Piercing the Veil of Modern Physics. Part 3 & Superconductivity

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Abstract

This article (Superconductivity chapters) as the third part of the full text, at the level of electro-ultimate particles, is the result by virtue of superconductivity to further research: 1. The electro-ultimate particle renders as the negative charge of one unit, which is a unified body. It is made up of both the ultimate particle portion of possessing one unit positive charge and the negative charge portion that renders as two units. All the mass is concentrated in the ultimate particle portion, the mass of the charge portion is equal to zero but cannot exist on its own, so it can only belong to the category of the "electro-hole". The two are the most fundamental matter and antimatter. When they meet, the process of converting into the electro-ultimate particle is annihilation. 2. It can be inferred that the ultimate particles and "being emptiness" are the most fundamental existence in reality. An ultimate particle existing in this being emptiness, around it there will be accordingly to render as the characteristics of negative charge. This is the most fundamental charge layer, but also the root cause of spin. It also means that the number of all matter and antimatter in the universe must be equal. Furthermore, the interaction between the ultimate particle and charge portion follows Lenz's law. This is the root cause of inertia. And the change of the two that there is a logical order, so there is also sure to be a time lag. This is the root cause of wave. 3. Inside every one of high-density

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particles, the adjacent ultimate particles are already in contact with each other closely. According to the Meissner effect, all of the charges can only be attached to the surfaces of them to moving at high speed. This is the charge layer. And each high-density particle can only possess one charge layer. 4. A high-density particle is located in a certain position of the conductor structure and only responsible for transferring charges, which is the superconducting state at the microscopic level. This means that all of those particles, entities and even celestial bodies, as long as formed only by two kinds of nuclear forces (whose essence is electromagnetic force), they themselves should be superconductors at almost all temperatures. 5. The first kind of nuclear force exists in the interior of high-density particles. There are powerful repulsive forces between the ultimate particles which are already in contact with each other. At the same time, they are also subject to the electromagnetic binding force generated by the charge layer. These powerful repulsive forces, are precisely the root cause of electromagnetic radiation. And the spin dominated by the charge layer also becomes an intrinsic property of high-density particles themselves. The result is that with the charge layer as the boundary, its inside and outside acting forces have reached a dynamic balance. This is the root cause of de Broglie's matter wave. Its internal mechanism, like a very tight tug-of-war competition, the balance point between the two sides is always in a reciprocating swing state. 6. The second kind of nuclear force is less powerful than the former. As there are shared parts between the charge layers of adjacent high-density particles, the combined action of the electric field force and superconducting electromagnetic force can also confine a certain degree of internal binding energy. The fission or decay of an atomic nucleus is related to this. 7. Inside an atomic nucleus, the main component of the gluon is the charges. Its so-called bundling function is two kinds of nuclear forces. And the

quark has only one charge layer, which is formed by the charges in the gluon. Therefore, the quark is a relatively large high-density particle, whose shape is like a pile of tree roots and there are different spins at different locations. As for neutrons or protons, they themselves are two forms of the existence of quarks. 8. The single charge layer is the lack of resistance to those high-density particles or entities with positron features, which come from both the inside and outside sides at the same time. This will provide the possibility for us to reasonably control and use the nuclear energy with the highest mass-energy ratio in the universe. 9. The so-called magnetic field lines, whose essence is the electro-ultimate particles or the stream of charged particles derived therefrom. And electromagnetic radiation should be the root cause of the growth of all things. The evolution of the universe is derived from such a microscopic physical phenomenon, and from the quantitative to qualitative change results. 10. In the interior of the Earth, a great deal of electromagnetic radiation is generated at every moment. This is the root cause of our global warming and earthquakes. In which there is shorter wavelength part, that is, the main body of energy is converted into geothermal heat. And only the far infrared light with relatively longer wavelength can pass through the Earth's crust and even radiate into the space. Therefore, it can be through satellite scanning to establish the dynamic far-infrared spectrum of Earth's crust that changes over time. In this way, both the geothermal resources can be rationally utilized and it is also beneficial to prevent the occurrence of earthquakes.

Keywords: superconductivity; electro-ultimate particles; annihilation; Meissner effect; electro-hole; being emptiness; charge layer; spin

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1. Introduction

This article is the third part of full text of "Piercing the Veil of Modern Physics." The Roman characters are used when quoting the contents of the previous two parts of the full text [1]. For example, the basics chapters [2] which are the first part of the full text can be quoted by "paper I" and the formula 2 therein can be quoted by "I-2"; as for the Figure 1 in the philosophical chapters [3] which is the second part of the full text can be represented by "II-fig.1", and so on.

Also to reiterate, in the full text, the word "charge" represents the negative charge unless refer specifically to the positive charge. The following is a brief review for the previous two parts of the full text.

In the basics chapters which were the first part of the full text, it had been clearly pointed out that a particle moving at the value *c* of the light speed in vacuum, its static mass was only able to be equal to 0, but didn't exist in reality. Therefore, it was vital that how we were able to correctly make a distinction between the speed of light in vacuum and that in reality.

Then, by the aid of the law of conservation of mass-energy, we had known that the energy convergence phenomena of high-speed electrons were the result of the binding energy inside them to be lost gradually in the form of electromagnetic radiation. Thereupon, taken an electron storage ring widely in use as an example, according to the related electromagnetic theories and the kinetics formulas of the special relativity theory, the study concluded that the charge of a moving electron would follow along with its static mass to be lost synchronously, and its charge-mass ratio whose value remained unchanged.

Now that an electron was able to be further broken down, then there should be a kind of more fundamental particles, the electro-ultimate particles, which were able to compose electrons and whose charge-mass ratio was equal to that of

electrons. Therefore, all photons radiating from the electrons in a storage ring were composed of electro-ultimate particles. A corollary was that as the background of nature, the ether was also composed of electro-ultimate particles. Of course, Maxwell's electromagnetic theory had to be established, which was the necessary condition for the corollary to be correct.

Then, combining with de Broglie's matter wave relational formula, it was pointed out that the energy convergence phenomena of high-speed particles were the primary factor causing the spectrum redshift. And through this formula, the average force suffered by a high-speed particle moving along the direction of its wavelength was calculated out. Thereupon, according to Newton's third law to make a judgment, the ether had to exist.

Besides, the essence of so-called wave-particle duality was also given: No matter where, as long as there is energy, there must be mass. And vice versa. The two as a unified body of opposites present in front of us in the form of wave. They must exist at the same time, carry each other, be short of one cannot. In reality, both values can be close to zero, but never equal to zero.

In the philosophical chapters which were the second part of the full text, first of all, based on Aristotle's definition, all the knowledge were able to be divided into three parts: natural science, metaphysics and mathematics. Among them, we were able to distinguish between natural science and metaphysics according to whether there existed in reality.

And pointed out that the principle of the limit in mathematics was able to help us to break the bondage of finite thought. From the quantitative differences of real space to have gone deep into ideal realm to turn into a qualitative change, it had accomplished the unity of opposites of all knowledge. Taking the postulation as an example, this concept corresponded to a limiting value, and was a hypothesis that humans were only able to continually modify the one-sided view to approach the

truth but were not able to use empirical methods to prove or disprove it. Newton's First Law was such a postulation which had invariance or absoluteness, so it was able to be called the absolute truth and belonged to the metaphysical category.

According to the above philosophical principles we had found that in Einstein's special relativity there was a paradox, which was to use an absolute truth (the principle of constant light velocity in vacuum) to overthrow another absolute truth (the absoluteness of simultaneity) but one of them was not able to be proved to be false. And his mistake to be found out, which was to confuse the light speed in reality with the *c*.

Thereupon, starting from the perspective of all knowledge, all the inertial systems were redefined, Galileo's coordinate transformations once again enabled; and in order to eliminate the false and retain the true, Einstein's two postulations in special relativity were reshaped, which was able to be make them reasonably to return to the framework of absolute space-time.

The philosophical part of the full text is of great significance to the modern physics which has been more than 100 years. It makes us realize that all the knowledge is a unified body of opposites formed by natural science and metaphysics (materialism and idealism) with the help of mathematics. Based on the height of all knowledge, it will neither be like the allusion of "Blind Men and the Elephant" to use one-sided viewpoints to treat the overall problem and each airs his own views so that accompanied by a state of endless debate, nor be to use isolated, motionless and one-sided viewpoints to see the world. Not only can understand the knowledge related to realistic existence (Being), but also can understand each knowledge related to nonexistence (Nonbeing) whose being is in order to those realistic existence (Being). The philosophical principle has universality, which can provide reliable bases for exploring or checking various

natural laws. As far as modern physics is concerned, whether is it going astray? According to the philosophical principle, you can reflect on it.

This article (Superconductivity chapters) as the third part of the full text, we will try at the level of electro-ultimate particles to further explore. Is everything in the universe really made up of electro-ultimate particles? Also in the ether, electrons or neutrons all can live together peacefully, why will the positrons produce such a violent reaction? How can electro-ultimate particles be arranged and combined, or further decomposed and recombined, and then shown as a positron? These are all worth our pondering deeply...

2. The structure of the ether medium

You can imagine, in the ether, when an electron moving along a circle with radius *R*, the electro-ultimate particles will surely fly through the plane defined by this circle like magnetic field lines. An electron in motion, it presents the change of current. It is precisely that it forces the electro-ultimate particles near the plane to change the density and direction. At this moment, if there is a closed conductor not very far away, the induced current will be generated when the density of the magnetic field lines passing through the closed plane of the conductor changes. This means that the so-called magnetic field lines whose essence is the electro-ultimate particles or the stream of charged particles derived therefrom.

Up to this point, combined with the discussion of the previous two parts of the full text, we seem to have forced ourselves into an impasse. In other words, the only answer about the structure of the ether is: At any point in the pure ether space, there will be a lot of electro-ultimate particles passing through evenly at the highest speed in reality; while the result of their combined effect makes the relationship

between the three physical constants which are the permeability of vacuum u_0, vacuum permittivity ε_0 and value *c* of the light speed in vacuum, is $u_0\varepsilon_0c^2=1$.

First have to emphasize that in terms of the electro-ultimate particles which constitute ether, even if their every static mass is extremely small, and its moving speed is the highest in reality, but must also follow the formula I-2, I-4 and I-7 of the identified law. Under this premise, when an electron moving along a circle with radius *R* in the ether, it will change the original balance state at each point in the plane defined by the circle.

