

Supposing everything in the universe consists of a special kind of fluid

Zhi-Quan Liu¹

¹*Institute of Particle Physics, Central China Normal University, Wuhan, 430079, China*

The origin of everything in the universe is one of the most fundamental questions in physics, the study of which is still inconclusive. This paper assumes that everything in the universe is made up of a fluid-like spacon, which is extremely tiny, has a very high speed and a certain momentum, and which makes up matter and space. The vacuum is an ideal fluid filled with spacons, and elementary particles are formed by the aggregation and vortex of spacons. Some particles are constantly vibrating at high speed, creating a constant expansion and contraction effect like a pulsating body, and in the vacuum ideal fluid the Coulomb and universal gravitation are formed through the remote interactions of hydrodynamic forces, thus a new explanation of the nature of charge and mass is given. The paper also deals with the structure and motion of electrons and photons, makes brief conjectures about the structure of other elementary particles, and concludes with some discussion of the structure of the universe and space-time.

I. ASSUMPTION

This paper is based on the most basic assumption that everything in the universe is made up of spacons, that matter is composed of spacons, the vacuum is also composed of spacons. The vacuum is filled with uniform and isotropic spacons without any voids, and the vacuum can be abstracted as a continuous ideal spacon fluid medium, which can be described by parameters in hydrodynamics. Spacon is very, very tiny, extremely fast and has a certain amount of momentum, similar to a fluid such as a gas molecule or a water molecule. While constituting a vacuum, the spacons coalesce into elementary particles by constantly colliding with each other and losing momentum in certain directions. The elementary particles are fluid vortex microclusters made up of a large number of spacons. To be precise, the author does not think that a spacon will always belong to an elementary particle without variation after it constitutes the elementary particle, just as the Euler reference system in fluid mechanics, each spacon only occupies a spatial point, the motion of the spatial point changes to form the elementary particle, and the spacon is constantly replaced, the newly added spacon gets the motion state of the previous spacon, thus ensuring the stability of the motion state of spatial point and the formation of stable elementary particles.

Spacons are also what make up space, in a vacuum spacons are homogeneous and isotropic, while in the vicinity of matter space is inhomogeneous and anisotropic, resulting from the different densities and states of motion of nearby spacons due to the influence of matter. In our current understanding, matter and vacuum are two concepts, whereas in this paper both matter and vacuum are considered to be made up of spacons, and matter moves in a vacuum like a fish made of water moves in water.

Spacon is not the traditional concept of “ether”, in which matter is understood to operate, but the ether does not constitute matter, nor is the part of space. However, spacon constitutes matter and space, and is the smallest unit of matter and space. At the same time matter is

part of space and the different forms of space constitute matter, the link between the two is the spacon, i.e. the spacon is the most fundamental constituent that forms everything in the universe.

The spacon is not a specific “matter” with a certain form, and we cannot even give it a mass, because we will redefine mass in the following. A spacon can only be considered as a movement, with a direction of motion and a certain momentum, a very small movement, whose speed can exceed the speed of light, and whose momentum cannot be described by the product of mass and speed, but by the product of a constant parameter and speed, $p = \kappa v$. It can also be considered that the spacon has a certain energy, which is also related to the speed of spacon. A spacon is a motion similar to a fluid molecule that forms the ontology of our current space, this means that space is a fluid composed of motions. As to what parent body the spacon is formed from, we cannot know what this parent body is, the spacon is only a motion within the parent body, and this motion forms our current space and matter, the parent body is unknowable. Just as the vibrations of the strings of a violin form the sound waves of the individual tones, the individual tones in turn form a piece of music. If the music had human cognitive capacity, it would recognise the individual tones as fundamental particles, but would never recognise the molecules of air as its parent, because the parent is a very different “thing”, not part of our universe, although it gives rise to our universe.

II. COULOMB FORCE AND CHARGE

Coulomb’s law is the fundamental law of electromagnetism, it applies to the microcosmic field, and in this paper an attempt is made to redefine charge and Coulomb force. According to the assumptions above, what make up the protons and electrons are the vortices of spacons in different motion forms. A large number of spacons are not stable as they revolve around the centre, the distance from the centre is constantly changing, but under the condition of conservation of total angular momen-

tum, a general equilibrium is formed, which means that the vortex boundary is constantly changing regularly, as if it were vibrating constantly. Whereas, in fact we know that protons and electrons etc. are constantly vibrating at high speed, and the direction of vibration is random, with equal chances of vibration in each direction at certain time intervals. This allows us to treat the protons and electrons as expanding and contracting rhythmically in the whole, which can be equated to a spherical pulsating body, as shown in Fig. 1.

