

## Components of the Light Wave and Activation Function (30)

- Electron & photon (light wave) are composed of the same elements, and the energy of activation function is operated in the current progressive form inside the photon. -

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### Abstract

1. The electromagnetic wave cannot have the wave model and the particle model at the same time, because the electromagnetic waves of the wave model and the particle model exist independently. Here, all electromagnetic waves of the wave model have the structure of “**Radio wave**”, and are produced connectively in proportion to the frequency of the current around the kinetic electron (or electric wire). The range of this Radio wave includes long wave, short wave, ultrashort wave, microwave, etc. Also, all electromagnetic waves of the particle model have the structure of “**light wave**”, and are released in an independent unit inside the resting electron. The range of this light wave includes infrared ray, visible ray, ultraviolet ray, X-ray, etc.

2. In the spread process of the light wave, the photocurrent in the direction of progress and the photomagnetic of the vertical vector (rotation direction) are produced simultaneously. Also, the unit system can be maintained permanently by the effect of infinite repetition on the mutual conversion of the photocurrent and the photomagnetic. Therefore, the integrated model of <light wave = photocurrent + photomagnetic> specifying the unification of the photocurrent and the photomagnetic shall be selected (accommodated). In other words, the integrated model of <light wave = electric field + magnetic field> specifying the unification of the electric and magnetic fields shall be eliminated as stated by Maxwell.

3. The resting electron releases or absorbs the individual unit of light wave, and here, the light wave in the process of release or absorption

does not have the element (ingredient) of the magnetic field. However, the vertical vector of photomagnetic is produced additionally around the photocurrent penetrating the space, and also, the space preserves the photomagnetic. Therefore, all fields of the space can be assumed to have the element of the magnetic field.

4. The inside of the light wave has very intense activation function (activation energy) by the mutual conversion of the photocurrent and the photomagnetic, and the activation function of the light wave is operated in the current progressive form, and preserved permanently. Such activation function of the light wave determines the light pressure (wave height), unification power of the photocurrent and the photomagnetic, photomagnetic density, front & rear interval of the photocurrent, volume and diameter of the light wave, and the strength of the light wave. Also, various phenomenon such as reflex effect, diffraction effect, interference effect, polarization effect, photoelectric effect and compton effect are occurred in the current progressive form by the activation function of the light wave.

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※ **For your reference** – This paper denies some arguments of quantum mechanics, and suggests a new alternative. It is hoped the quantum mechanics of the abolition target will be excluded from the judgment standard.

## I. Introduction

The quantum mechanics of modern physics require wave and particle natures of the light wave (electromagnetic wave) simultaneously. However, in a strict perspective of physics, the structure of the particle model cannot accommodate the function of the wave nature, and the structure of the wave model cannot accommodate the function of the particle nature. In other words, the structures of the particle model and the wave model cannot be combined into one system.

Light waves of particle model and wave model have each different background of foundation. As an example, the light wave of the wave model requires the existence of a medium, and the light wave of the particle model refuses the existence of a medium. Also, the existence of the medium in the light wave has not been determined yet, and therefore, the awareness of modern physics on the particle and wave natures of the light wave shall be reconsidered (modified, eliminated).

In the quantum mechanics of modern physics, the first reason of selecting the wave and particle natures of light wave simultaneously is because of the various effects of the light wave are interpreted in the logic of allopathy. In other words, when similar effects (interference effect, diffraction effect) of the wave model were discovered in the optical phenomenon, the introduction of the wave nature was determined (selected). Also, when similar effects (photoelectric effect, Compton effect) of the particle model were discovered in the optical phenomenon, the introduction of particle nature was determined. This nonsense decision of the allopathy logic may be very simple (convenient), but it is not possible to approach the fundamental essence of the problem.

A new paradigm of alternatives is required to solve the logical contradiction on the particle and wave natures of the light wave. As introduced in the study on “**Misunderstandings of Maxwell’s Equation on**

Electromagnetic Wave and Different Interpretation”, the electromagnetic wave does not have the two functions of wave and particle natures simultaneously, and the electromagnetic wave exists independently on the wave and particle models. In other words, the electromagnetic wave is classified into two types of wave model and particle model.<sup>[29]</sup>

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The electromagnetic waves of the wave model and the particle model are composed in different conditions each, and the effects of the functions are also completely different. Accordingly, these two types of electromagnetic waves must be treated independently in the individual perspective. Also, as stated in quantum mechanics, the structure of the electromagnetic wave integrating the wave and particle natures into one system is only a misrepresented abstract model (delusion) that does not actually exist.