It is the fundamental law of nature that things will develop in the opposite direction when they become extreme, so the ether will try to reach a new balance state by continually adjusting the distribution density of the electro-ultimate particles near the circumferential plane. As a result, we will discover the cyclical changes in the distribution density of the magnetic field lines passing through the circular plane. In other words, each electro-ultimate particle as a unified body of charge and particle, also belongs to the category of photon, and follows Maxwell's theory of electromagnetism. Electromagnetic waves are the streams of charged particles derived from them moving at high speeds in the ether.

At this moment, if there is a closed conductor at a short distance, the induced current will be generated when the density of the magnetic field lines passing through the closed plane of the conductor changes. Similarly, the induction current must also be to obey the fundamental law of nature that things will develop in the opposite direction when they become extreme, its forms of manifestation is in an attempt to maintain the original balance state in the closed plane of the conductor.

Generally, for the flow of electric current, it is considered that the electrons are moving in the opposite direction of the current. But on its essence, explaining as that electrons are transferring charges in a conductor, it seems more appropriate.

In terms of a conductor, it has a resistance at room temperature and the flow of electric current can consume energy; while the temperature is lowered sufficiently low, the conductor is turned into a superconductor with zero resistance, and the current does not consume energy. Therefore, the same is also transferring charges, there is a difference between the conductor and the superconductor. In view of each electron is made up of electro-ultimate particles, the flow of electric current can also be further subdivided. That is, in order to maintain in the invariability of its own charge-mass ratio, every one of electro-ultimate particles is forced by the electric field at its location to transfer charges. According to this, we can gradually analyze the ultimate structure of matter.

In terms of an electro-ultimate particle, since it is able to transfer charge, this means that it is composed of two parts, a charge and an ultimate particle. The same sexes repel, opposites attract, things will develop in the opposite direction when they become extreme, which are constantly forming various unities of opposites, and natural things are all derived therefrom. Accordingly, if we assume that each electro-ultimate particle renders as the negative charge of one unit, then it is a unified body which is made up of both the ultimate particle portion of possessing one unit positive charge and the negative charge portion of two units. In this way, the formation mechanism of positrons is also revealed gradually.

3. The ultimate charges and particles

According to the formula I-9, when an electro-ultimate particle is moving at the highest speed in reality, the ultimate particle portion should be also subjected to a strongly stress. Even so, its characteristic is also displayed as that the negative charge portion is not separated from the ultimate particle portion. But a moderate electric field can separate them. This means that all the mass is concentrated in the

ultimate particle portion. So, whether is the mass of the negative charge portion equal to zero? And in terms of the negative charge portion and the ultimate particle portion, whether can the two be separated and exist alone?

If the mass of the negative charge portion is equal to zero and can exist on its own, then its moving speed is likely to transcend the value *c* of the light speed in vacuum. Conversely, if the mass of the negative charge portion is close to zero (i.e., greater than zero), then its resistance in motion is sure to greater than zero, which contradicts with the superconductivity. This means that the negative charge portion as a real existence can only belong to the category of the "electro-hole".

It is necessary to prompt that here is to discuss the issues at the level of electro-ultimate particles, which should not be confused with the electro-hole (also called electron hole) in the solid state physics, since that is only limited to the understanding at the level of electrons.

Furthermore, introducing the concept of the electro-hole, should prevent the recurrence of Einstein's mistakes in special relativity. Which is the so-called a body moving at the value *c* of the light speed in vacuum, its static mass is equal to zero and has energy. This is a mistake caused by artificially confusing two different domains (existence and nonexistence in reality) [3].

And as a distinction, we propose a very good explanation which can be matched with the reality. That is, the mass of the negative charge portion is equal to zero, but as a prerequisite, it cannot exist on its own. In other words, the necessary condition of the stable existence of the negative charge part of the two units is that there is at least an ultimate particle portion of possessing one unit positive charge to form of a unified body with it. Each electro-ultimate particle is such a unified body.

When an electro-ultimate particle is forced by the electric field of its location to attempt to transfer its own (negative) charge portion, the charge portion has to

pre-contact with the other ultimate particle portion, after that can be separated from the original. In view of the fact that positrons can briefly exist in reality as well as has not found a positive charge being alone, so we can think that the ultimate particle portion itself possesses one unit positive charge, and can alone and briefly exist in reality. And its charge-mass ratio is the same as an electron, but the opposite sign. This means that neutrons and neutrinos should be the electrically neutral unified bodies which are respectively made up of the same number of ultimate particles and electro-ultimate particles.

From the previous discussion, an electro-ultimate particle renders as the negative charge of one unit, and the ultimate particle possesses the positive charge of one unit. Under the premise of not considering the external force, when the two are far apart, there is an electrical potential difference between them. So attract each other. When the ultimate particles (portion) of the two are very close to each other but not yet in contact, the negative charge portion has been adhered between them, the attractive force and repulsive force has reached a balance. At this moment, the resultant force is zero. In other words, if the ultimate particles of the two ends are squeezed toward the middle, the internal force is showing as a repulsive force; on the contrary, if you stretch them toward two ends, it is showing as an attractive force. From the outside world to observe, positive and negative charges neutralizing, the electrical potential difference disappearing, the both have experienced from quantitative to qualitative change, presenting as an electrically neutral unified body.

Some people may ask, now that the positive and negative charges have been neutralized, why are there still the repulsive forces between the two ultimate particles which are not yet in contact? This is because between the positive and negative charges, it is not merely meant that there are the different polarity and the charge quantity, also the different structures. The negative charge portion has no

mass and can flow, it does not one to one correspond to the ultimate particle portion. However, the positive charge is the intrinsic property of each ultimate particle, and can be regarded as being evenly distributed within it and always one to one. That is to say, from the inside to observe, even if the negative charge portion has been adhered between the two ultimate particles which are not yet in contact, the positive and negative charges cannot be completely neutralized as there is still a distance between them.

Therefore, from the outside, the positive and negative charges have been neutralized, and presented as an electrically neutral unified body. But it has not yet been neutralized on the inside. Due to the structures and characteristics of the positive and negative charges are not all the same, and there are still the repulsive forces between the two ultimate particles which are not yet in contact. And the negative charge portion has been adhered between the two, which just makes the attractive and repulsive forces to reach a relative balance.

In reality, when we use gamma rays which are more than 1 million electron volts to radiate such materials as the lead plates, thin metal foil, or gaseous media, the presence of positrons can be observed. Another example was also found in the experiment that positrons and electrons were always generated in pairs, their charges were opposite and the deflections in the magnetic field displayed as the opposite direction. In addition, there were the annihilation experiments of positive and negative electrons. All of these are reminding us that since an electron is made up of a certain number of electro-ultimate particles, so a positron should be made up of the same number of the ultimate particles of possessing one unit positive charge.

4. By virtue of the superconductivity to explore the root cause of the strong nuclear force

In Modern physics thinks that the basic interaction forces in nature are divided into four types, arranged by intensity: They are the strong nuclear force (also called the strong force or nuclear strong force), electromagnetic force, weak interaction (also called the weak nuclear force), and gravitation. In terms of a particle with high-density characteristics, such as atomic nucleus, neutron, electron and photon, its internal binding force is the strong force, that is, the nuclear force.

The strong force which was first recognized was the force between the nucleons, it is the force that the protons and neutrons were bundled to form an atomic nucleus. Later, it was further recognized that the strong force was the interaction between the various hadrons (high-density particles) in an atomic nucleus, such as quarks and mesons.

By the Figure 1 [4], it can be seen that the affecting range of the strong force is very short. When the distance between the centers of two nucleons (proton or neutron) is as $r > 2$ (fm), the strong force rapidly decreases and tends to fail; while in the $0.8 < r < 2$ (fm) interval, it appears as the attractive force. This kind of the attractive force is much larger than the Coulomb force, which can bundle each hadron firmly inside an atomic nucleus. And if further closer, when $r < 0.8$ (fm), the strong force will be converted into the repulsive force. Thus, it can be seen that in the interior of an atomic nucleus, each high-density particle also

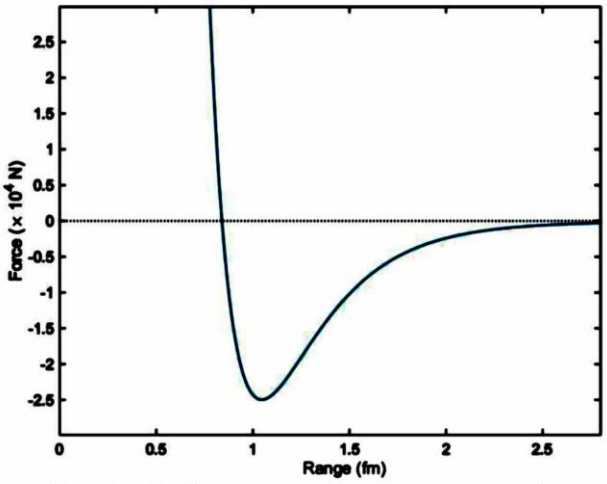

Figure 1: the affecting range of the strong force is very short.

must follow the rule determined by the formula I-8, and reciprocates vibrations at a high frequency between the powerful attractive and repulsive forces. This is the nuclear energy that we are now using.

As long as a rough calculation, when the distance of the centers between the proton and the electron is 1 (fm), the Coulomb force between the two is about 230 (N), roughly equivalent to one percent of the strong force. Also, this Coulomb force does not correspond to the feature of the strong force shown in the Figure 1. Therefore, modern physics has believed that the strong force had nothing to do with the Coulomb force between the positive and negative charge. But this judgment should be wrong, since it was only limited to the understanding at the level of electrons, and did not realize that there was a superconducting electromagnetic force which was generated by the high-speed moving charges.

In terms of the strong force, its essence has always been a difficult problem in modern physics. Today's more fashionable theory about it is called Quantum Chromodynamics, or QCD for short [5]. It is said that some parts of this theory have been experimentally confirmed, whether it can become into a fundamental theory of the strong interaction, the insiders have universally been high hopes. And we will try using the electromagnetic force at the level of electro-ultimate particles to unify it.

Then, when the affecting range of the strong force is $r < 0.8$ (fm), why will it be converted into to the repulsive force? And $r=0.8$ (fm) this distance, it is smaller than the charge radius of a neutron or proton. In order to reasonably explain the microscopic mechanism therein, we have to be by virtue of the superconductivity.