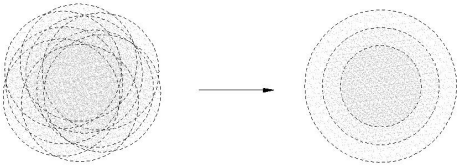


FIG. 1. The equivalent diagram of vibration.

We know that in hydrodynamics two spherical pulsating bodies in a fluid form a Bjerknes force [1], which we use as inspiration to redefine the Coulomb force and charge.

Taking the simplest example of the hydrogen atom, we know that in the general state all atoms and molecules are constantly vibrating, and that the protons and electrons in the hydrogen atom are also constantly vibrating at high speed, so we can treat the overall vibration of the proton as an approximate spherical pulsating blob. Of course the hydrogen atom is filled with a certain density of spacons like a fluid between the proton and electron. According to fluid mechanics, when the proton expands and contracts at a certain rhythm, the spacon fluid around it vibrates back and forth at the same rhythm. If the electron also vibrates with a rhythm close to the same, the proton and electron will be attracted to each other. Since the velocity of the spacon fluid is inversely proportional to the square of the distance in the vicinity of the proton and electron, just like the Bjerknes force, the attraction between the proton and electron is also inversely proportional to the square of the distance. By equating both proton and electron most simply as spherical pulsating bodies, the volume amplitude of the proton is A_1 , the vibration frequency is ω_1 , and the volume amplitude of the electron is A_2 , the vibration frequency is ω_2 , then it follows that the attraction between the proton and the electron as,

$$f = k \frac{\rho A_1 \omega_1 A_2 \omega_2}{r^2}, \quad (1)$$

Where k is a constant, ρ is the density of spacons within the hydrogen atom, and r is the radius of the hydrogen atom. ω_1 and ω_2 are almost equal, the proton and elec-

tron are at the maximum and minimum volumes at the same time.

The above equation shows that the magnitude of the attractive force f is proportional to the product of the volume amplitude and frequency of the proton and electron, if we treat the attractive force f as Coulomb force, we can redefine charge as,

$$q = A\omega, \quad (2)$$

That is, the charge can be defined as the product of the volume amplitude and frequency of the particle's vibration, which is an intrinsic property of the particle's own motion. It is important to note that the charge defined in the above equation is a generalised charge, where the charge of the proton and the charge of the electron cannot be determined to be exactly equal. While the charge in classical electromagnetism is the equivalent charge, and it is possible to calculate the electromagnetic force by simply adding up the charge effects of the proton and electron as a whole into 1 unit.

Of course the above equation is the simplest equivalent calculation, the vibration of proton and electron is very complex non-linear, the vibration frequency of proton and electron cannot be naturally the same rhythm, the reason is that the vibration of proton and electron make the influence of each other. If the vibration of proton be regarded as an active vibration source, which acts on the electron through the driving force generated by the spacon fluid, the electron produces forced vibrations. Under sustained action, the vibrations of electron and proton are close to each other in frequency to create an attractive force. As shown in Fig. 2, the proton and the electron are like two small balls connected with the spacon fluid acting as a rubber band, and the two balls are constantly vibrating and travelling around each other, which is the simple mechanical motion model of the hydrogen atom. The proton and the electron form a non-linear self-excited vibrational system, which is maintained by the constant energy inside and does not need to rely on energy from outside.

As for the repulsion between protons and protons, and between electrons and electrons, the reason is that the kinetic energy of their vibrations is matching and they cannot "capture" each other, and the rhythm of vibration between the two particles must be random and naturally different, so they can only repel each other, which is essentially the case with charge interactions of elementary particles. As for charge neutrality, when proton and electron form a system, the internal vibrations are neutralized and form a whole, which no longer shows such intense vibrations to the outside world, and we regard it as no charge. So a neutral particle either has an internal structure, or its overall structure is relatively stable or its vibration is very small, and it has no charge effect.