The electromagnetic wave of the wave model has the structure of “**Radio wave** (magnetic field wave)”, and here, the Radio wave refers to the wave of the magnetic field. Also, all types of Radio waves are produced peripherally of the current in connection to the frequency of the current. In other words, the kinetic electron or the wire of the conductor produces the Radio wave, and the Radio wave has linked structure like the water waves. Therefore, the effect of particle nature cannot be occurred in the wave model of the Radio wave. In the scope of Radio wave, long wave, short wave, ultrashort wave, microwave, etc. are included.

The electromagnetic wave of the particle model has the structure of “**light wave**”. Also, all types of light waves (photons) are released in an individual unit independently within the electron (elementary particle). Therefore, all light waves are produced individually, and the relationship between the light wave and other light waves must be separated, as all types of light waves have an individual unit (1, 2, 3, 4...) like a baseball of

particle model. Accordingly, in the particle model, the light wave with an independent individual unit cannot be occurred with the effect of wave nature. The scope of light wave includes infrared ray, visible ray, ultraviolet ray, X-ray, etc.<sup>[17], [19]</sup> <<http://batangs9.com/E-17.pdf>>, <<http://batangs9.com/E-19.pdf>>

The Radio wave (long wave, short wave, ultrashort wave, microwave, etc) of the wave model and the light wave (infrared ray, visible ray, ultraviolet ray, X-ray, etc) of the particle model have the common characteristics of the electromagnetic wave. However, the Radio wave of the wave model and the light wave of the particle model are produced in different conditions, and the performance properties of the Radio wave and light wave are different. As an example, the Radio wave of the wave model is produced in a connective structure near the current (kinetic electron), and the light wave of the particle model is released independently in an individual unit inside the resting electron.

The second reason for selecting the wave and particle natures of the electromagnetic wave simultaneously in the quantum mechanics of modern physics is because the Radio wave of the wave model and the light wave of the particle model were integrated in nonsense by force to handle the Radio wave and the light wave as the equal type of electromagnetic wave. If the structural difference of the Radio wave and the light wave was fully acknowledged (understood), when introducing the quantum mechanics, the wave and particle natures of the electromagnetic wave wouldn't have been stated simultaneously.

Light wave is composed of an individual unit of particle model with, but it can have the interference effect. One example is that in the spreading process of the light wave composed of the particle model, the vertical vector (rotation direction) of magnetic field (magnetic force) is produced, and when multiple light waves pass through a narrow and thin membrane simultaneously, the magnetic field of all light waves is react interactively,

and the front and rear interval of all light waves can be aligned regularly from this mutual reaction of the magnetic field. Here, the regular sequential interval of the light waves acts as the causative function of the interference effect, Therefore, the interference effect of the light wave cannot be used as the evidence on the wave model. In other words, the statement on the interference effect of the light wave and the wave model does not have connectivity.<sup>[29]</sup> <<http://batangs9.com/E-29.pdf>>

In the main body of this study, the characteristics of the light wave (electromagnetic wave) composed in an individual unit and also the circumstance of the photocurrent in the direction of progress and the vertical vector of photomagnetic occurring simultaneously in the spreading process of the light wave will be introduced. Moreover, the reason that the role of magnetic field is unnecessary in the process of releasing or absorbing the light wave by the resting electron will be described. Lastly, the components and the activation function of the light wave will be described in the perspective of substantive function.

## II. Main Body

### 1. Components of the Light Wave and Misunderstandings.

In the view of modern physics, the structure of the electromagnetic wave was recognized as the combination of the electric and magnetic fields. However, the two functions of the electric and magnetic fields cannot be combined into one system (unit), because the electric field of the resting electron does not produce the magnetic field, and the magnetic field does not produce the electric field. Thus, the electric and magnetic fields each have different conditions of performance properties, and are not connected by causality.<sup>[6], [17]</sup>

<<http://batangs9.com/E-6.pdf>>, <<http://batangs9.com/E-17.pdf>>

In the production process of the magnetic field, the electric field is not involved, and the magnetic field also does not involve in the production

process of the electric field. Also, the fundamental elements of composing the electric and magnetic fields are different. There is no reason to connect the electric and magnetic fields into the right-angled cross structure. Therefore, the process of the electric and magnetic fields coexisting in companion cannot be described, and the electric and magnetic fields must be treated individually in an independent perspective.

The electric field as such occurs around electrons. Namely, where electrons do not exist, the electric field does not occur independently. As such, electrons and electric field permanently maintain a partnership (a single regime) and coexist synchronically in limited areas. In addition, the nuclear field of protons occurs around protons. Of course, where protons do not exist, the nuclear field does not occur independently.

