

# The Structure and Active Functions of Elementary Particles<sup>(7)</sup>

– All elementary particles vibrate autonomously –

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## Abstract

1. Space is composed of a matrix of substantial elements. In this condition, elementary particles cannot possess a solid structure.

2. All elementary particles endlessly repeats its autonomous vibration of contraction and expansion without consuming much energy. Thus, elementary particles with autonomous vibration can permanently maintain the system of particle model.

3. The autonomous vibration of elementary particles acts as an elastic force at the speed of light. These elementary particles can freely absorb and release light wave energy which is as fast as light.

4. Elementary particles with autonomous vibration can endlessly produce an energy field, and this energy field provides conditions which allows the free exercise of other elementary particles. In other words, elementary particles simultaneously have a production function and a response function in the energy field.

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## I. Introduction

All objects are composed of atoms, and at the center of atoms, protons and neutrons exist. In addition, electrons are dispersed at the epidermal portions of the atom and these electrons have chemical properties. In classical physics, protons, neutrons, and electrons are called elementary particles, and elementary particles are known to have the smallest particle unit.

In actual phenomena, elementary particles endlessly(permanently) produces an electric field, nuclear field, and gravitational field, and these provide causal conditions for other elementary particles to be in motion. Therefore, elementary particles must simultaneously have a production and response function on electric field. It is assumed that dynamic active energy exists at the interior of elementary particles.

Active energy must be operated presently. Inertia may result from the reaction of active energy which is currently operated. The inertia of elementary particles is controlled by the gravitational field and reacts in free fall. Moreover, the active energy of elementary particles works at the speed of light. Here, elementary particles with active energy at the speed of light, can instantly absorb or release light wave energy which is as fast as light.

In the body of the paper, a new paradigm of elementary particles will be proposed. In addition, this paper will explain how the shape of elementary particles can be maintained permanently and how the conditions wherein the active energy at the speed of light can be preserved permanently in the interior of elementary particles. Lastly, it will discuss the process where magnetic field, nuclear field, and gravitational field are infinitely produced due to the active energy of elementary particles.

## II. Body

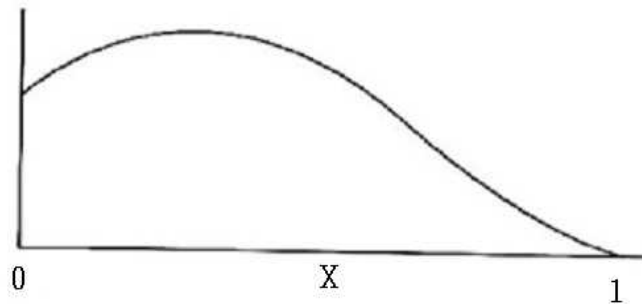
### 1. Fictional Quark Theory

The quark theory in modern physics perceived that quarks have a solid state and have the smallest unit of particles. The condition of the quark

theory is only used for explaining the structure of quarks and does not apply and extend to any other areas. The fact that the quark theory has a limited purpose suggests that the perception of quark theory has been distorted all this time.

If protons(neutrons) were composed of 3 quarks like what the quark theory states, the generation process must have a sequential transformation stage in the form of “light wave  $\rightarrow$  3 quarks  $\rightarrow$  protons”. Moreover, the destruction process must have a sequential transformation stage in the form of “protons  $\rightarrow$  3 quarks  $\rightarrow$  light wave”. However, in the actual phenomenon of the formation and destruction, quarks have unnecessary roles. This logic signifies that protons are the smallest particles.

Hofstadter, an American physicist conducted a collision experiment of protons and electrons at the speed of light, at Stanford Linear Accelerator Center(SLAC) in order to determine the charge distribution inside the nucleus. Here, elastically scattered electrons were generated as shown in Figure 1.



**Figure 1.** The elastic scattering generated from the collision of protons and electrons

In Figure 1, 1 of  $X$  axis refer to the elasticity where only the direction of the motion changes at the collision of protons and electrons. Moreover, 0 of  $X$  axis refer to the inelasticity where the electrons get absorbed or attached to the protons. The characteristics of the distribution curve

expressed at the illustration in Figure 1 is that it has a Bjorken's scaling. If the kinetic energy of the colliding electron would be increased or decreased at scaling property, the distribution curve would be reduced or enlarged with a similar shape.