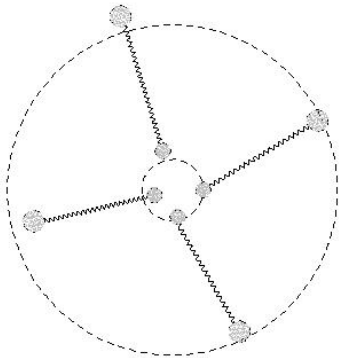


FIG. 2. The motion diagram of the interaction between proton and electron.

III. UNIVERSAL GRAVITATION AND MASS

From the previous section we considered that the Coulomb force is generated by the vibrations of the proton and electron in the hydrogen atom itself, and from common sense we know that the hydrogen atom is also constantly vibrating, like a spherical pulsating body. Two hydrogen atoms at a distance R from each other pulsating at the same rhythm also generate a certain force of interaction, which is the universal gravitation, interacting through the medium of a vacuum filled with spacons, as shown by the following equation,

$$F = K \frac{\rho_0 A_1 \omega_1 A_2 \omega_2}{R^2}, \quad (3)$$

where K is a constant, ρ_0 is the density of spacons in the vacuum, A_1 and A_2 is the volume amplitude of the hydrogen atom, ω_1 and ω_2 is the frequency of vibration of the hydrogen atom. Where A_1 and A_2 , ω_1 and ω_2 are nearly equal, the two hydrogen atoms are at their maximum and minimum volumes at the same time. The reason why two hydrogen atoms are attractive rather than repulsive is that we believe that the overall vibration of the hydrogen atom is more solidified when proton and electron form it, i.e. the two hydrogen atoms converge in their vibrational frequencies and vibrate in the same rhythm, so they can only be attractive, which is why there is no universal repulsion.

Similarly we can define the mass of a hydrogen atom as,

$$m = A\omega, \quad (4)$$

That is, mass can be defined as the product of the volume amplitude and frequency of the hydrogen atom's vibration. Mass and charge are essentially the same, they characterise the properties of vibration.

When there are more atoms and molecules combined together to form large clumps of matter, we simply superimpose the product of their vibrational frequencies and

amplitudes and take their final total effect, then the total mass can be defined as,

$$M = \sum A\omega. \quad (5)$$

Let us rewrite the formula for universal gravitation under macroscopic low velocity conditions,

$$F = K \frac{\rho_0 \sum A\omega \sum A'\omega'}{R^2}, \quad (6)$$

With the above formula we know that under the old formula for universal gravitation we thought that an increase in mass was a direct increase in the number of more atoms and molecules, then with the improved formula for universal gravitation we know that the increase in mass is an increase in the superimposed vibrational effect and not simply an increase in the number of atoms and molecules, although of course an increase in the number of atoms and molecules will certainly increase the total vibrational effect. Adding a sentence, from here perhaps we can find out the nature of dark matter.

We know that the speed of an object increases its mass, which can be fully explained by the theory of fluid mechanics in which the motion of an object in a fluid produces additional mass. The motion of an object necessarily drives the motion of the surrounding spacons, and the dynamics that make the spacons move necessarily act back on the object. When an object moves faster, it collides more violently with the surrounding spacons, it vibrates more violently, its frequency and amplitude increase, and its mass increases. Similarly, when a charged particle accelerates, its frequency and amplitude of vibration increase, and its charge and mass will increase, which is somewhat appalling. How can it be explained? Let's take the electron as an example and discuss it in depth.

IV. THE STRUCTURE AND MOTION OF ELECTRONS

In the first section, we assumed that fluid-like spacons make up the entire universe of everything, and of course electron is also made up of spacons. The authors argue that the vacuum of the universe is filled with spacons of different speeds and momentum, like air molecules diffusing throughout space, moving in a variety of directions, thus making space uniform and isotropic. At the same time, spacons are in constant and violent collisions, in which some of them lose momentum in one direction and eventually grow in size, forming a fluid vortex of microclusters, which is the nature of the general structure of elementary particles. As an ideal fluid filled with spacons, the energy in a certain volume of cosmic space should be balanced, but why does it lose some energy, the essence of the problem lies in the expansion of the universe, which is like a "bubble" full of spacons. During the expansion process, the spacons at the boundary

lose energy and become low-energy, low-velocity spacons, which coalesce in the process of continuous collisions, thus creating matter. Just as water vapour encounters a heavier “nucleus”, it loses energy in collisions and is eventually trapped together to form a water droplet.