The form of the electromagnetic wave is not composed of the combination of the electric field and the magnetic field, indicating that the electromagnetic wave with the cross structure of the electric field and the magnetic field is only a misrepresented abstract model (delusion) that does not actually exist. Therefore, as stated by Maxwell, the integrated model of the <light wave = electric field + magnetic field> specifying the unification of the electric field and the magnetic field must be eliminated.

As proved experimentally (empirically) by the electromagnetic induction by Faraday, the variable magnetic field produces the vertical vector of current (or induced electromotive force), and the reaction of the current produces the vertical vector of variable magnetic field again. Here, the current and the magnetic field have the causal connectivity of vertical vector (rotation direction) converted mutually.

The mutual conversion of the current and the magnetic field can be repeated permanently, and the mutual circulation system of the current and the magnetic field is maintained (preserved) permanently. This mutual conversion (unification of coexistence) of the current and the magnetic field is

displayed in the form of electromagnetic wave. In other words, the magnetic field and the current are included simultaneously in the components of the electromagnetic wave. Therefore, the integrated model of <light wave = current + magnetic field> specifying the unification of the current and the magnetic field must be selected (accommodated).

However, Maxwell did not reflect the causal connectivity of the current and the magnetic field in the process of introducing the electromagnetic wave equation, and the role of the current was substituted by the electric field. In other words, the role of the current was omitted in the process of introducing the equation on electromagnetic wave. Also, Maxwell confused the characteristics of the current and the electric field, and misunderstood (mistaken) that the element of the electric field is included in the property of the current. Therefore, the positive awareness on the electromagnetic wave equation must be corrected (discarded).

The current and the electric field have a common point of being produced by the role of the electron. However, the current and the electric field (electric force) are composed in different elements, and the performance properties of the current and the electric field are different. In other words, the current simply specifies the motion (displacement) of the electron, and the electric field (electric energy) is produced inside the electron. Also, In this process of producing the current, the electric field is not involved, and the current is also not involved in the process of producing the electric field. These currents and electric fields have the following relation for the magnetic field.

<The electron's motion ⇔ magnetic field is generated.>

<The Electric field's motion ⇔ Magnetic field is not generated.><sup>[29]</sup>

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The current and the magnetic field that are produced simultaneously by the role of the electron are not reacted mutually, specifying that the

current and the electric field do not have causal connectivity. Accordingly, the current and the electric field must be treated independently in the individual point of view. One example is that the current is included in the property of the electromagnetic wave, but the electric field is not included. Therefore, the electric field cannot be used as the alternative of the current as stated by Maxwell.

## 2. Conditions of the Electron Releasing or Absorbing the Light Wave.

The resting electron does not produce the magnetic field, and does not react to the invariable magnetic field. In other words, the resting electron and the invariable magnetic field does not have causal connectivity. These conditions of circumstances specify that the element of the magnetic field is not included in the resting electron, and the magnetic field does not react inside the resting electron.

Meanwhile, the resting electron releases the photon (light wave) of the particle model in the velocity of light. Therefore, it can be assumed that the resting electron and the photon are composed with the equal materials (Taes), and the resting electron is partially released in the form of photon. Here, when the resting electron is partially released in the form of photon, the photon in the process of initial release must not have the element (function) of the magnetic field, because the element of the magnetic field is not included inside the resting electron which releases the initial photon.

In actual circumstances, the resting electron only releases the photon in the particle model, and does not release the element of the magnetic field. In other words, the resting electron releases only the photon, and the property of the released photon cannot have the element of the magnetic field. Therefore, the photon and the magnetic field are not released simultaneously in the resting electron, and the released photon

and the magnetic field do not have causal connectivity.

However, when the photon released initially without the element of the magnetic field is spread in the velocity of light in space, the vertical vector of magnetic field is produced additionally peripherally of the photon spreading (moving) in the velocity of light. In other words, the initially released photon did not have the vertical vector of magnetic field, but the vertical vector of magnetic field was produced through posterior sequence (procedure) in the spreading process of photon (light wave). The reason that the magnetic field is produced is because the space and the photon in the velocity of light are reacted mutually. In other words, the space and the photon have causal connectivity.

The resting electron only absorbs the photon of the particle model, and does not absorb the vertical vector (rotation direction) of magnetic field, specifying that the photon of the particle model and the vertical vector of magnetic field cannot be absorbed simultaneously on the resting electron. This logic means that the property of the absorbed photon does not include the element of the magnetic field, and the photon that does not have the element of the magnetic field is absorbed into the resting electron.

The sequential process of the resting electron releasing or absorbing the photon of the particle model can be understood conveniently through the situation map in Figure 1. The situation map in Figure 1 shows that  $E_1$  is the resting electron on the left,  $E_2$  is the resting electron on the right,  $Pe_1$  is the photon (photocurrent) in the releasing process,  $Pe_2$  is the photon in the process of penetrating the space,  $Pe_3$  is the photon in the absorbing process,  $M_f$  is the magnetic field produced in the front part of the photon ( $Pe_2$ ), and  $M_r$  is the magnetic field produced in the latter part of the photon ( $Pe_2$ ).