In 1933, the German physicist W. Meissner and others found that when a metal body with superconducting properties was cooled in a magnetic field, after the temperature fallen below the critical temperature and entered the superconducting state, the magnetic field lines which had been passing through the

interior of the metal body were all discharged out. That is to say, the magnetic field lines cannot enter the inside of the superconductor, which phenomenon is called as "Meissner effect." [6]

Further studies showed that for a metal body of being in a superconducting state, the reason why the external magnetic field lines were not able to enter its interior was because a superconducting current was induced on the surface of the superconductor; so the magnetic field generated by the superconducting current always dynamically offset that portion of the magnetic field lines which were trying to enter it. It also proves the correctness of Lenz law in superconducting state, and the philosophical principle which generates a dominant role therein, that is, things will develop in the opposite direction when they become extreme.

Later, people also did such an experiment [7], in a shallow and flat tin plate, placed a small permanent magnet of possessing stronger magnetism. And then, used liquid helium to lower the temperature of the tin plate. When the tin plate entered into the superconducting state, the small permanent magnet was able to rise in the air and float above the tin plate. This was because when an external magnetic field attempted to enter the superconductor, its surface would induce a superconducting current. Therewith generated a magnetic field of an opposite direction and the same size with it, so that the external magnetic field was not able to enter the interior of the superconductor. At the same time, that also formed a repulsive force to the small permanent magnet, which made it to rise and float in the air. As the small permanent magnet rose to a certain heights from the tin plate, the repulsive force was balanced with its gravity, and it was suspended here.

Therefore, the superconductor has a dynamic balance ability to external magnetic field. Whether it is to cool down before adding a magnetic field, or on the contrary, once into the superconducting state, the external magnetic field which attempt to enter the interior of the superconductor will be all discharged out of the

body. It can be seen from this fact, if we measure a material whether it is a superconductor, the necessary and sufficient condition is that it must have both zero resistance and Meissner effect at the same time.

5. Superconductivity and its microscopic mechanism

As for the microscopic mechanism of superconductivity, it is called as BCS theory. It was jointly founded in 1957 by the three people of the University of Illinois in the United States, which were John Bardeen, Leon N.Cooper and John R.Schrieffer. At present, the theory is still based on the level of electrons. And now at present, we have to base ourselves upon the electro-ultimate particles, which is a more fundamental level, and further explore the microscopic mechanism related to superconductivity.

In terms of a superconductor, due to its zero resistance, and there is no power loss when transmitting current, so the application prospect is very attractive. But complex refrigeration equipment and the corresponding technology still make the transmission cost difficult to reduce. So scientists hope to find a material that can achieve superconductivity at room temperature. That is to say, most of the current researchers have focused to find superconducting materials with higher critical temperature.

Then, whether do the superconducting materials at room or even higher temperatures exist? This is hard to say. But one thing should be the consensus that those particles with high-density characteristics, such as atomic nuclei, neutrons, electrons, photons ..., themselves are superconductors at almost all temperatures.

Previously, we have talked about the essence of the electric current. At the most fundamental level, it can also be described as that in order to maintain invariability its own charge-mass ratio, the electro-ultimate particle is forced by the

electric field at its location to transfer charge. If it comes to transfer charges in a conductor, there are two ways: One is that the high-density particle of carrying charges is just like commonly thought of as an electron to move in the conductor; the other is that the high-density particle is located in a certain position of the conductor structure and only responsible for transferring charges. The former, due to collide with each other between particles, will consume energy, that is, there is resistance. While the latter is the superconducting state at the microscopic level. That is to say, it is going to come in the superconducting state only when the transmittal modes of charges in the conductor are all the latter.

Since all of the particles with high-density characteristics are superconductors, so whether a conductor can enter the superconducting state, which depends on the gaps between the adjacent high-density particles inside the conductor, as well as the relationship between the scale of each charge and the temperature variation. In other words, when these gaps are all smaller than the scale of the charge, the conductor is in a superconducting state.

Previously, we have discussed the essence of the ether and magnetic field lines, both of which are the electro-ultimate particles or the stream of charged particles derived therefrom. Therefore, when the temperature of the conductor is reduced and gradually approaches the critical temperature, the density of the stream of charged particles that can pass through the conductor is also gradually reduced. This means that a certain number of charged particles are trapped and filled in the gaps between the adjacent high-density particles inside the conductor. As a result, the gaps between the adjacent high-density particles inside the conductor become small, and further closer to the superconducting state. After that, the density of the stream of charged particles that can pass through the conductor is also continuously reduced, and the gaps between the adjacent high-density

particles inside the conductor are further filled... In these cycles of positive feedback, the conductor quickly enters the superconducting state.

At this time, if moderately raise the temperature of the superconductor, we will find that its critical temperature is not a fixed value and has a certain range of the transition. Because in this transitional range, the charged particles trapped inside it gradually increase, until the stream of charged particles outside, including magnetic field lines and the ether, all of which cannot enter its interior. While the critical temperature of the superconductor has a certain range of the transition, which is itself experimental fact.

Of course, the scale of a charge should also be related to the change of temperature. At lower temperatures, the scale of a charge will be slightly larger than when the temperature is higher. This can be circumstantial evidenced by measuring the receiving sensitivity of electromagnetic waves at different temperatures. In terms of the reception of electromagnetic wave, our daily feeling is that the night is better than the daytime and the winter is better than the summer.

If the above theory is correct, we can find some physical phenomena or experimental facts related to it. In the past, it was hard to be explained at the level of electrons. But this moment, at the level of electro-ultimate particles, it can be explained reasonably. For example, two experimental physicists of China's Sichuan province have done such an experiment [8]: That was, after a metal material had been warmed up and then returned to room temperature, its weight was reduced; on the contrary, after cooled and then returned to the room temperature, it became heavier.

To this, the explanation should be as follows: After the temperature was decreased, the scale of a charge became larger, a certain number of charged particles were trapped and filled in the conductor, which was shown as the resistance decreased and the weight increased. While the temperature was raised,

the scale of a charge became smaller, the original trapped charged particles escaped from the conductor out, which was shown as the resistance increased and the weight decreased.

During the cooling process, every one of charged particles trapped would interact with the high-density particles around it to have formed some shared internal binding energies. Therefore, if you made it to escape from the conductor, had to extra introduce corresponding energy. Thereupon, when the conductor had been cooled down and then returned to the original room temperature, there were still some trapped charged particles which were not able to escape, so it became heavier.

Conversely, when the conductor had been warmed up and then returned to the original room temperature, its weight was reduced. This was the same reason as before. Since the internal binding energies were shared, those high-density particles around the trapped charged particles had to be involved, so also to extra introduce corresponding energy. As for the formation mechanism of those shared internal binding energies, there will be more in-depth discussion later.

This is the result of the combined effect of the above-mentioned two physical phenomena, which are the size of each filling gap and the scale of each charge with the opposite change of the temperature. Once it has been confirmed that the explanation for these two kinds of physical phenomena are in line with the objective reality, then according to it reversing derivation, we can prove that the ether is composed of the electro-ultimate particles and the magnetic field lines are the stream of charged particles derived therefrom. In addition, it can also provide ideas for improving the productive technology of the critical temperature of a superconductor.

6. The electromagnetic forces inside a superconductor

In terms of a superconductor, the experiments have shown that the external magnetic field lines cannot enter its interior. This is because a superconducting current which is induced on the surface of the superconductor. The magnetic field generated by this current just happens to offset that portion of the magnetic field which is trying to enter it. But the above-mentioned statement is only the half effect of the magnetic field generated by this superconducting current, its effect is limited to the outside of the superconductor. While the other half, which has the same density as the external magnetic field lines, but the opposite polarity, and acts on the interior of the superconductor.

Therewith inside the superconductor, at a deeper layer than the surface, it is bound to induce another superconducting current which is the same size as the superconducting current of acting on the surface of the superconductor, but opposite in direction. Therefore, between these two layers, the magnetic fields produced by the two are offset each other... In this way, the layers go deeper until the surface of the superconductor on the other side. The surface layer is also shown to interdict the magnetic field lines of the outside world. Strictly speaking, the stream of charged particles cannot enter its interior.

This means that inside the superconductor, the so-called magnetic induction intensity is equal to zero, which is just a macro superficial phenomenon. And its microcosmic essence is to dynamically balance the repulsive force between the high-density particles in the superconductor through the magnetic field generated by transferring charges, so as to maintain every gap between them less than the scale of an electric charge. That is to say, before the superconducting state is entered, almost every one of high-density particles inside the conductor may be directly subjected to the impulse of the external stream of charged particles. And

after entering the superconducting state, these impulses can only pass through the magnetic field generated by the superconducting current, and then transmit to every one of high-density particles in the superconductor layer by layer.

In terms of the most fundamental microscopic level, an electro-ultimate particle renders as the negative charge of one unit, and an ultimate particle (portion) possesses the positive charge of one unit. When the gap of the two particle portions is less than the scale of a charge, they present as an electrically neutral unified body. And inside the unified body, the reason that the two ultimate particles of possessing positive charges are not yet in contact, is that there is still repulsive force. Because of the existence of the repulsive force, and there is not a one-to-one correspondence between the charge and the ultimate particles, this unified body is not stable. And inside the superconductor, it is precisely through the magnetic field generated by transferring charges to dynamically restrain the repulsive force, so as to maintain the gaps between the adjacent high-density particles less than the scale of a charge.

As can be seen from the above analysis, how every one of charges inside a superconductor is transmitted also depends on those stream of charged particles which are trying to enter it. Because between high-density particles inside it, the directions of the charges transferred, as well as the balances generated by the binding forces and the repulsive forces, are also related to this external cause. The superconducting currents generated by these charges transferred, whose adjacent places are always to come in pairs and arranged into opposite directions themselves, and act together on the high-density particles between them. Thereupon, between the adjacent high-density particles inside the superconductor, a dynamic balance is achieved by the combined action of the electric field and electromagnetic forces. Among them, the electric field force is the internal cause, while the electromagnetic force is related to the external cause. This means that the

role of the ether is essential with regard to all these microscopic changes. Because it is not only as a background, but also an external cause which is also a stream of charged particles attempting to enter the superconductor.

Our purpose is at the level of electro-ultimate particles and by virtue of the superconductivity to gradually elucidate that the root cause of the strong force is electricity and magnetism. Our basis is that an atomic nucleus and its internal high-density particles should be superconductors at almost all temperatures. Therefore, in an atomic nucleus, the electromagnetic binding force generated by the superconducting current cannot be ignored. It is precisely because of their existence that there is possible to bundle those high-density particles firmly inside an atomic nucleus.

The so-called strong force, its role is between the nucleons. That is the electromagnetic binding force which can bundle together those high-density particles inside an atomic nucleus, such as quarks and mesons. As a comparison, the electromagnetic binding force generated by the superconducting current inside an atomic nucleus, which can be divided into two types according to the strength. And the strong force shown in Figure 1, its strength can only correspond to the weaker types among them. As for another more powerful electromagnetic binding force, it involves to the formation mechanism of each high-density particle.

