here, it is thought that matter could be divided illimitably as Aristotle said even more than two thousand years ago[4], or at least can be divided small enough that we need for discussion. From the materialism, it is reasonable to assume that there is also no end in the macro direction, viz. the Macro Universe is with no extremeness. Therefore, the following preconditions about the Macro Universe were reasonably summarized:

1. The existence of matter is of no start and no end;
2. Matter can be infinitely small and infinitely big;
3. There is no start and no end of space;
4. There is also no start and no end of time.

For the convenience of exploratory development, the MU can be divided into many layers depending on the size range of matter, and each layer is defined as a Grade of Matter World (GMW) or Grade of Universe. The GMW in the micro-direction is defined as upper/high layer GMW, and the GMW in the macro-direction is defined as down/low layer GMW. The upper layer GMW is the base of down layer GMW. The GMW of our universe seems is locating in the middle layer of the GMWs, and belongs to the range with the brim of the universe about 15 billion light-years far away in the macroscopic direction, and the photon in the microcosmic. In order to be distinct with the other GMWs, the matter in our GMW is also named object.

By analogism, each GMW has its speed range fit for itself, and the matter can only exist inside the speed range. Outside the speed range, the matter of the GMW will transform to the matter of other GMWs. It is just like the object with the second cosmic speed will fly away from the earth, or, in other sense, it looks like the earth is decomposed, and if the object reach the third cosmic speed, it will fly out of solar system, or we can understand in the other way that the solar system is decomposed[5].

According to the ideology of infinite division of matter, matter can be divided into infinitely small particles, therefore we have the following logical speculation for the matter and its existing speed: In the MU, there are myriad particles in the micro-direction, and they are much small than photons.

The size of the particles of upper layer GMW can be infinitesimal, and the particles cause the movement with all sizes, all speeds, all directions and in all space places (4-all) of our GMW, and the movement of the 4-all particles is relatively symmetrical in the universe places.

Based on the above assumptions, the fashion of existence of matter is to be discussed hereafter.

### III. THE ESSENCE OF FORCE

Let's probe into the phenomena of force here. Force is the matter, and it is the movement of matter, or the moving matter, it is the ligament that holds together of the existing matters. However, what is the immanent matter modality of the force is almost ignored for a long time. The force is thought as the mutual attractive effect imposed by matters, and Newton's law of gravity was put forward[3].

However, in the final analysis, Newton's theory of gravity is an illusive effect of the action of force. Conceiving two objects apart for some distance, if there is not any matter between them, there should be no force also, and it disobeys the Newton's law of gravity. However, the Newton's law of gravity does not explain the essential reason of force acting between matters. So the force-carrying particle was used to describe the force between objects interact with each other, and it is defined as with no mass and long range[4]. Then, here it is trying to answer what the essential reason of force is.

To the ultimate, force is the effect of small moving particles of matter on the macro objects. Force is not the attraction among matters without sake, on the other hand, it is the exclude effect induced by the impacting of moving particles. Force is also the mass effect of matter particles, and act as "wave" or "field". In the upper GMW, there are infinitesimal moving particles and in any space sites with all sizes, all speed and all directions, and they are relatively symmetrical toward our GMW, and this kind of moving particles are impacting the objects of our GMW forevermore.

We may call the upper GMW's particles acting "force" effect on the objects of our GMW as Force Particles (FPs). Any particle acting the effect of force is FP. FPs constitute the Force Particle Field, or Force Field. Since the FPs are beyond the detecting ability of human being, they are "dark matter". However, all of us are feeling the force effect of FPs from the upper GMW all the time. The particles bigger than photon will be the Force Particles of the lower GMWs, they include the earth, the sun and even the Milky Way galaxy.

The speed ranges of the movement of FPs in every GMWs are not the same. The higher the layer of the GMW is, the higher speed its FPs can be reached. If the FPs of lower GMW reach the speed that surpasses its corresponding speed range inside a system, it would lost the existing condition and break down into the smaller particles by the centrifugal effect, and then, it will become the particles of upper GMW. On the other hand, if the FPs of upper GMW lost its speed, they may aggregate to the object in the lower GMW.

Velocity of light is the terminal speed for the objects that can exist in each GMW. The Velocity of light "C" is only a special speed in our GMW. For the whole macro-universe,

the velocity range for existing objects is inverse ratio to its quality/mass, and it is shown in formula (1):

$$\{ v \} \propto \frac{1}{M} \quad (1)$$

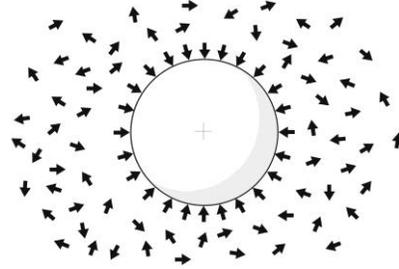


Figure 1. Illustration of impact of force particle field on single object system.