Like the meaning of the distribution curve in Figure 1, the elasticity of protons increases or decreases variably. The increasing and decreasing effect of elasticity can be interpreted with the associative law of quarks([superstring interaction](#)) which states that the association weakens as the reaction distance gets near. However, the associative law of quarks only reflects the local collision of electrons with quarks while neglecting the collective collision of electrons with protons.

On the other hand, Feynman of US interpreted the distribution curve in Figure 1 in the perspective of parton theory. In the parton model, protons are composed of several partons and every parton has a different elastic force. One example is the illustration in Figure 1 where 1 of  $X$  axis refers to the elasticity of a big parton and 0 of  $X$  axis refers to the elasticity of a small parton. However, the interior of protons cannot accommodate several partons, and the existence of partons have not been verified through experiments.

A proton is made up of 3 quarks in the standard model of elementary particle physics. However, the electrons of Lepton do not possess a quark([or a parton](#)). Therefore, at the experimental collision of two electrons, if a distribution curve as shown in Figure 1 were to form, the theory of quark and the theory of parton should be discarded. This is because the distribution curve of Figure 1 proves that it is not generated with the role of quarks.

On the other hand, when two protons at the speed of light collide in full-face, the elements of the two protons([component, mass](#)) will break up into several fragments. Here, the fragments of protons are not scattered in

every direction, rather, a direction of motion called jet, is formed. This result means that a solid quark does not exist in the interior of the proton. In other words, the elements of protons are dispersed at a uniform density. Therefore, a proton is a single substance, and is presumed to be the smallest unit of particles.

## 2. Evidences for a better understanding of elementary particles

As discussed earlier in the “Elements in Space and Condition for the Existence of Light Waves”, space possesses an original spatial zone, has an absolute coordinate system, and is composed of the matrix of substantial elements. Likewise, in a space composed of a matrix of substantial elements, elementary particles (or quarks) with solid state just like sand particles cannot exist. Therefore, a new model which accepts the matrix of substantial elements needs to be adopted. <sup>[6]</sup>

<<http://batangs9.com/E-6.pdf>>

All physical phenomena are manifested by the roles of elementary particles and the characteristic of an elementary particle is that it acts as a causal function of all physical phenomena. Therefore, all operational properties of physical phenomena must be interpreted in terms of elementary particle units. However, the special theory of relativity of Einstein interprets the operational properties in the perspective of the material unit.

Although the special theory of relativity conveniently uses the function of mass, the value of mass has a material unit. Moreover, the material unit does not reflect the detailed functions and roles at the unit of an elementary particle. The special theory of relativity originated from the Newtonian mechanics in classical physics.

The mass of a material unit having the microscopic functions of elementary particles is utilized as a convenient condition with the

transforming structure of the gravitational field in the general theory of relativity in terms of time and space. Moreover, the explanation of the general theory of relativity which uses mass as material unit, is very simple just like the Newtonian mechanics in classical physics. However, the sequential process and microscopic effects at the unit of elementary particles cannot be explained in meticulous detail with the general theory of relativity.

When a very strong light wave energy acts on the matrix of space, the light energy can be converted into vibration energy in a static state. Furthermore, the vibration energy in the static state is preserved permanently, and an independent entity is formed through the retention of vibration energy. This would mean a formation(emergence) of an “**elementary particle**” with a new independent entity.

The form of an elementary particle is only preserved through the role of vibration energy. Therefore, in order to destroy the shape of an elementary particle, an external force stronger than the vibration energy is needed. The vibration energy in the static state at the interior of an elementary particle serves as the current movement. Here, the functions of vibration energy which acts in the current movement can be mistaken as the superstring in the superstring theory.

The vibration energy of elementary particles infinitely produces different kinds of energy fields(gravitational field, electric field, and nuclear field) and these fields are in a state of spatialization. Furthermore, the energy field in the state of spatialization provides conditions wherein it can autonomously be in motion at the vibration energy of other elementary particles. The kinetic effect formed here does not reflect the mutual relationship between elementary particle A and B, but reflects the contact of elementary particles and the energy field. In other words, the energy field of spatialization

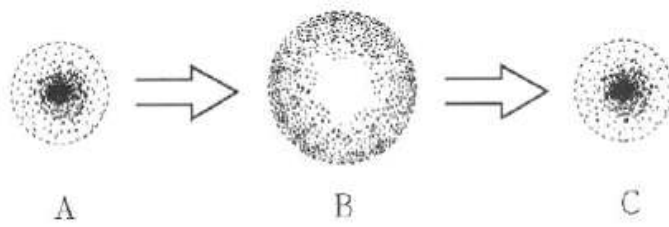
remains at its position but the elementary particles having autonomous vibration stay in motion.