7. Two kinds of electromagnetic binding forces inside an atomic nucleus

An electro-ultimate particle renders as the negative charge of one unit, it is the most fundamental high-density particle. Its charge portion renders as the negative charge of two units, and the ultimate particle portion possesses the positive charge of one unit. Since the ultimate particle portion is a superconductor, so the charge

portion cannot enter its interior and can only attach to its surface. After two or more ultimate particles come into contact with each other, they can become a "unified superconductor." And the charge portion in the original each electro-ultimate particle, they can only attach to the surface of this “unified superconductor” and move at a high speed. Thereupon, a charge layer has been formed, which can also be called a current layer. It is precisely because of the existence of this charge layer that people can discover that spin is an intrinsic property of high-density particles themselves.

According to the Meissner effect and Lenz's law, on the external, the magnetic field generated by its charge layer dynamically interdicts all of the stream of the charged particles of attempting to enter its interior, and in its interior maintains this "unified superconductor," that is, the stability of the high-density particle. According to the different strengths, the electromagnetic binding forces inside an atomic nucleus can be divided into two types. This kind of the electromagnetic binding force generated by a charge layer is much larger than the combined force of the electric and magnetic fields between the two high-density particles which has been adhered by a negative charge but not yet in contact.

From this it can be seen that the strong force shown in Figure 1 is only the latter with lower intensity. And the so-called nuclear forces in modern physics should be the result of the combined effect of these two forms of electromagnetic binding forces. Therefore, a particle formed under the constraint of one and the same charge layer is a real high-density particle. And multiple high-density particles are bundled together by the combined forces of electricity and magnetism, which should be called a particle with high-density characteristics.

A stable high-density particle can only possess one charge layer. The adjacent ultimate particles inside one and the same charge layer must be sure to come into contact with each other, only in this way which can become a "unified

superconductor", that is, a high-density particle. Therefore, when two or more high-density particles come into contact with each other, there are several charge layers, that is, equivalent to have the same number of high-density particles. And vice versa. The characteristic is that there are shared parts between adjacent charge layers, that is, adhesions occurring and in the superconducting state. If after they come into contact with each other, there is only one charge layer, this shows that they have all been merged together and formed into a large high-density particle.

Obviously, this merged charge layer contains all of the charges contributed by each high-density particle originally. From the most fundamental level to understand, the part of particles inside it, all are the ultimate particles of possessing one unit positive charge. In other words, there are powerful repulsive forces between the ultimate particles, while they are also bound by the electromagnetic forces generated by the charge layer. And these powerful repulsive forces, are precisely the root cause of electromagnetic radiation. The result is that with the charge layer as the boundary, its inside and outside acting forces have reached a dynamic balance. A large amount of internal binding energy is confined within the charge layer, we can say that the mass-energy ratio is as the highest in the universe.

It means that so-called de Broglie's matter wave is a macroscopic appearance that this dynamic balance presents in front of us. Its internal mechanism, like a very tight tug-of-war competition, the balance point between the two sides is always in a reciprocating swing state. Its characteristics are that when the number of players on both sides is small, the swing range is large and the frequency is low; while with the increase in the number of players on both sides, the swing range gradually decreases and the frequency increases, even go beyond the judgment ability of our eyes and produce a seemingly static feeling.

At this moment, in terms of the unified body of opposites formed by the players of both sides, from the outside world to observe, the energy of this united

body is only related to its mass and swing frequency. And on the other hand, inside this unified body, there is a lot of energy which is bound in the rope. If you cut it off at the balance point, the energy will be released out in an instant, and all of the players on both sides fallen down towards the direction of their efforts. Of course, the rope is suffered to the tension, while the interaction between the charge layer and the ultimate particles is pressure.

8. The spin, gluon and superfluous strong force

In terms of the charge layer of a high-density particle, it needs to restrain that there are powerful repulsive forces between its internal ultimate particles, as well as it is also subjected to the impulses of the streams of charged particles from the outside. All of those have randomness, which and its ability to perform dynamic balance are a pair of causal relationship. In reality, even if the charge layer itself has no mass, but there is a difference on the time between the cause being before and the result generated by it. As a stable charge layer, it can only maintain as well as possible to minimize the streams of charged particles that escape. Thereupon, the high-density particle forms a spin dominated by the charge layer, and along the escaping direction of the stream of charged particles generates a pair of magnetic poles, and from the ether or other high-density particles continuously replenishes the same amount of the streams of charged particles. This is the permanent magnet at the microscopic level. Of course, in this state that is generally considered stable, there will also be a very small number of high-density particles that escape out the charge layer randomly from other directions and appear in front of us in the form of electromagnetic radiation.

If those pioneers of nuclear physics were able to aware of the above-mentioned two kinds of nuclear forces, as well as the spin dominated by the charge

layer was an intrinsic property of high-density particles themselves, how would they think on the rule given in the Figure 1?

Obviously, they should first consider through the two kinds of electromagnetic interactions inside an atomic nucleus to make a reasonable explanation on this, and not indiscreetly put forward a needless concept which was the strong force. Because they should be able to realize that in terms of the adjacent two high-density particles in an atomic nucleus, they were subjected to the resultant forces of the electric and magnetic fields (including the electromagnetic attractive forces generated by the two charge layers which were spinning in opposite directions respectively), making the distance between the two centers of mass was entered into the range of $r<1$ (fm); while the same time, in the adjacent place of the both sides, the repulsive forces were also generated by the charge layers according to the Meissner effect, causing the two centers of mass were reciprocated vibrations near the balance point $r=0.8$ (fm). The so-called rule of the strong force, as shown in Figure 1, which is mainly the result of the combined effect of the electromagnetic attractive and repulsive forces inside an atomic nucleus. Based on the formula I-10, the vibrational frequency of each high-density particle represents the kinetic energy that it has.

Next, in terms of the nuclear force, whether you think it is a strong force or a resultant force of the electric and magnetic fields, we have to face the problem that the charge radius of protons or neutrons is about 0.85 (fm). In other words, if you mistakenly believe that all of them in an atomic nucleus are approximately spherical entities, which cannot satisfy the rule given in Figure 1, that is, the adjacent two centers of mass to reciprocate vibrations near the balance point $r=0.8$ (fm).

Modern physics believes that the interactions inside an atomic nucleus are strong force, that is, the nuclear force. An atomic nucleus and its internal protons

or neutrons are formed by that the gluons bundle the quarks and other hadrons together. Among them, the so-called hadrons are also high-density particles. Now that we are trying at the level of the electro-ultimate particles to unify the nuclear force by the electromagnetic force, so it is necessary to make a reasonable explanation.

According to the previous discussion, the so-called gluon is a mixture inside an atomic nucleus, which is dominated by flowing charges, among them including some tiny high-density particles. The superconducting effect generated by flowing charges, it has been introduced before. Based on this, the two kinds of electromagnetic binding forces inside atomic nuclei have also been deduced. As for the reasons of the existence of those tiny high-density particles, the first is that a charge cannot itself separate from the ultimate particle to exist in isolation; the other is that they provide a fusing or disintegrating environment for the high-density particles inside the atomic nucleus.

Inside an atomic nucleus, two high-density particles are disconnected in the gluon's state of electromagnetic adhesions, which is a necessary condition to generate decay and fission; while a few high-density particles to escape out the charge layer, which is the necessary condition to generate electromagnetic radiation. That is to say, there are two kinds of bundling functions of gluons, one is the electromagnetic binding force of the charge layer; the other is the combined forces of the electric and magnetic fields. The electric field forces are generated by the charges which are adhered to each other, and the magnetic field forces are generated by the superconducting currents. In terms of the nuclear force, it should be understood that the latter is less powerful than the former.

In recent decades, the so-called fundamental particles that physicists have discovered inside the atomic nucleus are as many as 100 kinds, which only also refer to those of possessing "famous status." If according to this trend, the so-called

fundamental particles will be more and more, and can never cease. This means that they have deviated from the correct research direction. Because these so-called fundamental particles, including quarks, all can be belonged to the category of high-density particles. The distinctions are only the differences in mass, charge, spin, symmetry, lifespan, and so on. At this moment, they are following the wrong direction of research, and have consumed a lot of manpower and material resources, and even their own lives. When will they be able to suddenly understand that?

9. Neutrons or protons are two forms of existence of quarks

As for a quark, it is a relatively larger high-density particle inside an atomic nucleus. Therefore, the quark has only one charge layer, which is formed by the charges in the gluon. Its shape is like a plant's roots by close planting. According to its characteristics, can be called a "rhizo-nucleon", that is, the root-like nucleon. As a hint, Figure 2 gives the roots of certain plants seen from different angles.

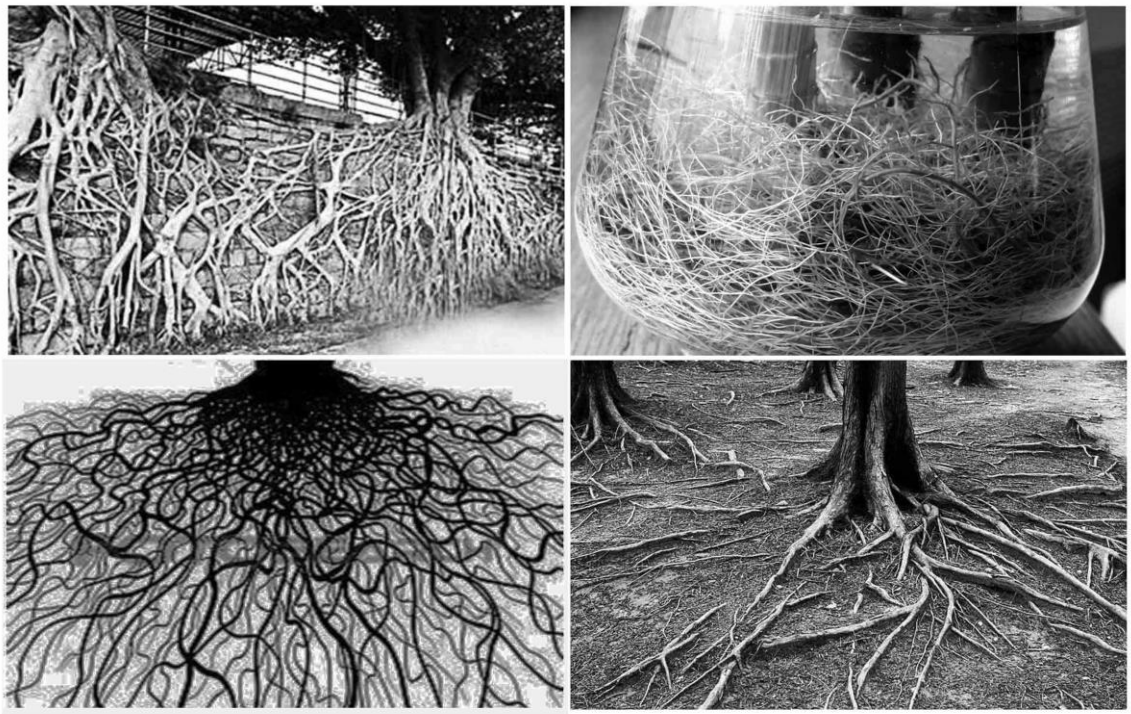

Figure 2: Quark, rhizo-nucleon, its shape is like a plant's roots by close planting.