The electron is a vortex microcluster containing a large number of spacons, the central spacons are so dense that the collisions are very intense that we cannot use temperature as a parameter to describe the intensity of the collisions within it, because the definition of temperature does not apply to the internal structure of the electron. The spacons within the electron are constantly spinning around the centre at high speed, the more dense spacons are in the inner layers, the outer spacons are spinning around the “inner core” at high speed and more active, the electronic boundary is constantly changing, creating a constant expansion and contraction effect, which generates charge. The electron as a whole maintains conservation of energy and angular momentum. The structure of a static electron is different from that of a moving electron, a static electron is free from external influences and all outer spacons are rotating in one direction, closer to an ellipsoidal shape, the structure of which is imagined in Fig. 3.

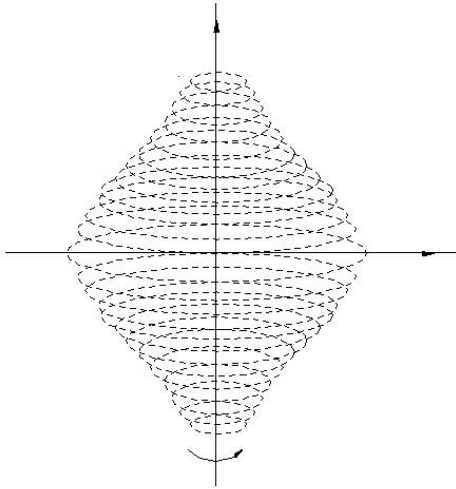


FIG. 3. The diagram of a static electron.

The shape of a moving electron is variable, the electron will become more “flattened” in the direction of motion by collisions with external spacons, like a “dish”, and the faster it moves the more “flattened” it becomes, which is the so-called relativistic effect. The structure is imagined in Fig. 4.

When an electron is subjected to external influences, such as the combination of a proton forms a hydrogen atom, the overall structure of the electron changes and its shape is distorted, but this does not affect the existence of the electron as an independent whole. This means that the essence of what makes an electron, or a

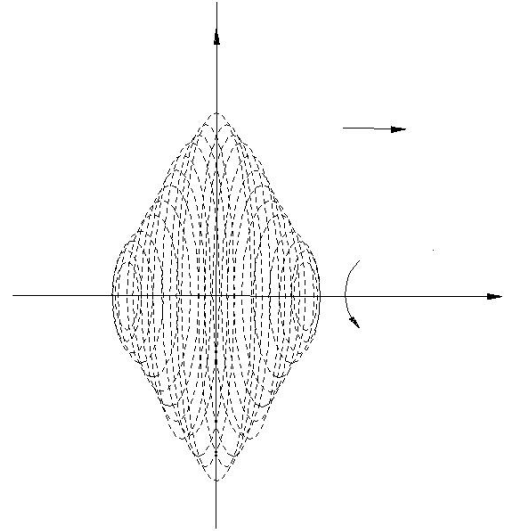


FIG. 4. The diagram of a moving electron.

different elementary particle, is that they are all made up of spacons, but different numbers of spacons and the state of motion and energy of these spacons determine the formation of different elementary particles, which exhibit different properties.

Furthermore, we cannot simply think that the electron is small, but in fact the number of spacons inside an electron is enormous, and the electron’s scale is huge in relation to the spacons, which means that the spacons are extremely tiny. If we look at an electron as if it were an earth, it is well understood. It is only due to the intense collisions and angular momentum conservation of the spacons inside the electron that its boundaries are constantly changing, as if it is expanding and contracting, just like a self-excited vibrating system that does not lose energy, so the electron is stable and long-lived. When an electron moves in a vacuum, it does not lose energy because the vacuum is an ideal fluid made up of spacons. By the way, if the vacuum is indeed an ideal fluid made up of spacons, we know from fluid mechanics that an object moving in an ideal fluid at constant speed in a straight line has zero resistance, which is highly consistent with Newton’s first law.