### 3. Structure and Properties of Elementary Particles

The vibration energy in a static state currently acts at the interior of elementary particles. The vibration energy in the static state is permanently preserved through the repeated process of contraction and expansion. In other words, the volume of elementary particles repeats contraction and expansion. The repeated contraction and expansion in the volume of elementary particles will hereby be called “**autonomous vibration**” (self-oscillation) of elementary particles for convenience.<sup>[3]</sup>

The form of elementary particles are preserved by the “**autonomous vibration**” of contraction and expansion. In other words, the form of elementary particles refers to the clusters of vibration energy. Moreover, the vibration energy of elementary particles always acts at the speed of light. This is because the vibration energy of elementary particles uses the substantial elements of the matrix as its medium of existence and the property of the matrix possesses an elasticity at the speed of light.

The process in which all elementary particles infinitely repeats their autonomous vibration (self-oscillation) of contraction and expansion can be easily understood through Figure 2. All elementary particles have a very small diameter and a high internal pressure as shown in Figure 2 *A*. Elementary particles with this condition start expanding at the speed of light due to the reaction of high internal pressure. An elementary particle that has completely expanded simultaneously has a low vacuum force at the center and a high pressure at the border just like in Figure 2 *B*. Therefore, the elementary particle starts contracting inwardly just like in Figure 2 *C*, and an elementary particle that has completely contracted reverts to its original small volume in Figure 2 *A*.



**Figure 2.** The autonomous vibration process of the volume of elementary particles

When the vibration energy of elementary particles at the speed of light is divided at the diameter, the frequency of vibration is attained. If the diameter of the proton is assumed to be  $10^{-15} m$ , and the vibration energy at the speed of light is assumed at  $3 \times 10^8 m/sec$ , the frequency of vibration  $n$  is expressed into  $n = \frac{3 \times 10^8}{10^{-15}} = 3 \times 10^{23}$ . However, the frequency of vibration of  $3 \times 10^{23}$  can hardly be verified through experiments.

All reaction of contraction energy at the interior of elementary particles can be converted into expansion energy, and all reaction of expansion energy can be converted into contraction energy. Therefore, the vibration energy is not damaged at all, and the initial volume can be preserved permanently. This kind of effect is compared to the identical context of superconductivity or the operation of the perpetual motion machine and does not violate the law of conservation of energy.

Although all vibration energy in the static state is currently acting at the interior of elementary particles, a barrier or a container(plate) which can trap the static vibration energy does not exist. In other words, the volume of elementary particles does not have a structural limiting membrane and the volume and diameter of elementary particles are transformed at intervals. Here, the diameter of elementary particles refers to the working range of the vibration energy and cannot be expressed with a distinct value.

Elementary particles have low elasticity in their expanded state in the



process of autonomous vibration while elementary particles in their contracted state has high elasticity. In addition, the density(elasticity) of vibration energy in the contraction process increases, while it decreases at intervals in the expansion process. Likewise, the periodical change in the density of elasticity and the vibration energy has a distribution curve as shown in Figure 1.

The diameter of heavy elementary particles like protons can be measured within a certain extent. However, the diameter of light particles like electrons cannot be measured clearly yet. The reason behind this is that the volume and diameter of an electron changes regularly.

The autonomous vibration of elementary particles can be easily understood through the following effects. In other words, neutrons which have a slow speed(cold) bounce quickly around the nucleus. This effect can be interpreted that a part of the expansion energy which comprises the proton was delivered to neutrons. However, when a part of the contraction energy gets transferred to neutrons, the speed of motion of neutrons is reduced even more.