This means that the quark as a high-density particle, although between its internal adjacent ultimate particles have come into contact with each other and become a "unified superconductor," but it is not an entity of simple shape and among which there are many gaps. Just like the conductors of various shapes have been filled up in a plastic container, even if there are many gaps of various shapes between them, but judging from the perspective of the electrical conductivity, they have become a whole. Therefore, no matter quarks have how many “flavors,” such as up, down, strange, charm, top and bottom, as long as they form a contact state with each other at the level of ultimate particles, all of which will be bound into one and the same charge layer. Such a quark, it is a root-like nucleon. If using nuclear microprobes to study it, you will find that there are different spins at different locations. So, there are quarks with different "flavors". But an essential characteristic has been neglected, that is, whether these quarks have been bound into one and the same charge layer.

And the gluon flows in these gaps of root-like nucleons, its charges not only act as a charge layer for quarks, but also bundle all high-density particles in the atomic nucleus together by the combined forces of the electric and magnetic fields. That is to say, if you can separate out a quark from the gluon, then it must take away the charge layer that belong to itself. Otherwise, the quark without the charge layer means annihilation. As for neutrons or protons, they themselves are two forms of the existence of quarks, just like two elephants, only the difference in male and female.

Only such neutrons or protons, just like a number of the tree roots by close planting, can meet the rules given in Figure 1. Although their respective charge radius is about 0.85 (fm), but they can achieve inside the atomic nucleus that the distance of adjacent two centers of mass is as r=0.8 (fm) and to reciprocate vibrations near the balance point. Therefore, it does not make sense to discuss how

quarks can escape from neutrons or protons. This is precisely the essence of the so-called "quark confinement" in modern physics. [9]

As long as you "smell" the "flavors" of quarks, can know how complex the shape of each charge layer is. This means that the quark is like a pile of tree roots, can be transformed into various different shapes, and occupy different spaces and scales. Therefore, the charge radius of a neutron or proton that we observe from a macro perspective, which is not immutable. In connection with this report, *Science magazine* has introduced an experimental result with "The Incredible Shrinking Proton?" [10]. The experimenter told us that he found that the proton's charge radius was 0.84184 (fm), which was about 4% less than in the past, far more than the error of the experiment.

Of course, the cause of this phenomenon is related to electromagnetic radiation. Because of the conservation of momentum, a proton radiates a photon every time, and at that local of itself producing the radiation, where is sure to receive an impulse in the opposite direction of the radiated photon. Furthermore, the charge layer will also interdicts all of the stream of charged particles of attempting to enter its interior. Although these charged particles cannot enter the charge layer, but they transfer their momenta to the proton in the way of impulses. These charged particles come from all directions, and the resultant effect of their impulses makes the proton to shrink toward their own center of mass. So, the charge radius of protons has been reduced, and this experimental result is reasonable.

10. The charge layer of crucial importance

The so-called gluon is dominated by the flowing charges. This is because a charge cannot itself separate from the ultimate particle to exist in isolation. In

terms of an ideal state, a gluon is the flowing charges attached to the surfaces of the high-density particles at a high speed. Therefore, it does not make sense to simply talk about the mass of a gluon.

But the amount of gluon's charges in an ideal state can be calculated. Taking the charge layer of a neutron as an example, it is equal to the amount of charge of an electron to multiply by the ratio of the mass of neutron and electron, and then divided by two. In other words, the number of ultimate particles inside a neutron is equal to twice of its charges. Only in this way, an electrically neutral neutron can be ensured. Thus it can be seen that the neutron star has a strong magnetic field and its magnetic poles can also quickly change direction, which physical phenomenon is reasonable. Among them, the charge layer should play a leading role.

And most of the photons have the same charge-mass ratio as the electron, which is a physical constant. In terms of its structure, likewise is the adjacent ultimate particles to come into contact with each other, and which are bound in the charge layer. The number of ultimate particles inside the charge layer is equal to that of their charges.

According to the previous definition, both neutrinos and ultimate particles belong to the category of photons. Neutrino is also an electrically neutral particle, inside one and the same charge layer at least two ultimate particles, which have come into contact with each other and been bound in it. In view of every ultimate particle possessing a positive charge of one unit, which exists alone a very short time in the ether. And because the ether is composed of electro-ultimate particles, every one of which renders as the negative charge of one unit. This means that in the process of annihilation of positrons, there is a higher probability that the ultimate particles will appear briefly.

As for positrons, they are usually appeared in pairs with electrons. Obviously, the positron is the electron that has just lost its charge layer restraining. Inside it,

there are powerful repulsive forces between the ultimate particles which are already in contact with each other. These powerful repulsive forces, are precisely the root cause of electromagnetic radiation. At this moment, these ultimate particles are released from the state of coming into contact with each other, which is an inevitable trend between them.

But every one of ultimate particles has mass, and the mass means inertia. So the ultimate particle which is first freed from the state of coming into contact with each other must be on the surface of the positron. When it breaks away from the surface of the positron in the form of electromagnetic radiation and attempts to blend into the ether, it is producing an impulse equal to its momentum but in the opposite direction, and acting on the ultimate particles of the internal layer, which came originally into contact with each other. In other words, in the ether, a positron cannot instantly smash when it is "exploding." Instead, it begins with the surface's ultimate particles and is annihilated one by one and layer by layer. The annihilation lifetime of a positron in the ether is about 10^{-10} (s) order of magnitude.

Annihilation refers to the process of objects dying out in the background of nature (ether). And as a concept of physics, it refers to a process of converting into the ether after a matter and its antimatter meet. That is to say, the most fundamental matter and its antimatter are ultimate particle and charge (whose essence is an electro-hole). Every one of electro-ultimate particles is a unified body made up of the two.

In this article, the so-called pure ether, which is completely made up of the electro-ultimate particles moving at the highest speed in reality. Therefore, the annihilation of meaning in general is not an ideal conversion process. The above-mentioned the ultimate particles radiated from the surface of the positron to the ether, as well as they are sharing electric charges with electro-ultimate particles, all of which can be belonged to this process.

Let's take another angle, it is also so. In terms of the above-mentioned positron which is annihilated layer by layer, because every one of electro-ultimate particles renders as the negative charge of one unit, after the positron is impacted by them, some ultimate particles maybe come into contact with each other and share charges. So, there is a condition for forming charge layers. When a certain charge layer is sufficient to restrict some of the ultimate particles inside it, a new high-density particle is come into being. If only a few of the ultimate particles are confined in the charge layer and displayed as electrically neutral, which should belong to the category of neutrinos. It can be seen that there is a high probability of neutrinos being generated during the annihilation of positrons.

In terms of the formation of charge layers, a more obvious example is when the annihilation that occurs after the electron and positron to collide with each other, and we can observe two or three gamma photons. In addition, those almost omnipresent very minimal high-density particles, which cannot be stopped by the vacuum chamber, should also belong to this process of annihilation. In terms of its microscopic mechanism, whether it is a gamma photon or those very minimal high-density particles, which have obtained the constraint of the charge layer in varying degrees. As for the energy of each gamma photon, it is only equivalent to the static energy of an electron. According to the formula I-2, its static mass is only a very small part compared with the electron or positron.

11. The internal binding energies between high-density particles

Let us take the above-mentioned tin plate that has entered the superconducting state as an example. With the temperature gradually to rise above the critical temperature, the small permanent magnet had fallen back to the tin plate again. This was because the tin plate had started to break away from the superconducting

state, and the stream of charged particles from outside was able to enter or even pass through it.

After returning to room temperature, we were able to weigh this tin plate once again, and the result should be slightly increase than the initial weighing prior to enter the superconducting state at the same room temperature. This was because during the process of entering the superconducting state, a certain number of charged particles were trapped and filled in the gaps between the high-density particles inside the tin plate. The so-called some charged particle was trapped, which meant that it and its surrounding high-density particles all had accordingly adjusted their own spin directions and achieved the optimal balance state of mutual attraction. In this process, a certain degree of internal binding energies were able to be formed. And this part of internal binding energies were shared, not only related to this trapped charged particle, but also related to the surrounding high-density particles. Therefore, if you wanted to separate it from this balance state, had to extra introduce corresponding energy.

In other words, as long as this charged particle at the level of ultimate particles did not come into contact with other high-density particles and was confined within a new charge layer, its own momentum was still to follow the rule determined by the formula I-7. This was similar to the fact that after a photon moving from the ether (optically thinner medium) into an optically denser medium, although its speed was reduced, but its momentum and energy still followed the formula I-7 and I-8. However, considering from the perspective of conservation of mass-energy, should include the above-mentioned internal binding energies. These trapped charged particles, after the tin plate was broken away from the superconducting state, the characteristics of their original stream of charged particles were also restored therewith. But they also to need the corresponding energy was able to get rid of the constraint of the above-mentioned internal binding

energies, and to pass through the tin plate to go away. Therefore, when the tin plate had been restored to the same room temperature as the initial weighing, there were still some trapped charged particles which were not able to get rid of the constraint, so leading to a slight increase in the weighing. As for the memories of these charged particles moving in original directions as well as the gyroscopic effects related to them, all of which should have a close relationship with their own charge layer.

Furthermore, when the tin plate was in a superconducting state, if some of the charged particles trapped had come into contact with other high-density particles and been confined within new charge layers, those charged particles were possible to remain inside the tin plate. Which was because those charged particles had been merged as some of new high-density particles, so which were likely to be remained inside the tin plate broken away from the superconducting state. In other words, after the tin plate was recovered from the superconducting state to room temperature, its weighing should be slightly increase. Here it is very significant to confirm for the growth conditions of high-density particles. Of course, this also aims to improve the critical temperature of superconductors and teases out the direction of efforts from a micro perspective.