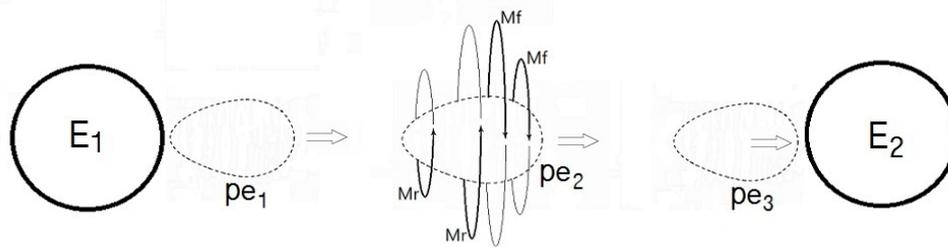


Figure 1. Situation map on the sequential process of the resting electron releasing or absorbing the photon.

As shown in the situation map of Figure 1, when the resting electron ( $E_1$ ) on the left initially releases the photon ( $Pe_1$ ) in the particle model, the initially released photon ( $Pe_1$ ) does not have magnetic field. However, the vertical vector of magnetic field ( $M_f$ ,  $Mr$ ) is produced additionally peripherally of the photon ( $Pe_2$ ) penetrating the space. Also, the resting electron ( $E_2$ ) on the right only absorbs the photon ( $Pe_3$ ) of the particle model, and does not absorb the vertical vector of magnetic field ( $M_f$ ,  $Mr$ ). In other words, the photon ( $Pe_3$ ) in the absorbing process does not have the magnetic field.

photons ( $Pe_1$ ,  $Pe_2$ ) and magnetic fields ( $M_f$ ,  $Mr$ ) have different functional connectivity depending on the conditions of the circumstances, and the relationship of the photon and the magnetic field shall be handled independently in the individual point of view. One example is that the photon is not composed of the element of the magnetic field (magnetic force) like the resting electron, and it does not preserve the magnetic field inside the photon (photocurrent) spread in the velocity of light. In other words, the magnetic field reflects the characteristics of space, and the space preserves the magnetic field.

### 3. Spatial Background of enabling the Spreading Process of the Light Wave.

When the electron moves (passes) through space, this kinetic electron has the function of the current, and the curl vector of magnetic field is

produced additionally peripherally of the current (kinetic electron) penetrating the space. Accordingly, the effect of vertical vector (rotation direction) of magnetic field being produced around the current can be understood conveniently through the Fleming's Rule.

Even when the photon of the electromagnetic wave penetrates the space, the vertical vector of magnetic field is produced around the photon. Here, the motion of the electron and the spreading of the photon (light wave) can be compared as the circumstances of the equal condition. One example is that the magnetic field of the photon and the magnetic field of the kinetic electron have the common point of being produced through the same performance property.

In the process of the photon of the electromagnetic wave passing through the space, this photon has the function of the current like the electron in motion, and the photon with the function of the current shall be referred to as the “**photocurrent**” of the electromagnetic wave. Therefore, the “**photocurrent**” of the electromagnetic wave (photon) and the current of the kinetic electron are produced in the same performance property, and the “**photocurrent**” of the electromagnetic wave and the current of the kinetic electron are distinguished only by the difference in scale (volume, mass).

Like the current of the kinetic electron, the vertical vector (rotation direction) of magnetic field is produced peripherally of the “**photocurrent** (photon)” passing through space, and this vertical vector of magnetic field shall be referred to as the “**photomagnetic**” of electromagnetic wave. Here, the photocurrent and the photomagnetic are converted mutually, and the circulation system of the photomagnetic and the photocurrent is maintained permanently. Therefore, the circulation system (electromagnetic wave) of the photomagnetic and the photocurrent can be spread to the last boundaries of space.<sup>[29]</sup> <<http://batangs9.com/E-29.pdf>>

The photocurrent in the velocity of light produces the vertical vector of

photomagnetic, and the vertical vector of photomagnetic produces the propulsion of the photocurrent again. Here, the photocurrent and the photomagnetic are converted mutually, and have the dependency in the condition of simultaneous coexistence (existence). Therefore, the photocurrent and the photomagnetic can be compared in equal value, and the mutual dependency of the photocurrent and the photomagnetic can be maintained (preserved) infinitely. Also, the unification of an individual unit is formed by the mutual dependency of the photocurrent and the photomagnetic, and the unification of the photocurrent and the photomagnetic is enabled in the current progressive form.