All elementary particles(electrons) autonomously vibrates, and their diameter, volume, charge, particle density, and elasticity are transformed regularly. Moreover, when the elasticity of elementary particles changes regularly, their status and function may have an uncertain range. Thus, the location and quantity of motion of elementary particles are not clearly expressed just as in the Uncertainty Principle of Heisenberg. Here, the range of uncertainty of elementary particles in motion refer to the displacement in motion of vibration energy.

If space is composed of the substantial elements of the matrix, the matrix of space is expected to interfere with the motion of the elementary particles. However, vibration energy which form the shape(cluster) of elementary particles, uses the matrix of space as a medium and it changes with the replacement(motion) of the matrix. In other words, the matrix which the vibration energy of elementary particles uses as a medium is replaced

with the matrix of space as large as the displacement of motion. Therefore, the matrix of space does not interfere with the motion of elementary particles.

The vibration energy in the static state which acts at the interior of elementary particles can permanently preserve external kinetic energy. In addition, elementary particles which possesses external kinetic energy infinitely performs inertia at a uniform velocity along with the replacement process of the matrix. The condition and process where the inertia of elementary particles occur will be explained in further detail on the next thesis(Title: The Active Functions of Elementary Particles and the Principle of Motion-13).

#### 4. The Basic Interactions of Elementary Particles

All vibration energy in the static state inside the elementary particles is currently at work. Moreover, the reaction of the vibration energy towards the outer space is expressed in inertia. In other words, the size of the vibration energy determines the magnitude of the force of inertia. Therefore, the vibration energy of elementary particles should be directly proportional to the force of inertia.

The vibration energy of elementary particles exists using the matrix(substantial elements) as the medium. The vibration energy and the matrix of space is mutually dependent, and does not have a homogeneity of the elements. In other words, the matrix is not converted into energy, and energy is not converted into matrix. Therefore, the two must be dealt with independently.

Classical physics perceived that the magnitude of inertial force reflects the mass of material element. However, inertial force only occurs with the role of vibration energy and elementary particles never had a mass with material elements from the start. Otherwise stated, mass and Higgs boson are fictional components that do not exist. This is because the inertial force reflected through mass means a mechanical function which works at the present.<sup>[3]</sup>

On the other hand, the equivalence principle ( $E=mc^2$ ) in the special theory of relativity compared energy and mass at an equal value and argued the interchangeable transformation of energy and mass. Here, energy and mass can be converted into each other interchangeably. Furthermore, the light wave emitted at the destruction of elementary particles support the equivalence principle in the special theory of relativity.

However, the effect wherein elementary particles releases light wave energy during the destruction process was transformed from the vibration energy in the static state existing originally at the interior of elementary particles. This effect may be misunderstood as light wave energy emerging from the transformation of mass. Simply stated, the equivalence principle is a misinterpretation of the relationship between mass and energy.

The vibration energy in the static state acts with electricity at the speed of light inside elementary particles. The vibration with the speed of light and the light wave energy at the speed of light can be functionally linked. Thus, light wave energy can agreeably resonate with vibration energy and elementary particles (electrons) in autonomous vibration can freely absorb and release light wave energy which has the speed of light.

Elementary particles in autonomous vibration uses the matrix of space as a medium for replacement of the volume. The motion of elementary particles is performed as a displacement of vibration energy. Here, the matrix of elementary particles in motion is replaced with the amount of matrix of space as great as the displacement of motion, and this replacement is done through the elastic force at the speed of light. This is because the matrix of space which uses elementary particles in motion attains an elastic force with the speed of light.

When elementary particles in autonomous vibration work for the replacement of the medium, the velocity of elementary particles ( $V$ ) is controlled with the rate limit of the speed of light ( $C$ ). Therefore, in the

process of representing the kinetic effect of elementary particles, general velocity ( $V$ ) and speed of light ( $C$ ) should be reflected simultaneously. Likewise, the controlling effect of the speed of light which elementary particles contain can be expressed as the “**absolute ground factor**” in the “**theory of absoluteness**” as explained in the previously introduced thesis (Flaw in the Special Theory of Relativity and Formulation of the Theory of Absoluteness).<sup>[3]</sup>

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The “**absolute batangs factor**” suggested by the theory of absoluteness proposed by the author was formed in the identical form of the “**Lorentz coordinate transformation**”. However, the “**absolute batangs factor**” and “**Lorentz coordinate transformation**” have entirely different process of derivation and have completely distinct meaning in terms of physics.