The electron not only has its own form of motion change, but as a whole, its trajectory is also of interest to us. We know that electron double-slit diffraction experiments are the basis on which quantum mechanics is built, thus giving rise to complex and incomprehensible probability waves. However, if we simplify the complexity by thinking of the electron as moving forward in a spiral, then double-slit diffraction can also occur. In general we think of electrons as moving in a straight line, but that is our macroscopic view. The electron cannot move in a straight line relative to its own scale at the microscopic level. If the direction of advance of the electron is the

X-direction, then the electron still has momentum in the Y- and Z-directions, resulting in a spiral forward motion. This is something we can take inspiration from the electron cloud diagram of the hydrogen atom, as shown in Fig. 5.

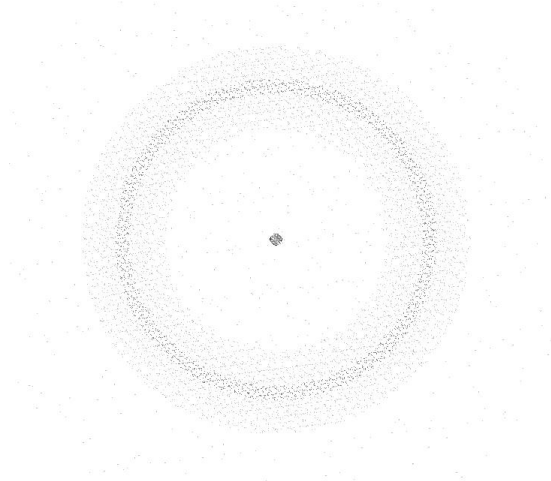


FIG. 5. The electron cloud diagram of the hydrogen atom.

The electron moves very fast around the proton in a circular motion, and its distribution within the hydrogen atom is probabilistic, and we call the places where it appears with the greatest probability its orbit. But no matter how fast the electron is going, we can always hypothetically connect its trajectory and we find that the electron is spiraling relative to its orbit, as shown in Fig. 6.

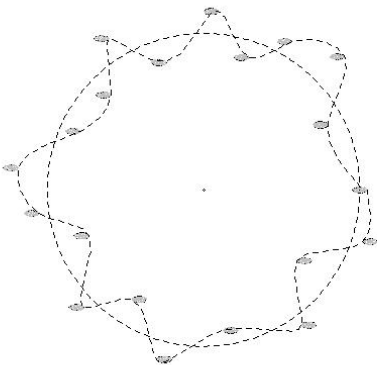


FIG. 6. The slow motion schematic of an electron.

This means that the electron not only has angular momentum relative to the motion of the proton, but also has angular momentum relative to the centre of its own orbit. If we straighten its orbit, in general, the electron

has a conservation of angular momentum around the centre line of the orbit, so we can guess the trajectory of the electron as follows, like a bubble with spiraling forward, constantly spinning and periodically expanding and contracting, as shown in Fig. 7.

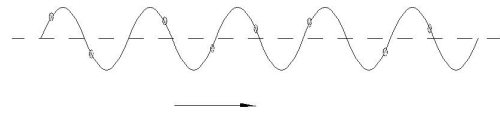


FIG. 7. The enlarged diagram of an electron motion trajectory.

The circular motion of the electron in the Y-Z direction in the diagram above can be broken down into two vibrations in the Y and Z directions, so it is not surprising that double slit diffraction occurs, which satisfies what is known in quantum mechanics as the fluctuating nature of the electron. We know that all microscopic particles have fluctuations, which are essentially the same as those of electrons. This is caused by the fact that the spacons forming elementary particles lose momentum in some directions during violent collisions and form vortices that gather, thus creating an overall momentum dominance in a particular direction, i.e. the elementary particles or matter are formed due to an uneven distribution of spacons' momentum. It can also be said that the three-dimensional motion of the spacons within the electron constitutes the electron body, and that the large number of spacons forming the electron as a whole creates another three-dimensional motion, thus constituting the state of motion of the electron. All elementary particles as a whole have a state of motion similar to that of the electron.

We need to add a discussion of the mass and charge of the electron. If we take the expansion and contraction effects of the electron's own spacon vortex to be the charge, then the circular motion of the electron as a whole with respect to the centre of the orbit of motion, whose radius is also constantly changing, also produces expansion and contraction effects that can be taken as the mass of the electron. When the electron moves at high speed, its collisions with surrounding spacons are more intense, the electron's own internal vibrations and the overall vibrations are more intense, and its charge and mass are both increasing, obviously it is difficult for us to distinguish between these two effects.