The photocurrent and the photomagnetic have the causal connectivity of the vertical vector, but the photocurrent and the photomagnetic are composed with different elements, and the production processes of the photocurrent and the photomagnetic are different. Also, phases of the photocurrent and the photomagnetic are spread (displaced) in different conditions. Therefore, the photocurrent and the photomagnetic must be approached independently in the individual point of view.

The photocurrent of the electromagnetic wave (light wave) is spread in space in the velocity of light of  $C$ , and the progress of velocity of light ( $C$ ) is enabled led by the photocurrent in the process of spreading the electromagnetic wave. This photocurrent has representative nature on the electromagnetic wave, and the vertical vector of photomagnetic acts in a supplementary function. Such photomagnetic is not spread in the velocity of light ( $C$ ), and maintains the original position, because the photomagnetic has the vertical vector of rotational force at all times in the original position.

The vertical vector of photomagnetic is occurred sequentially in the space where the photocurrent is penetrating. However, the photomagnetic in space instantly becomes extinct in the original position after the photocurrent has passed. In other words, the photomagnetic has the process of production and extinction in the original position.

In the penetrating point of the photocurrent, the vertical vector of photomagnetic is instantly appeared, and this photomagnetic does not follow the photocurrent in sequaciousness, and does not deviate from its original position. Thus, when the photomagnetic is produced instantly in the penetration point of the photocurrent, there can be a misunderstanding (mistake) of thinking that accompanied (companion) spreading of the photomagnetic and the photocurrent is enabled.

Space is composed of magnetic elements (ingredients, materials), and the external reaction of the magnetism is displayed as photomagnetic. Therefore, the photomagnetic reflects the characteristics of space, and the space can preserve the photomagnetic. Also, the photomagnetic preserved in the space does not follow the photocurrent in sequaciousness. In other words, the photocurrent and the photomagnetic each have individual and different direction of velocity, and react in different conditions. One example is that the photocurrent has the velocity of light in the direction of progress, and the photomagnetic has the rotational speed of the vertical vector.

The individual unit of the electromagnetic wave is maintained permanently by the mutual conversion of the photocurrent and the photomagnetic. Therefore, the photocurrent and the photomagnetic composing the electromagnetic wave are not dispersed (decomposed) in all domains. Also, the individual unit of electromagnetic wave can be spread for billions of years like the Soliton Wave, but this individual unit of electromagnetic wave was misunderstood as the photon (photon) of the particle model in quantum mechanics.

#### **4. Production Process & Activation Function of the Light Wave**

Photons (photocurrent) and kinetic electrons penetrate through space, and the space tolerates the penetration of the photons and the electrons simultaneously. Also, the vertical vector (rotation direction) of magnetic field

is occurred (produced) in common around the photons and the electrons penetrating in the space, and the magnetic field of the photons and the electrons are preserved in the space. Therefore, it can be assumed that the space has the elements (ingredients and materials of the magnetic field) of the magnetic field.

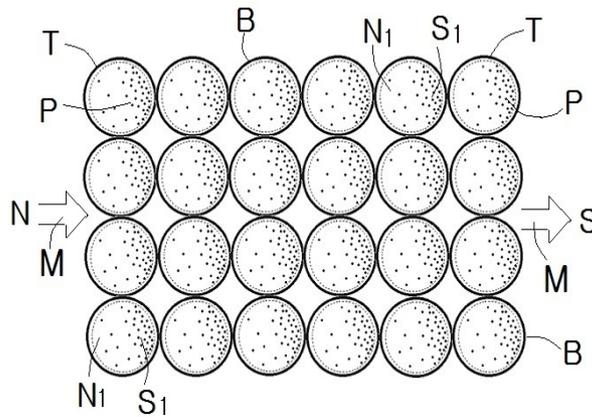
As described in the study, “Components of Space & Conditions of Existence on Light Wave” introduced earlier, space is composed of the medium of light wave, and was referred to as “Ether” in classical physics. However, the medium of light wave shall be referred to as “Batangs” in this study. In other words, the space is composed of the distribution of “Batangs”, and the distribution group of “Batangs” is used as the medium of the light wave. Also, the Batangs in the space has the individual unit of the particle model, and all domains of space can be divided into the individual unit of Batangs.<sup>[6]</sup>

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

Batangs in space is composed of two elements of “Pyeongs” and “Taes”, specifying that two elements of Taes and Pyeongs coexist inside the Batangs. Also, Taes and Pyeongs in the Batangs are used as the medium for various energies. As one example, energies such as electric force, magnetic field and light wave are used as the medium of Pyeongs to be spread, but energies such as neutrino, nuclear force and gravity are used Taes as the medium to be spread.