Another basic characteristic of the FPs is the penetrability, or the penetrating effect to the lower GMW. In other words, the lower GMW is rather "void" for the FPs. Therefore, most of the FPs can penetrate an object and acting on the behind objects. However, the FPs fail to penetrate are accepted and become the part of the object, or thrown back. The object receives substance and energy in this process. In this sense, photons are not main FPs since they are with no penetrability in most of the time.

About the single object system as illustrative shown in Fig. 1, let's image that there is only one global object in a space big enough to ignore the affect of exterior objects in our GMW. Here, there is no necessity to discuss how it has already been existing. Since it is impacted almost to the same extent (size, speed, quantity and intensity...) by FPs from all the orientations, the situation of the object will not obviously changed, but it only does negligible tine vibrancy.

### IV. THE ESSENCE OF THE EXISTENCE OF MATTER

The existence of matter is creating the structure of matter, and it is based on the coexist of the objects. Coexist is the situation that objects maintain the distance and do not collapse together or depart from each other. To imagine that in a space, which is big enough and with nothing else except there are two global objects composing a double-object-system, shown in Fig. 2. Here, the objects are thought as substantive rigid body and with some certain size, most of the FPs are absorbed or reflected, and the penetration of FPs is ignored. The FPs coming from the outer space impact the two objects, however, the impact in the conjunctional line areas between the two balls are obstructed, just like moon eclipse. Less impact of FPs in the "shadow areas" between the two objects lead to imbalance of impact for each object, and from the outer side, more drastic impact of FPs induce the two objects to tend to close up, and this brings in the "attracting" effect, or the feint of gravitation.

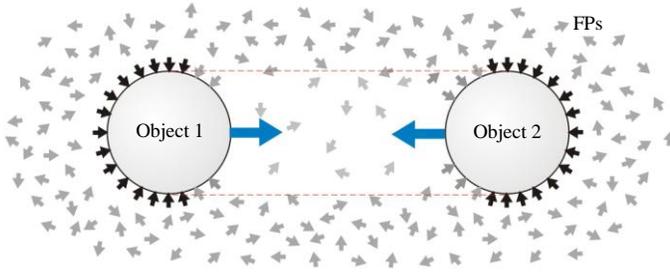


Figure 2. Illustration of effect of force particle field on double-object-system which leads to the attracting effect.

On the other hand, the two objects radiate FPs in the mean time. Obviously the field intensity of the radiate FPs is lower than the intensity of FPs field in outer space. The radiations lead to exclude effect between the two objects. While the two objects being with an equilibrium location, the effects of attract and exclude are balanced, the objects will maintain the distance and do not collapse together or depart from each other, or the double-object-system can be maintained, and they are coexisting. However, the equilibrium also needs the two objects to revolve around each other, and radiate FPs centrifugally, and if the two objects are rotating relatively, most of the radiate FPs are in the centrifugal directions, and this is just like a revolving wet umbrella which is radiating the raindrops.

If there is not any revolution around the two objects, the FPs in the universe will push them to close up, and collide to combine to form one object finally, and this leads to the fact that the existence of the double-object-system unable to be maintained.

Let's deeply think about the revolution here. If the two objects revolve around each other, and it had better keeping the two axes parallel, so that the directional centrifugal radiation of FPs of one object affects the other one. Fig. 3 is the illustration of the process.

As shown in Fig. 3(a), assuming that object 1 spins and object 2 stands still, the spinning face of object 1 cut-in the sphere center of object 2. It is well-founded the FPs fly off in the tangent directions on the surface of the spheres. The arrow is the spin direction in the figure. By geometrical analysis, it is confirmable that  $\theta_1 > \theta_2$ , and this means the available FPs accepting area of the lower half part of object 2, seeing from the spin direction of object 1, is bigger than that of the upper half part, and this shows that the spin of object 1 leads to directional centrifugal FPs radiation and it accelerates the spin of object 2. The spin of the object 1 makes the object 2 spin in reverse.

If the two objects spin for opposite directions, as shown in Fig. (3)b, it is certain that they accelerate the spin of each other as they are closing up, and the two objects set free more FPs. More FPs impact brings bigger repulsive effect, and this make the two objects easy keeping equilibrium. Contrarily, if the two objects be with accordant directional spin, as shown in Fig. (3)c, they decelerate the spin of each other as closing up, and turn to be reverse spin if they were not collided. It also indicates that as the approaching of the 2 objects, they try to make the 2 axes parallel. Based on this

analysis, it can be understood why all orbits of the planets are almost in the same face in the solar system, and it can also explain the reason why the earth and the sun be with reverse spin.