Finally, we know that the directional motion of charge produces a magnetic field, from the perspective of hydrodynamics, the electron as a high-speed spin vortex due to the velocity gradient in the lateral direction, will inevitably drive the surrounding spacons to move, the specific directional motion of the spacons in the vacuum

forms a magnetic field, which is the essence of magnetic field generation. The motion of electrons generates a magnetic field as shown in Fig. 8.

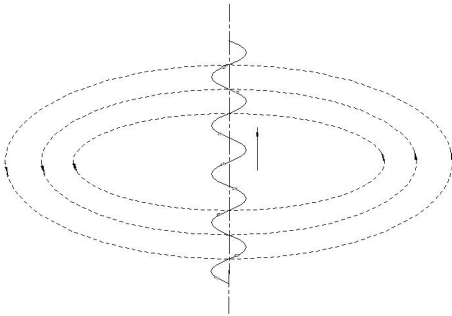


FIG. 8. The formation diagram of a magnetic field.

V. THE STRUCTURE AND MOTION OF PHOTONS

We know from physics that electron and photon are closely related, and that electron can emit photon when it is excited, so we can think of photon as being related to the motion of electron in a spacon fluid, and that photon is like “ripples” created by the motion of electron in the spacon fluid. Taking into account the various properties of light waves, we can consider the photon to be a statical spacon vortex, the structure of a photon is similar to that of an electron, the only difference is that the photon’s own spacons vortex and overall motion are very stable, no expansion or contraction effects, so the photon has no mass and charge.

A photon as a stable vortex in a vacuum does not mean that a spacon is always part of a photon, it only means that a stable vortex is propagating through a spacon fluid. We know that light waves can pass through the interior of some objects, which means that a spacon stable vortex can propagate through the interior space of a dense object, the object can be equivalently thought of as a fluid with a higher density of spacons.

The motion trajectory of a photon is identical with that of an electron, we can see that this form of motion of the photon can satisfy many properties of light waves. A large number of photons make up a light wave, and when the light wave is transmitted from a vacuum into a translucent substance it is refracted, and we can think of the refraction as a result of a change in the density of the spacons, which means that the spatial structure and density of the translucent matter is different from the vacuum, so that the trajectory of the light wave changes. Therefore, corresponding to general relativity, the momentum-energy tensor of matter bends space, this can be interpreted as a change in the density and state

of motion of the spacons around the matter due to the presence of the matter, which of course can be interpreted as a bending of space, and it is not surprising that the light changes direction as it passes through. The effect of matter on the surrounding spacons can be analysed in a hydrodynamic way, just as the distribution and movement of water molecules around a cold iron can be studied when the iron is placed in warm water.

We know that a photon has no mass or charge and can be considered as a stable vortex with no change in the radius of its overall spiral advance and no change in its personal boundary, just like a vortex propagates through the water. We know from fluid mechanics that vortices require boundary connections, and the speed of light is regarded as the speed at which the photon vortex passes to the boundary, so we have to wonder whether the speed of light is the limit of our present perception, and that the speed of a spacon may be superluminal, or even much greater than the speed of light. Also referring to fluid mechanics, we think that the speed of light is closely related to the density of spacons in a vacuum, and when the density of spacons in a vacuum changes, the speed of light will change, instead of being a constant. Then when the universe is expanding, the speed of light in a vacuum will change.

We also need to briefly discuss electromagnetic waves, when a large number of stable vortices made up of spacons move like electrons, their own spin form the electric vector E and the overall spiral motion form the magnetic vector B . It can also accord with classical electromagnetism.