Pyeongs have the element of magnetism, and the magnetism of Pyeongs is distributed equally in all directions inside the Batangs. However, the distribution of Pyeongs is concentrated in bias when the magnetism of the Pyeongs is influenced by the current. Also, the biased concentration of the Pyeongs has the directive function of force, and this force of directive function is displayed as *N*-pole and *S*-pole in the magnetic field. This process of occurring with the *N*-pole and *S*-pole in the directive function can be understood conveniently through the

situation map in Figure 2.



**Figure 2.** Situation map on the process of occurring with the directive function on the magnetic field inside the Batangs.

In the situation map of Figure 2,  $B$  in full line shows the Batangs in space,  $T$  is the Taes inside the Batangs ( $B$ ), and the domain of  $P$  composed in the distribution of dots is the Pyeongs,  $N_1$  and  $S_1$  are the polarities of the basic magnetism occurred inside Batangs ( $B$ ),  $M$  with a big arrow of  $\Rightarrow$  is the directive function of the magnetism, and  $N$  and  $S$  show the polarities of the magnetism ( $M$ ). Here,  $T$  of Taes and  $P$  of Pyeongs are in equal diameter, but were displayed in different size for convenience in understanding.

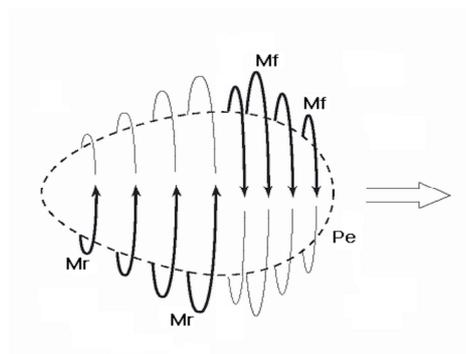
In the situation map of Figure 2, the Taes ( $T$ ) of Batangs ( $B$ ) is maintained at its original position at all times, but the distribution of the Pyeongs ( $P$ ) composing the inside of Batangs ( $B$ ) can be concentrated in bias due to the reaction of the current. Also, the biased concentration of Pyeongs ( $P$ ) is displayed as basic magnetism ( $N_1, S_1$ ) of the directive function. Here, integrated magnetic field ( $M$ ) is produced in the process of multiple basic magnetic fields ( $N_1, S_1$ ) being concentrated into one vector.

Photon (photocurrent) of the electromagnetic wave is composed of Pyeongs, and the Pyeongs of the photon are used as the medium of Batangs ( $B$ ) for spreading. Also, Pyeongs ( $P$ ) of the Batangs ( $B$ ) used as the medium of photon have the effect of “**photocurrent**” by the process of

displacement on pushing in proportion of the volume of the photon. Therefore, the Pyeongs ( $P$ ) inside the Batangs ( $B$ ) are changed to the direction of progress proportionally of the volume of the photocurrent, and the two elements of Taes ( $T$ ) and Pyeongs ( $P$ ) are separated (deviated) mutually.

Pyeongs ( $P$ ) in the process of separation by the Batangs ( $B$ ) and Taes ( $T$ ) have the rotational force of the vertical vector, and this is reacted as the biased concentration of directive function. Also, the directive function (biased concentration) of Pyeongs having the vertical vector of rotational force is displayed in the  $N_1$  pole and  $S_1$  pole of “**basic photomagnetic ( $N_1, S_1$ )**” inside the Batangs ( $B$ ). Therefore, in the spreading process of the photon penetrating inside the Batangs ( $B$ ), the photocurrent in the direction of progress and the vertical vector of basic photomagnetic ( $N_1, S_1$ ) are produced simultaneously.

Pyeongs in space (Batangs) and Pyeongs in photons are equal in material, and the photon composed of the Pyeongs uses the Pyeongs in the space as the medium to be spread. Here, Pyeongs used as the medium of photon have the photocurrent in the direction of progress and the vertical vector of photomagnetic simultaneously. And this occurrence process of the photocurrent and the photomagnetic can be understood conveniently through the model diagram in Figure 3.



**Figure 3.** Model diagram on the relationship of photocurrent and photomagnetic.

In the model diagram of Figure 3,  $Pe$  is the photocurrent (photon) of the electromagnetic wave spreading in the velocity of light, the big arrow of  $\Rightarrow$  is the direction of progress on the photocurrent ( $Pe$ ),  $Mf$  is the photomagnetic occurred in the front part of photocurrent ( $Pe$ ),  $Mr$  is the photomagnetic occurred in the latter part of photon ( $Pe$ ), and the small arrows of  $\uparrow$  and  $\downarrow$  show each direction of the photomagnetic ( $Mr, Mf$ ).