According to the previous arguments, every one of electrons is include by a certain number of ultimate particles whose adjacent parts have come into contact with each other and been confined in the charge layer. Electron's charge-to-mass ratio is the physical constant. When two electrons are close to each other due to some external cause, their respective charge layers will automatically adjust, and change the spins to the opposite directions. The resulting electromagnetic attractive forces have adhered them together to form the so-called Cooper electron pairs. Although the two electrons are already adhered together and can share and transfer charges, but they are still two charge layers. According to the Meissner effect,

inside the Cooper electron pairs, there are repulsive forces between the adjacent parts of the two charge layers. So, both will take the balance point of the attractive force and repulsive force as the center to reciprocate vibrations. In the same principle, the adjacent high-density particles inside a superconductor are also to reciprocate vibrations in such way. A review of the previous description for the strong force, inside an atomic nucleus, there are the reciprocating vibrations between adjacent high-density particles, all of them are the same principle.

Just like a large amount of internal binding energy confined within a charge layer, the charge layers of two high-density particles to be adhered together, between which, the attractive force of the electric and magnetic fields can also confine a certain energy. Therefore, if you want to break up a Cooper electron pair, have to introduce corresponding energy. And once to be broken up, the original binding energy between the Cooper electron pair will be released out. That is to say, according to the law of conservation of mass-energy, the energy shown by the Cooper electron pair should be lower than the sum of the energy of the two electrons which have been broken up and exist alone.

Therefore, when an iron is magnetized, the spinning directions of its internal some of adjacent high-density particles will be forced from the opposite to adjust to the same. And the original binding energies will be released, and make their kinetic energy increase. According to formula I-2, the iron's weight will increase slightly [11]. In the same principle, when the magnetic fields of two permanent magnets are attracted to each other, the number of high-density particles with the same spin direction inside them will be increased, which will lead to an increase in their weight and release heat; conversely, when mutual repulsion, their weight will reduce and absorb heat. Such kind of experiments [12] has been done by the experimental physicists of China's Sichuan province. In the past, it was hard to be explained at the level of electrons. But this moment, at the level of electro-ultimate

particles, it can be explained reasonably.

12. BCS theory is a false concept switched stealthily

Moreover, from the formation mechanism of the Cooper electron pair, it can be seen that the charge layers of the two electrons spin in opposite directions, and the resulting electromagnetic attractive forces attempt to adhere them together. But because the both sides are charged particles, when they are close to each other, according to the Meissner effect, each electron's charge layer will also generate a magnetic field to prevent another electron to come into contact with itself. This is consistent with the facts we have observed. In other words, when the gap between two electrons is smaller than the scale of a charge, the adjacent parts between them are in a state which seems like the shared charges but actually two charge layers.

Thus, we can understand why an electron in an atom is hard to fall on the nucleus. Because when the electron rushes toward the atomic nucleus, according to the Meissner effect, the charge layers of both sides will respectively generate a magnetic field to prevent the other side to come into contact with itself. So it is shown that the electron reciprocate vibrations under the action of the attractive and repulsive forces. That is to say, for all adjacent high-density particles, when the distance between their charge layers is very close or already adhered together, the repulsive forces will be generated based on the Meissner effect.

Under the framework of BCS theory, the "virtual phonon" should mean a transient fluctuations, and the Cooper electron pairs are realized by exchanging virtual phonons. Obviously, at the level of electrons to explain the superconductivity and introduce the physical concept of virtual phonons, which would be equivalent to a mathematical mapping. The result of the mapping is the same as the effect which is to transfer charges by high-density particles. If studying

its essence, this is a false concept switched stealthily. So, the theory has “tactfully” avoided each electron of possessing the mass, its energy can be transferred or lost in the movement, that is, the resistance can be close to zero, but never be equal to zero. Thereby it has covered up the microscopic essence of superconducting phenomena, that is, the charges are only transferring by means of the Cooper electron pairs.

Therefore, as long as a charge is moving along with a particle which has mass, it is inevitable that there will be an electrical resistance. This is precisely the weakness of the BCS theory. For example, the superconducting persistent current experiment which was completed first by Heike Kamerlingh Onnes. Put a lead ring in a Dewar flask, and a magnet outside that, then cooled the lead ring with liquid helium. When the lead ring entered the superconducting state and the magnet outside the Dewar flask was suddenly removed, a electric current was induced in the lead ring, which would be persistently to flow. After that, many people repeated the experiment, the longest duration of which lasted from March 16, 1954 to September 5, 1956. And during this period of about two and a half years, there was no sign of a weakening of the persistent current, until the supply of liquid helium was interrupted and the lead ring was broken away from the superconducting state. In that way, according to BCS theory, how the Cooper electron pairs in the superconducting lead ring should move, can we guarantee that no collision would happen in a few years? While once a collision occur, the electrical resistance may be greater than zero.

In modern physics, there are two kinds of mistakes which are most likely to be confused. One is the confusion of the domain of definition [3], such as the fact that Einstein was to confuse the light speed in reality with the *c*. The second is the effect of "Blind Men and the Elephant", which is to use one-sided view to treat the overall problem. For example, a photon has mass, energy and wave, which is the

consensus that we have observed from various perspectives in allusion to the photon being the main body. But some people are through unilaterally to ask for the wave's mass in order to attempt to deny the photon possessing mass, which is to use one-sided view to treat the overall problem.

Only confined to the understanding at the level of electrons, the failure to recognize the microscopic mechanism of superconductivity is that charges are transferred by means of high-density particles, which puts the BCS theory in a very awkward position. The awkward position of BCS theory is that the interaction between electrons and phonons must be able to transfer energy but the phonons cannot have mass. Otherwise, there is no point in introducing the concept of phonons because the resistance can only be close to zero but not be equal to zero.

Therefore, we call them as the virtual phonons, which is in order to highlight the awkward position of BCS theory. First, the "virtual" means that they do not exist in reality, but if so, how will the Cooper electron pairs interact with them? Conversely, if these phonons without mass existed in reality, they should make a careful explanation for that. In other words, such concept of phonons introduced in the BCS theory, should be to imply two meanings, one was that the waves had no mass, and the other was that the phonons had to exist in reality but have no mass.

It was precisely a concrete example by the effect of the Blind Men and the Elephant. In which they used one-sided view to treat the overall problem, and the false concept was switched stealthily to mislead most people. Their purpose was to convince the most of people to believe that although the Cooper electron pairs inside a superconductor had mass, but they were able to accomplish the things which were not able to be done by themselves, as long as were by virtue of those phonons like waves and without mass. Because only in this way might be ensured that there was no collision between the particles of possessing mass. That was, the resistance was equal to zero. In this regard, the founders of the BCS theory could

be said to rack their brains. They had hoodwinked themselves almost perfectly, as well as also deceived others meantime.

13. High-temperature superconductors in the universe

According to the formation mechanism of Cooper electron pairs, it can be known that the spin phenomenon exhibited by a high-density particle is dominated by its charge layer. Therefore, the so-called millisecond pulsar is not that its entity has such a high rotational speed, but it is the resultant precession effect which is dominated by its charge layer of high-speed motion and accompanied by the physical motion. The pulses we receive are the stream of charged particles (magnetic field lines) generated by its charge layer. But if the directions of these stream of charged particles are always not toward the earth, we can also judge that it is a black hole by observing universal gravitation.

In terms of neutron stars or pulsars, they are the cores left over by the supernova explosions, whose interiors are respectively dominated by the electromagnetic binding forces generated by the charge layers of themselves. Therefore, these celestial bodies have not been able to shine in all directions, but their fluctuations should be to follow the scope of application in the formula I-7. This means that de Broglie's theory of matter waves should also apply to those entities or celestial bodies with high-density characteristics. So, according to the previous discussion, it can be got such a corollary that all of the entities and even celestial bodies, as long as formed only by two kinds of nuclear forces, they themselves should be superconductors at almost all temperatures.

In regard to this corollary, the reasonable proof is given by our geomagnetic phenomena. Just imagine, the Earth's core is at the high temperatures of 6000 degrees Celsius (℃), if it is not made up of some entities with high-density

characteristics, how can a permanent magnetic field exist? Therefore, the Earth's core should contain a certain number of entities with high-density characteristics, every one of the entities has a permanent magnetic field generated by superconducting currents, and should be through them as the main body to have synthesized a global dipole magnetic field. But with the relative change of these entities with high-density characteristics in the molten rock of the earth's core, the direction of the Earth's magnetic poles is not constant.

In terms of entities with high-density characteristics, they are not only in the Earth's core, but also there are their clues of existence in the Earth's crust. It is well known that there is one kind of "strange slope" (or called as Gravity hill [13]) in many parts of the world. There, the greater is the mass of an object, the more prone is to the strange phenomenon of spontaneous upslope. Obviously, inside the Earth's crust near the strange slope, there should be a certain number of entities with the higher specific gravity or high-density characteristics, which have caused the gravity there to be distorted. Perhaps we can use some technologies to determine the location of such entities near the strange slope, and excavate them out. This not only means high-efficiency nuclear energy, but also high-temperature-resistant superconductors.

Look at the sun again. We know that the mass of the solar core is far greater than that of the Earth's core, but the frequency of changes in the direction of the Sun's magnetic poles is much higher than that of the Earth's. The main reason is that the temperature of the solar core is as high as 15 million degrees, and the pressure there is equivalent to 340 billion atmospheres, and the thermonuclear reactions are going on all the time. In terms of those entities with high-density characteristics which make up the solar core, this causes their relative changes to be much more intense and frequent than the Earth's core. As a result, the global dipole magnetic field synthesized by every one of entities with high-density

characteristics in the solar core, also has a much higher frequency of changes in the direction of its magnetic poles than that of the Earth's. From this, it can be got another corollary that all of the celestial bodies with a global magnetic field may contain a certain number of entities with high-density characteristics. It is further inferred that the stars in the universe like the sun, the higher their varying frequencies of the magnetic poles direction of global magnetic fields, the closer should be to the end of the lives.

The sun does not have enough mass to explode into a supernovae, and the evolution of such kind of stars is a process of asymptotic red giants. Its outer layer will expand greatly, and the counterforce make its core to collapse in on itself. Eventually, the red giant will enter the eruption period, shedding all the outer layers into space, and the remaining core be the so-called white dwarf. White dwarfs are one kind of low-light and high-density stars. Since they are still able to shine in all directions, which can only be explained as the two nuclear forces have risen to the main factor in their interior. In other words, the entities with high-density characteristics are the main components to make up white dwarfs.