VI. PROTONS AND THE STANDARD MODEL

According to the Standard Model, we know that the proton is composed of 3 quarks, and obviously the quark is also composed of spacons, different quarks are different numbers of spacons microcluster vortices with different spacons density, angular momentum, etc. Their vibrations are very complex non-linear vibrations, and we find the overall significant vibration characteristics from their complex non-linear vibrations, and approximate them by periodic vibrations instead. This gives us the frequency and amplitude of its periodic vibration, and thus its equivalent charge, so it is not at all surprising that the quark should carry $1/3$ or $2/3$ charge. However, it is questionable whether it is necessary and correct to assign the charge to a quark, and whether the combined vibrations of three quarks, which together form the charge of a proton, can simply be assigned a $1/3$ or $2/3$ charge to each quark. Since the electromagnetic force is already insignificant under strong interactions, artificially assigning a charge to a quark would be an added burden. Of course, if a quark can exist on its own, and its overall structure and motion is similar to that of an electron, it is possible to give it charge and mass. Even more, we are only giving quarks a charge to make our Standard Model

Theory more self-consistent.

We know that the nuclear force is independent of charge, meaning that the quark-quark interaction is not dominated by the vibration of the quark itself, so how does the strong interaction arise? Referring to hydrodynamics, we can think of a quark as a vortex microcluster, where 3 quarks form a stable sphere by exchanging the number of spacons, momentum and angular momentum, just as 3 vortices are combined in hydrodynamics, this is the structure of the proton. What about other hadrons, such as the π meson, which is made up of 2 quarks, its structure is like a double typhoon, its internal structure and interactions are very complex and we will not delve into it here.

The trajectory of the proton is similar to that of the electron, and it can be said that all microscopic particles have a trajectory similar to that of the electron, which allows them to have particle properties while being fluctuating.

Let us discuss the other elementary particles of the Standard Model, which in principle consist of spacons, all of which have a similar structure and motion to that of the electron and photon, and which can be described in the Spacon Theory, different spacons microcluster vortices form different elementary particles. The elementary particles to which we give mass and charge are similar to electrons and have a constant expansion and contraction effect, while the elementary particles without mass and charge are similar to photons and stably moving. We know that neutrinos oscillate and may carry tiny masses, and it is possible that neutrinos, which are relatively stable in their overall motion, have masses because they are “weak”, i.e. they carry relatively little energy and are susceptible to the external influence and vibrate as a whole. In general, it is very complicated to explain the Standard Model in terms of the Spacon Theory discussed in this paper. For example, it is already very complicated to discuss the exchange of momentum and angular momentum between two vortices in terms of hydrodynamics, so we will not discuss it too much here, but just qualitatively, we don't need to go that far all at once. However, we can say with certainty that the Standard Model is in need of modification and improvement by the Spacon Theory.

VII. ABOUT THE UNIVERSE

Although we made assumptions and discussed the basic composition of the universe in the first section, here we make a further brief discussion, because there are so many problems with the universe, and we try to see if we can explain them briefly in terms of the Spacon Theory.

According to the theory of spacon in this paper, the vacuum is filled with infinite spacons, which are very tiny, have a very high speed and a certain momentum, and move in a haphazard direction, making the vacuum uniform and isotropic. The spacons collide continuously, and

some of them lose momentum in certain directions and slowly coalesce into a vortex, which is the elementary particle. The elementary particles exchange the number of spacons, their momentum and angular momentum or get through the remote interactions of hydrodynamic forces to form various matters and interactions, thus forming our current universe. Treating the cosmic vacuum as an ideal fluid and the various matters as various vortices, we can describe everything in the universe in terms of the many parameters in hydrodynamics and of course try to do various calculations using the basic equations of hydrodynamics. Is this really the case? It is worth trying to calculate, and the research in this paper does not want to do so much yet. This paper will only briefly discuss a few basic issues that exist in the current study of the universe.

The first is the problem of the expansion of the universe. We know that the universe is expanding at an accelerated rate, and that the vast majority of the universe consists of a vacuum filled with spacons of a certain momentum, which indicates that the spacons are expanding, and that the intensity of the spacons' collisions determines the size of the universe, the density of the spacons is getting lesser and the pressure is getting smaller. In short, the expansion of the universe is like a mass of hot gas spreading. Then as the elementary particles particles of the vortex, if the density and pressure of spacons as an external ideal fluid decreases, the vortex is also expanding due to the change in density of spacons at the edge, which means that matter is also expanding along with the universe, but of course this expansion is very small, because the density of spacons in the vacuum around matter changes very little.