All elementary particles in autonomous vibration have an activation function. Therefore, the wave of the denomination model may form in space around elementary particles. The denomination wave in space refers to the energy fields. Energy fields can be classified into electric field, nuclear field, and gravitational field depending on the shape of the wave. In other words, the electric field, nuclear field, and gravitational field are all composed of different types of waves. Here, the form of autonomous vibration determines the charge of the particle(negative, positive). One example is that electrons and protons continue autonomous vibration in different forms.

Contraction and expansion energy which comprise “**autonomous vibration**”, permanently maintains a perfect equilibrium(parallel) of similar size. However, the two have minute differences. When contraction and expansion energy are applied on objects with larger diameter than elementary particles, the difference is lost. That is why it is commonly misunderstood that the two types of energy do not have any difference at all.

The difference in the contraction and expansion energy which comprise

elementary particles can effectively be expressed in the relationship between two elementary particles. For example, when contraction energy is applied on the forward wave of the electric field, elementary particles autonomously have an effect of gravity. Furthermore, when contraction energy is applied on the backward wave, elementary particles must autonomously have a repulsion effect.

The energy field created through the autonomous vibration of elementary particles can have repeated function. For instance, the energy field produced by protons simultaneously have a nuclear, electrical, and gravitational function. In addition, the energy field produced by electrons have a simultaneous function of electric and gravitational force. Especially, when the electric field is produced through an electron in autonomous vibration, the electron may be mistaken to have a charge of the material element. However, charge in material elements does not exist, and the electric field is composed of the longitudinal wave of the denomination model which is currently acting.

In the process where elementary particles in autonomous vibration voluntarily get in motion, the subject of the reaction of vibration energy must have a smaller diameter than the elementary particle. The only subject with a smaller diameter than elementary particles is the action of contraction and expansion energy. Therefore, the effect of autonomous motion occurring from the vibration energy, always happens actively at the level of the unit of elementary particles.

All elementary particles in autonomous vibration can have a voluntary motion. This voluntary action of elementary particles is called “**basic interaction**”. The condition of occurrence and principle of motion of “**basic interaction**” of elementary particles will be explained in further details in a different thesis (Title: The Interaction between the Active Function of Elementary Particles and Electric Force, The Interaction between the Active Function of Elementary Particles and Nuclear Force, The Interaction between Elementary Particles and Gravitational Force).

However, when contraction and expansion energy are applied on a subject with a larger diameter than elementary particles, they can be transformed into kinetic effect. One example is when a small surface wave acts on(contact) a heavy ship, the ship is barely affected by the wave and the ship does not displace as well. On the other hand, when the same surface wave acts on a light table tennis ball, the ball is observed with motions affected by the wave. Repulsion and gravity are determined by the structural form of the surface wave.

### III. Conclusion

All objects consist of elementary particles and elementary particles have the smallest particle unit. All physical phenomena are brought about by the roles of elementary particles, and the functions of elementary particles are expressed through physical phenomena. Therefore, the principles of motion of all physical phenomena should be interpreted in the perspective of the unit of elementary particles.

All elementary particles infinitely repeat the autonomous vibration of contraction and expansion. Moreover, elementary particles in autonomous motion infinitely produce energy fields(gravitational field, electric field, nuclear field). The energy field provides conditions wherein an autonomous motion is possible independently of the vibration of other elementary particles. In other words, the autonomous vibration of elementary particles simultaneously carries a production function and reaction function of the energy field.

Elementary particles with autonomous vibration simultaneously produce different kinds of energy fields. Here, the energy field of protons simultaneously has a nuclear, electric, and gravitational function. Moreover, the energy field of electrons simultaneously possesses an electric and gravitational function while the energy field of neutrons only has a gravitational function. The “**basic interaction**” of elementary particles are brought about by the roles of various energy fields, and “**basic interaction**” is done autonomously.

In the autonomous occurrence of kinetic effect in the “basic interaction”, elementary particles A and B do not have a relative structure. In addition, the energy of quantum model is not mutually exchanged between elementary particles A and B. In this perspective, the special theory of relativity and quantum mechanics in modern physics must be discarded.

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**\* Difference becomes specialty, Ideal becomes reality,  
at the center of world in the name of center**

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