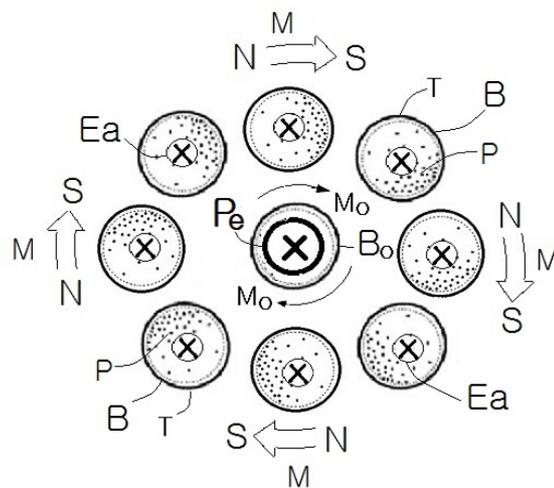
In the model diagram of Figure 3, the Pyeongs (Batangs) of space used as the medium of the photocurrent ( $Pe$ ) have the vertical vector of photomagnetic ( $Mr, Mf$ ) along with the exchange reaction of the direction of progress. High compressive force is formed in the front part of this photocurrent ( $Pe$ ), and this high compressive force produces the curl vector of photomagnetic ( $Mf$ ) on the right. In other words, there is causal connectivity on the high compressive force on the front part and the curl vector of photomagnetic ( $Mf$ ) on the right.

As shown in the model diagram of Figure 3, the photomagnetic ( $Mf$ ) on the front part with high density is distributed into the narrow domain, and the curl vector of photomagnetic ( $Mf$ ) on the right that was occurred in the front part of the photocurrent ( $Pe$ ) is reacted dominantly to have strong force. In other words, as the biased concentration ratio of the Pyeongs is higher, the intensity of the magnetic field is reacted in a powerful force.

However, low vacuum force of Pyeongs is formed in the latter part of the photocurrent ( $Pe$ ). This low vacuum force on the latter part produces the curl vector of photomagnetic ( $Mr$ ) on the left to have causal connectivity on the low vacuum force on the latter part and the curl vector of photomagnetic ( $Mr$ ) on the left. Here, the photomagnetic ( $Mr$ ) on the latter part has low density, and the low density of photomagnetic ( $Mr$ ) is spread to a wider domain. Therefore, the curl vector of photomagnetic ( $Mr$ ) on the left occurred in the latter part of photocurrent ( $Pe$ ) reacts with inferiority, and has a weak force.<sup>[29]</sup> <<http://batangs9.com/E-29.pdf>>

As shown on the model diagram of Figure 3, the overall photomagnetic ( $M_f$ ) occurred in the front part and the overall photomagnetic ( $M_r$ ) in the latter part have the equal scale of values. However, the photomagnetic ( $M_f$ ) on the front part reacts with high density (strong force) in the narrow domain, and the photomagnetic ( $M_r$ ) on the latter part reacts with low density (weak force) in the wide domain. In these circumstances, it can be misunderstood that only the photomagnetic ( $M_f$ ) is occurred in the front part, and the latter part of photomagnetic ( $M_r$ ) does not exist.

Pyeongs used as the medium of the photocurrent (photon) have the exchange reaction of the direction of progress and the directive function of the vertical vector (rotation direction) simultaneously. Here, the directive function of photomagnetic acts as the force of pushing out, and this force is delivered peripherally to the Batangs (Pyeongs). Therefore, the directive function (pushing force) of photomagnetic is spread extensively into the space through the peripheral Batangs. In other words, all Batangs distributed peripherally of the photocurrent have in common on the vertical vector of magnetic field. The effect of the vertical vector of photomagnetic spread into the wide domain can be understood conveniently through the situation map in Figure 4.



**Figure 4.** Situation map on the effect of photomagnetic in the electromagnetic wave spread into the wide domain.

In Figure 4, the situation map shows that the  $Pe$  on the center with a large  $\otimes$  is the cross-section of the photocurrent (photon) going into the ground,  $Bo$  on the center is the Batangs of space,  $Mo$  with a small arrow of  $\leftarrow$  is the directive function of the basic magnetic field occurred inside the Batangs ( $Bo$ ), multiple  $B$  composed in full line of circle are the Batangs in the space,  $T$  inside the Batangs ( $B$ ) is the Taes,  $P$  inside the Batangs ( $B$ ) is the Pyeongs, small dots inside the Batangs ( $B$ ) are the distribution density of Pyeongs ( $P$ ), small  $\otimes$  of  $Ea$  is the cross-section of the space current (Flow of Pyeongs) going into the ground,  $M$  with a big arrow of  $\Rightarrow$  is the directive function of the integrated magnetic field produced inside all Batangs ( $B$ ), and  $N$  and  $S$  show the polarities of the magnetic field.