Secondly, the question of dark energy and dark matter. Dark energy can be thought of as the energy and momentum of the spacons in the vacuum, which is driving the expansion of the universe. The expansion of the universe is due to the spacons at the edge of the universe interacting with the other universe, or spreading themselves out, just like an object expanding with heat. The lower energy spacons are produced due to losing kinetic energy in the process, then the matters come into being. Dark matter has a gravitational effect and does not emit light, it may be an early form of matter formed by the condensation of spacons, which are much less dense than ordinary matter, just like diffuse smoke. Dark matter also are constantly vibrating to capture the lower energy spacons.

Third, the problem of black holes, which are real and have been studied quite extensively. For the Spacon Theory in this paper, a black hole is like a vortex of extremely high spacons density, like a powerful tornado, whose structure is similar to that of an electron, or an electron is a small tornado. The ability of a black hole to swallow everything comes from its powerful vortex attraction.

Fourth, the origin of the universe and what lies beyond its borders. In the first section the author talks about that the spacon is just a motion and we cannot

know what the parent body is, and the parent body just is the origin of our universe. The author does not think that our current universe was formed due to the expansion of the initially extremely dense mass of spacons, it would be too old-fashioned. As to what lies beyond the boundaries of the universe, the author argues that since the universe is expanding, i.e., spacons are expanding, this suggests that spacons are interacting with other universes at the boundaries of the current universe, and that other universes may also be made up of motions like spacons with relatively low density and pressure. Or maybe there were no other universes in the first place, and the spacons that make up our universe are spreading as a motion, spreading through the universe's parent body, and that's all.

VIII. ABOUT SPACE AND TIME

Since this paper deals with fundamental problems of physics, it is necessary to conclude here with a discussion of space-time. With regard to space, the author assume that spacons are the essence of space, and that space no longer exists apart from matter, the space and matter are inherently one, that space can have parameters such as density and pressure like a fluid, and that matter is coalesced by spacons vortices. According to general relativity, matter has an momentum-energy tensor that causes the curvature of the space around it, which can be fully described by the change in the motion of the spacon fluid around the matter, and the curvature of space is caused by the change in the density and motion of the spacons. The bending of light as it passes near the Sun can be explained by the change in the distribution of surrounding spacons due to solar matter, which can be approximated by the spatial refractive index, just as light is refracted when it enters glass, and we can think of the interior space of glass as being different to the vacuum, which is not fundamentally different from the bending of light near the Sun. In a way, we can transform space and make new world simply by changing the density and motion of spacons, we can transform the vacuum, we can probe the nature of dark matter and make it. In short we can reconstruct new space and make new matter, we can create new universe.

What is time? It is indeed confusing. There has been

a lot of discussion about it, and the author does not want to complicate the issue of time further. Time is simply a record of physical processes that have taken place in a certain space, forming an image within our human brain consciousness that we believe it exists. Does the universe actually need time as a parameter? No, it is we who need it. The universe only changes according to its own internal laws, and this change is the constant interactions of spacons. When we come to study the process of change, we need to define the speed of interaction, and we need to measure it in terms of time. The speed of interaction in a given space is directly related to the nature of spacons, which means that time can be described by parameters describing the properties of spacons, and time is determined by the spacons. Different spaces have different spacon properties and different times, space and time are linked together. When two different spaces are compared, there is a bending of space and a slowing down or speeding up of time, it can be calculated using the parameters describing the spacon properties, in the same way that time differs in relativity due to differences in the speed of objects. In short, time is a property of a certain space, and its transformation can be calculated quantitatively.

IX. SUMMARY

Finally I can conclude, this paper has discussed so many fantastic ideas that the author thinks himself completely going crazy, let me stick to the final summary. The paper assumes that a large number of very tiny spacons make up everything in the universe, that the whole universe is like a fluid, that elementary particle is a vortex of different properties, and that the vacuum is filled with spacons. Coulomb force and universal gravitation are then explained in terms of knowledge of fluid mechanics, charge and mass are redefined. Conjectures are also made about the motion state and structure of particle such as electrons, photons and protons, and finally an attempt is made to explain fundamental cosmic questions and to state some views on the nature of space-time. The author was only occasionally inspired to come up with these strange ideas while studying fluid mechanics. The foundations and calculations involved in this paper can be borrowed from the general knowledge of fluid mechanics and are not complicated, and that is all.

[1] Bjerknæs V F K, Fields of Force, Columbia University Press(1906).