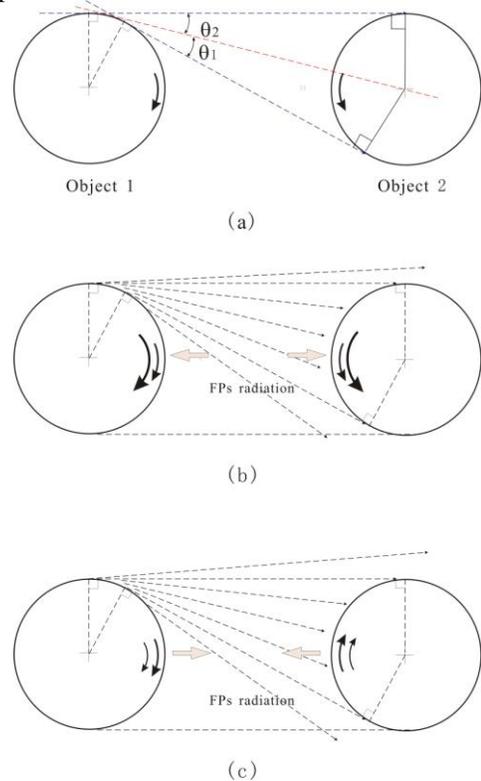


Figure 3. Illustration of the coexistence relationship caused by the impact effect for different spin directions in a double-object-system. (a)The effect of directional centrifugal FPs radiation of the object 1 on the object 2. (b)Reverse spin effect of directional centrifugal FPs radiation on the two objects. (c)Accordant directional spin effect of directional centrifugal FPs radiation on the two objects.

The radiating of FPs of the two reverse spin objects make them keeping a certain distance. In the process, the two objects lose some substance as radiating FPs, and get FPs symmetrically from the universe, and the substance quantity is to be ignored comparing with the mass of themselves.

Therefore, for the existing of any double-object-system, it is necessary of reverse spin, and this is wonderfully accordant with the law of Pauling's exclusion principle. Since the existing of objects need to revolve relatively to the outer reference space, objects should be orbicular plate or sphere. The theory can be expanded to the analysis for the 3 and more object system, which needs harmony for the reverse spin.

Since the essence of force effect should be the moving of matter particles, the spread of force effect needs time also. However, since the FPs are far too fast and time interval is far too short, we can even not know how to detect it, therefore, the feeling of force effect almost needs no time.

The anisotropy of the radiation of FPs field from an object makes it shows electric or magnetic effect. For example, proton and electron should be with the contrary

anisotropy of the irradiation of FPs field, and neutron seems have no anisotropy of the irradiation of FPs field.

#### V. INTENSITY OF FORCE PARTICLE FIELD

The intensity of force-particle-field determines the idiographic existence modality of matters. For each GMW, the logical matter structure can be obtained according to the intensity of FPs. We human being are just located in the place with the intensity of FPs field fit for the fabrication of the aggregation of matters for atoms in the universe. The logical and felicitous combinations of the atoms constitute all kind of the matter structures of our universe.

In the universe, the intensity of FPs field is not always symmetrical. It is envisioned, in a substantial matter system, for example, the Milky Way galaxy, its intensity of FPs field is a little greater than that of the relative vacancy of outer space, and this induce the heaviest elements in the latter of element periodic table can exist.

Intensity of FPs field in the center of the universe seems great than that in the fringe of the universe, and make the expanding of the universe as it is widely known [4,6].

#### VI. THE SPACE AND TIME OF FPs FIELD

The moving FPs constitute the space, and the concept of space is interrelated to the size of FPs and its speed. Time is the undergoing of the movement of matter and the course of development of things. It can be referred to the development of other things, such as a watch. Without the movement of matter, there is no meaning of time. As FPs passing some space, time passed.

One single force particle means nothing to the matter world; the force particle field constituted of mass FPs is the ultimate diathesis to the determination of the space and time. In the world of matter, assume there is a reference point, it had been mentioned that the micro-matter can reach much higher velocity than that of macro-matter, that means the time interval to pass the same space distance use much less time, and the things evolving faster. Since the FPs of upper GMW is almost infinite fast, the FPs determining the time of our GMW is much faster than the FPs of the next GMW which includes the photons. The speed concept in upper GMW is much faster than that in the lower GMW, and the extent is almost unimaginable for the people in the lower GMWs.

The geometry of space and length of time lie in the state of FPs field, such as intensity, velocity, moving track et al. Things develop faster for the faster of FPs and slower for the slower FPs. In this sense, the principle of relativity of Einstein is only fit in with the lower GMW but not very fit to our GMW since photons are not the primary FPs.

Let's imagine an absolute "vacuum" system, inside which there is not any matter even FPs. Therefore, no space and time are there, or space and time make no sense there. In there, supposing some FPs come into the system suddenly, and it is the beginning of the space and time for the "vacuum" system. At this time, the FPs become the "Space Particles" and the "Time Particles". Of course, there will never be a real vacuum in the universe, however, thinking of the particles of all sizes, it is rationale to enact a doorsill value to the size of the particles. For example, we can make the photons as the smallest FPs, and ignore the particles little than them, then, our cognition to the universe regresses to the theory of relativity of Einstein [7,8].

Time do not disengage and be independent to matter and space, and the 3 of matter, space and time must combine together to be an entity. There is another sense of time: In some places of the universe, there always exist some intelligent creatures like human beings, and they can define time and utilize time, and make time a method of the measurement of developing process.

By the above theory, it is wish to explain the phenomenon in universe such as dark-matter, black hole, Einstein shift, solar system, galaxy, and electromagnetism and even quanta.

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