14. The charge layer also has a fragile side

Let us look at the electrically neutral particles again. Although the charge layers between two adjacent neutrons inside an atomic nucleus seem to have kept in a shared state, but they cannot be merged together. The reason for this can only be the impulse per unit area at the point of interaction, which is lower than the threshold for breaking through the two charge layers. How high is this threshold? Nuclear fusion does not seem yet to have attained it, but the supernova explosion should have gone beyond it. Because of the residual neutron star, its interior is mainly confined by the charge layer and it has not been able to shine in all

directions.

It is the fundamental law of nature that things will develop in the opposite direction when they become extreme. The neutron star also has its fragile side. Once its charge layer breaks down, the inner ultimate particles which have been repressed for a long time, will desperately run away in the form of the particles or entities with high-density characteristics, and we will once again see the supernova explosion. After that, the remaining core cannot be found. In 1987, for example, astronomers discovered a supernova explosion called SN1987A [14]. And after this explosion, even with the help of the Hubble Space Telescope, no trace of a black hole or neutron star was found.

So, after the binary stars with high-density characteristics to collide with each other, what exactly would they mainly be both merge or explosion? Based on the above discussion, the probability of an explosion should be much higher than of the merger. It can be imagined that those entities with high-density characteristics thrown by the SN1987A supernova explosion will enter the next round of celestial evolution process, and may go through the experiences of the Earth's core or solar core once again.

From the microscopic point of view, the more common example of charge layer rupturing is the positron-electron annihilation experiments. A positron is an electron that has just lost its charge layer restraining. After the electron's charge layer is broken down by a positron, the two cannot be combined into an electrically neutral particle of double electron mass, and the result is shown as annihilation. Even if two adjacent neutrons inside the atomic nucleus have the same conditions as nuclear fusion, but also cannot break through the two charge layers which seem to have been shared each other between them. Compares the difference between the two, which is mainly to add a charge layer.

Thus it can be seen that the single charge layer also has a fragile side. It is

short of resistance to the high-density particles or entities with positron features, which come from both internal and external aspects at the same time. The main thing is to form another charge layer, which requires a certain delay. Then, whether can positrons break through the charge layers of neutrons or protons? This needs to be verified by practice. Once proven feasible, we will have the possibility to reasonably control and use the nuclear energy with the highest mass-energy ratio in the universe.

Moreover, according to the previous discussion, superconductors have a shielding effect on the stream of particles carrying negative charge (electromagnetic waves). Then whether do they also have a shielding effect on the electrically neutral particles like neutrinos? This is also determined by experiments. Because even in the atomic nucleus, there also are gaps between adjacent neutrons or protons, that is, between the quarks, like the interlaced tree roots with each other, and these can all provide possibilities for the passage of neutrinos. If neutrinos can pass through superconductors, using the shielding effect of superconductors on the stream of particles carrying negative charge (electromagnetic waves), we can distinguish them out.

Moreover, the pure ether, that is, electro-ultimate particles, which are also belonged to the stream of particles carrying negative charge. But the impulse per unit mass of every one of them is the highest value in the universe. Whether they can enter or pass through superconductors, which also needs to be verified by experiments.

This article (Superconductivity chapters) as the third part of the full text, takes up space to appear longer relatively. The reason is that at the level of electro-ultimate particles, the essence of charges is proposed in allusion to superconductivity. That is, as a real existence, the mass of the (negative) charge portion is equal to zero, but it cannot exist on its own, so only belong to the

category of the "electro-hole". Using this as a starting point, our derivation appears to be particularly smooth going, drawing some conclusions that are in line with objective reality and have essential characteristics. Some of them even existing theories cannot be explained. They are the root causes of the strong force and de Broglie's matter wave and electromagnetic radiation, the form and essence of the quark, as well as some experiments that are still difficult to explain just now, and so on.

15. The "being emptiness" and radiation existing in reality

According to the previous argument, the most fundamental matter and antimatter are ultimate particle and charge (its essence is an electro-hole). Every one of electro-ultimate particles is a unified body made up of the two. And the pure ether as the background of nature, is composed of electro-ultimate particles.

This means that the ultimate particles and "being emptiness" are the most fundamental existence in reality. We can imagine that when an ultimate particle is placed in the being emptiness which exists in reality, it will take on the characteristic of positive charge. And around it there will be accordingly to render as the characteristics of (negative) charge, forming the most fundamental charge layer, which is the root cause of spin. Moreover, it also means that the number of all matter and antimatter in the universe must be equal to each other.

So the charge, which is the electro-hole, has no mass and cannot exist on its own. The most fundamental form of existence is to act as the charge portion, and with an ultimate particle to form a unified body, that is, the electro-ultimate particle. When the charge portion is transferred due to an electric field, the being emptiness will anew generate corresponding negative charge around the original ultimate particle. The so-called an ultimate particle of possessing one unit positive

charge can briefly exist, because there is a logical order in the process, so there is also sure to be a time gap in reality.

Furthermore, the interaction between the ultimate particle and charge (electro-hole) portion is mainly dominated by the Lorentz force, and follows Lenz's law. Once there is a trend of accelerated motion of the ultimate particle portion towards a certain direction, the charge portion will be perceived and automatically produce an opposite effect, in an attempt to stop the accelerated motion. And vice versa. This is the root cause of inertia. And the root cause of wave comes from the interaction between the two, whose feature is mutual vertical relationship between the electric and magnetic field. In which process, because the change of the two that there is a logical order, so there is also sure to be a time lag.

As for the scale of its charge portion, should be related to its kinetic energy (show up as temperature), that is, to formula I-2. Since the moving speed of an electro-ultimate particle is the highest value in reality, so the scale of its unit charge (electro-hole) should be considered as the smallest. And for other high-density particles, entities and even celestial bodies, their charge layers are large electro-holes. Similarly, the scale of their unit charge is also opposite relationship with own temperature change. This means that we should carefully study the relationship between gravitation and temperature.

Of course, the above discussion still remains to be confirmed by relevant experiments, then going to be able to produce consensus. So, for a hollow superconductor, which has been pre-pumped into a high-vacuum degree, we are very concerned about what kind of state will its hollow part reveal?

First, this experimental device can detect whether the ether can enter or pass through the superconductor. It can be tested and verified whether a magnetic field can be generated by energizing the coil which is preset in the hollow part, and compare that with the condition in the ether to identify the same or different. If

there is a clear distinction between the two, this shows that the hollow part is closer to the being emptiness (which exists in reality). That is to say, the electro-ultimate particle are also limited by Meissner effect. Thereupon, we can judge the effect of the ether on gravity by the free fall which is preset in the hollow part. If there is no change in gravity at this time, it means that the universal gravitation should be transmitted on the basis of the being emptiness in reality. No matter whether these experiments can achieve the desired results, for the shielding effect of superconductors, and even the discussion on the ether in this article, all can be rethought or corrected.

And also to mention, the neutron stars or black holes have huge masses, according to the formula I-7, their moving speeds are almost zero, and that provides an opportunity for precise positioning in the universe.

Furthermore, as far as electromagnetic radiation is concerned, there is more far-reaching significance. That is to say, what is called the growth of all things depending on the sun, if it is changed into that depend on the radiation, which should be closer to the essence. For those particles with high-density characteristics, their formation and growth, as well as what we now see as earthquakes, nuclear fusion, black holes, and even supernova explosions... the evolution of the universe is derived from such a microscopic physical phenomenon from the quantitative to qualitative change results.

This means that it is our most urgent task to rationally standardize and utilize geothermal energy. Because in the interior of the Earth, a great deal of radiation is generated every moment, which is the root cause of our global warming and earthquakes. But this process is irreversible like the proverbial to slow-boiling frog with warm water. How to rationally utilize and prolong this natural environment being born again and again, which are related to the fundamental interests of our human. Moreover, the radiation generated from the Earth's interior, in which there

is shorter wavelength part, that is, the main body of energy is converted into geothermal heat. And only the far infrared light with relatively longer wavelength can pass through the Earth's crust and even radiate into the space. Therefore, it can be through satellite scanning to establish the dynamic far-infrared spectrum of Earth's crust that changes over time. In this way, both the geothermal resources can be rationally utilized and it is also beneficial to prevent the occurrence of earthquakes.

16. Conclusion

In the contents of previous two parts of the full text, in order to eliminate the false and retain the true, we have redefined all the inertial systems from the perspective of all knowledge, once again enabled Galileo's coordinate transformations, and reshaped the two postulations in Einstein's special relativity and made them rationally to return to the framework of absolute space-time. These researches were all reasonable. The fundamental bases included: Newton mechanics, Lenz's law, Maxwell's and Lorentz's electromagnetic theory, de Broglie's matter wave relational formula and three kinetics equations in Einstein's special relativity. In our full text, these fundamental bases have reasonably been integrated together. This article (Superconductivity chapters) as the third part of the full text, at the level of electro-ultimate particles, is the result by virtue of superconductivity to further research. Now, it is summarized as follows:

1. The electro-ultimate particle renders as the negative charge of one unit, which is a unified body. It is made up of both the ultimate particle (portion) of possessing one unit positive charge and the negative charge portion that renders as two units. The so-called magnetic field lines, whose essence is the electro-ultimate particles or the stream of charged particles derived therefrom.

2. At any point in the pure ether space, there will be a lot of electro-ultimate particles passing through evenly at the highest speed in reality; while the result of their combined effect makes the relationship between the three physical constants which are the permeability of vacuum u_0 , vacuum permittivity ε_0 and value *c* of the light speed in vacuum, is $u_0\varepsilon_0c^2=1$. And the pure ether, as the background of nature, is composed of them.
3. The flow of electric current, its essence is to transfer charges, there are two ways: One is that the high-density particle of carrying charges is just like commonly thought of as an electron to move in the medium; the other is that the high-density particle is located in a certain position of the conductor structure and only responsible for transferring charges. The former, due to collide with each other between particles, will consume energy, that is, there is resistance. While the latter is the superconducting state at the microscopic level. And according to this, the BCS theory can be discarded. Moreover, we can also get such a corollary that all of those particles, entities and even celestial bodies as long as only to be formed by two kinds of nuclear forces (whose essence is electromagnetic force), they should all be to follow the scope of application in the formula I-7, and themselves be superconductors at almost all temperatures.
4. In terms of the electro-ultimate particle, its moving speed is as the highest value in reality, and it will inevitably be subjected to a strongly stress. Even so, its characteristic is also displayed as that the negative charge portion is not separated from the ultimate particle portion. But a moderate electric field can separate them. The study concluded is that all the mass is concentrated in the ultimate particle portion. And the charge part, as a real existence, its mass is equal to zero but cannot exist on its own, and only belong to the category of

the "electro-hole". This means that the ultimate particles and "being emptiness" are the most fundamental existence in reality. It can be considered that in the being emptiness (which exists in reality), an ultimate particle possesses the characteristic of positive charge, because around it there will be accordingly to render as the characteristics of (negative) charge. This is the most fundamental charge layer, but also the root cause of spin. Moreover, it also means that the number of all matter and antimatter in the universe must be equal. Of course, this also offers the possibility to explore the mechanism of quantum entanglement.

5. Annihilation refers to the process of objects dying out in the background of nature (ether). And as a concept of physics, it refers to a process of converting into the ether after a matter and its antimatter meet. That is to say, a charge has no mass and cannot exist on its own. Its most fundamental form of existence is to act as the charge portion and with an ultimate particle to form a unified body. The two are the most fundamental matter and antimatter, and this unified body is the electro-ultimate particle.
6. In terms of the electro-ultimate particle, when its charge portion is transferred due to the reason of an electric field, accordingly, the being emptiness will anew generate a (negative) charge around the original ultimate particle. Furthermore, the interaction between the ultimate particle and charge (electro-hole) portion is mainly dominated by the Lorentz force, and follows Lenz's law. Once there is a trend of accelerated motion of the ultimate particle portion towards a certain direction, the charge portion will be perceived and automatically produce an opposite effect, in an attempt to stop the accelerated motion. And vice versa. This is the root cause of inertia. And the root cause of wave comes from the interaction between the two. In which process, because the change of the two that there is a logical order, so there is also sure to be a

time lag. As for the scale of its charge portion, it is the opposite relationship with own temperature change. This relationship should also apply to those particles, entities and celestial bodies with high-density characteristics.

7. The so-called strong force, that is, the nuclear force, which can be divided into two types. The first type, which exists in the interior of high-density particles in an atomic nucleus. It is characterized by: the magnetic field force generated by the charge layer has confined a large amount of internal binding energy, and got through the spin phenomena and random electromagnetic radiation to present in front of us. The second type, which exists between adjacent high-density particles in an atomic nucleus. It is characterized by: there are shared parts between the charge layers of adjacent high-density particles, and the combined action of the electric field force and superconducting electromagnetic force can also confine a certain degree of internal binding energy. The fission or decay of an atomic nucleus is related to this. In terms of the nuclear force, it should be understood that the latter is less powerful than the former. All of the particles formed under the constraints of two kinds of nuclear forces, are collectively referred to as the particles with high-density characteristics. And a particle formed under the constraint of one and the same charge layer, it is a real high-density particle.
8. Inside every one of high-density particles, there are powerful repulsive forces between the ultimate particles which are already in contact with each other. At the same time, they are also subjected to the electromagnetic binding force generated by the charge layer. These powerful repulsive forces, are precisely the root cause of electromagnetic radiation. And the spin dominated by the charge layer also becomes an intrinsic property of high-density particles themselves. The result is that with the charge layer as the boundary, the inside and outside acting forces have reached a dynamic balance. It means that so-

called de Broglie's matter wave is a macroscopic appearance that this dynamic balance presents in front of us. Its internal mechanism, like a very tight tug-of-war competition, the balance point between the two sides is always in a reciprocating swing state.

9. As a stable charge layer, it can only maintain as well as possible to minimize the streams of charged particles that escape. Thereupon, with the spin dominated by the charge layer, the high-density particle generates a pair of magnetic poles along the escaping direction of the stream of charged particles, and from the ether or other high-density particles continuously replenishes the same amount of the stream of charged particles. This is the permanent magnet at the microscopic level.
10. Inside an atomic nucleus, the charge layers of adjacent neutrons or protons will automatically adjust, and change the spins to the opposite direction. The resulting electromagnetic attractive forces bundle them together, but they still belong to own charge layer respectively. According to the Meissner effect, in the adjacent place, between the charge layers of both sides will generate the repulsive forces. This makes the two centers of mass at a distance of $r=0.8$ (fm) to reciprocate vibrations near the balance point, which is the nuclear energy that we are now using. That is to say, for neutrons or protons with a radius of about 0.85 (fm), which only look like the interlaced tree roots with each other, can satisfy the above-mentioned conditions of reciprocating vibration.
11. Inside an atomic nucleus, the main component of the gluon is the charges. And neutrons or protons, they themselves are two forms of the existence of quarks. Although the shape of a quark is like a pile of tree roots, but its essence is still a high-density particle. That is to say, the quark has only one charge layer, which is formed by the charges in the gluon. Therefore, it does not make sense to simply talk about the mass of a gluon. If using nuclear

probes to study the so-called quarks, you will find that there are different spins at different locations. The bundling functions of gluons are the above-mentioned two kinds of nuclear forces.

12. The Earth's core is at the high temperatures of 6000 ℃, and has a permanent magnetic field, in which must contain a certain number of entities with high-density characteristics. Every one of the entities has a permanent magnetic field generated by superconducting currents, and through them as a main body has synthesized the earth's global magnetic field. From this, it can be inferred that all of the celestial bodies with a global magnetic field, their cores may contain a certain number of entities with high-density characteristics.
13. The so-called neutron stars or pulsars, their characteristic is that have not been able to shine in all directions. In terms of a millisecond pulsar, is not that its entity has such a high rotational speed. It should be dominated by its charge layer of high speed of rotation, accompanied by the physical motion, and the resultant precession effect. The pulses we receive are the stream of charged particles (magnetic field lines) generated by its charge layer. If the direction of these stream of charged particles is always not toward the earth, we can also judge that it is a black hole by observing universal gravitation.
14. The single charge layer is the lack of resistance to those high-density particles or entities with positron features, which come from both the inside and outside sides at the same time. If it is experimentally confirmed that positrons can break through the charge layer of neutrons or protons, we will have the possibility to reasonably control and use the nuclear energy with the highest mass-energy ratio in the universe.
15. Electromagnetic radiation should be the root cause of the growth of all things. For those particles with high-density characteristics, their formation and growth, as well as what we now see as earthquakes, nuclear fusion, black

holes, and even supernova explosions... the evolution of the universe is derived from such a microscopic physical phenomenon, and from the quantitative to qualitative change results.

16. In the interior of the Earth, a great deal of electromagnetic radiation is generated at every moment, which is the root cause of our global warming and earthquakes. But this process is irreversible like the proverbial to slow-boiling frog with warm water. In which there is shorter wavelength part, that is, the main body of energy is converted into geothermal heat. And only the far infrared light with relatively longer wavelength can pass through the Earth's crust and even radiate into the space. Therefore, it can be through satellite scanning to establish the dynamic far-infrared spectrum of Earth's crust that changes over time. In this way, both the geothermal resources can be rationally utilized and it is also beneficial to prevent the occurrence of earthquakes.

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撩开近代物理学的面纱III（超导篇）

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摘要： 本文（超导篇）作为全文的第三部分，是在电的终极粒子这个层面上，借助于超导现象而进一步研究的结果：1、电的终极粒子呈现为一个单位的负电荷，它是具有一个单位正电荷的终极粒子部分，与呈现为两个单位的负电荷部分所构成的统一体。所有的质量都集中在终极粒子部分，电荷部分的质量等于零且不会单独地存在，属于“电洞”的范畴。此二者为最基本的物质和反物质。它们相遇后，转变为电的终极粒子（以太）的过程就是湮灭。2、可以推断，终极粒子和“空（being emptiness）”就是现实中最根本的存在。终极粒子存在于这个“空”之中，其周围会就会呈现出负电荷的特征。这就是最基本的电荷层，同时也是自旋的本原。这还意味着，宇宙中所有物质和反物质的数量必须相等。再者，终极粒子与电荷部分之间的相互作用遵循楞次定律。这就是惯性的本原。而二者的变化在逻辑上存在先后顺序，就必然会导致时滞。这就是波动的本原。3、在高密度粒子内部，相邻各终极粒子已经处于相互接触状态。依据迈斯纳效应，所有的负电荷只能附着在它们的表面而高速运动。这就是电荷层，每个高密度粒子只能拥有一个电荷层。4、高密度粒子位于导体结构中的某个位置，只是负责传递电荷，就是在微观层面上的超导状态。这意味着，凡是仅由两种核力（其本质是电磁力）所构成的粒子、实体乃至天体，它们自身几乎在所有的温度下都应该是超导体。5、第一种核力存在于高密度粒子的内部，已经相互接触的各终极粒子之间，存在着强大的斥力。同时，它们还受制于电荷层所产生的电磁约束力。这些强大的斥力，正是电磁辐射的本原。而以电荷层为主导的自旋，也就成为高密度粒子所具有的内禀性质。其结果是，以电荷层为界，内外的作用力达到了动态平衡。这就是德布罗意物质波的本原，其内在机理就像一场势均力敌的拔河比赛，双方的平衡点总是处于往复的摆动状态。6、第二种核力，其力度要小于前者。由于相邻各高密度粒子的电荷层之间存在共享部分，电场力与超导电磁力合成，也约束着一定程度的内部结合能。原子核的裂变或衰变则与此有关。7、在原子核内，胶子的主要成分是电荷。其所谓的捆绑功能，就是两种核力。而夸克只有一个电荷层，是由胶子中的电荷所构成。因此，夸克就是一个比较大的高密度粒子，其形状就像一堆树根，在不同的位置，有不同的自旋。至于中子或质子，其本身就是夸克存在

的两种形式。8、单一的电荷层对于那些同时来自于内外两个方面，且具有正电子特征的高密度粒子或实体，缺乏抵抗力。这为我们合理地控制并利用宇宙中最高质能比的核能，提供了可能。9、所谓的磁力线，其本质是电的终极粒子或由其所衍生的带电粒子流。而电磁辐射，应该是万物生长的本原。宇宙之演变，都是源自于这样一种微观物理现象，从量变到质变的结果。10、在地球的内部，每时每刻都在产生着大量的电磁辐射，这是我们全球变暖和地震发生的根源所在。其波长较短的能量主体部分转变为地热，只有波长相对较长的远红外部分穿过地壳，乃至辐射到太空。因此，可以通过卫星扫描，建立地壳随时间变化的动态远红外图谱。这样，既可以合理地利用地热资源，又有利于预防地震的发生。

关键词： 超导；电的终极粒子；湮灭；迈斯纳效应；电洞；空；电荷层；自旋

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