In the situation map of Figure 4,  $\otimes$  of “space current ( $Ea$ )” can be defined as the displacement (movement) of spatial elements, specifying that the space current ( $Ea$ ) is the wind (flow) composed of Pyeongs in space. Also, the space current ( $Ea$ ) and the general current of the kinetic electron have in common on the effect of equal functions, and are distinguished only by the difference in the amount of current. This space current ( $Ea$ ) is compared with the equal condition of induced electromotive force, and reacted in an equal function.

As shown in the model diagram of Figure 4, the photocurrent of  $Pe$  penetrates through the center of Batangs ( $Bo$ ), and is going into the ground. Also, the basic photomagnetic of  $Mo$  having the small arrow ( $\leftarrow$ ) of directive function is occurred inside the Batangs ( $Bo$ ) penetrated by the photocurrent of  $Pe$ . Here, the force of pushing out on the directive action of  $Mo$  is delivered peripherally to all Batangs ( $B$ ), and the basic photomagnetic of  $Mo$  is spread to wide domains of space. Therefore, the Pyeongs ( $P$ ) of all Batangs ( $B$ ) composed around the photocurrent have the effect of being concentrated into the rotational direction of the big arrow ( $\Rightarrow$ ). Also, the biased concentration effect of Pyeongs ( $P$ ) occurred

inside all Batangs ( $B$ ) is combined with the integrated magnetic field of  $M$ .

When the Pyeongs ( $P$ ) of all Batangs ( $B$ ) composing around the photocurrent are concentrated in the same direction, the Pyeongs ( $P$ ) of all Batangs ( $B$ ) have the integrated magnetic field ( $M$ ). Also, the basic space current ( $Ea$ ) of  $\otimes$  going into the ground is occurred inside all Batangs ( $B$ ) having the integrated magnetic field ( $M$ ). Therefore, the basic space current ( $Ea$ ) of  $\otimes$  and the photocurrent of  $Pe$  have in common on the displacement (spread) effect in the equal direction.

The integrated magnetic field ( $M$ ) of all Batangs ( $B$ ) occurred around the photocurrent is converted to the basic space current ( $Ea$ ), and the overall scale of the basic space current ( $Ea$ ) is converted again to the integrated magnetic field ( $M$ ). Therefore, the circulation system of the space current ( $Ea$ ) and the integrated magnetic field ( $M$ ) converting mutually can be maintained permanently. Accordingly, the individual unit (particle model) of the light wave is formed by the mutual conversion of the space current and the integrated magnetic field ( $M$ ). In other words, the individual unit of the light wave refers to the mutual circulation system of the space current ( $Ea$ ) and the integrated magnetic field ( $M$ ).

The electron of the elementary particle releases or absorbs the photon of the light wave (electromagnetic wave) freely, and therefore, the photon of the light wave must have smaller cross-section than the diameter of the electron. However, the photomagnetic of the light wave is spread into the wide domain of space, and has very wide cross-section. One example is that the photomagnetic of the light wave is expected to be thousand times larger area (diameter) than the diameter of the electron (or photocurrent), because the photomagnetic of the light wave cannot pass through the tunnel several thousand times wider than the diameter of the electron.<sup>[17]</sup>

<<http://batangs9.com/E-17.pdf>>

Two elements of the photocurrent and the photomagnetic coexist simultaneously inside the light wave, and there is very intense circulation system of activation function inside the light wave due to the mutual conversion of the photocurrent and the photomagnetic. Here, the light wave having the circulation system (mutual conversion of photocurrent and photomagnetic) of activation function specifies that the dynamic energy inside the light wave is reacted currently in progressive form. Also, the energy of activation function reacted in the current progressive form is preserved permanently.

The energy of activation function reacted in the current progressive form inside the light wave determines the light pressure of the light wave or wave height, concentration power of the photocurrent and the photomagnetic, photomagnetic density and elasticity, sequential interval of the photocurrent, the volume and diameter of the light wave, the intensity of the light wave, etc. Also, various phenomenon may be occurred in the current progressive form such as the reflex effect, diffraction effect, interference effect, polarization effect, photoelectric effect, and compton effect by the activation function of the circulation system composing the form of the light wave.

### III. Conclusion.

The electromagnetic wave does not have the two functions of wave and particle natures simultaneously. In other words, The electromagnetic wave exists independently on the wave and particle models. Here, The electromagnetic waves of the wave model and the particle model are composed in different conditions each, and the effects of the functions are also completely different. Accordingly, these two types of electromagnetic waves must be treated independently in the individual perspective.

In the spread process of the light wave, the photocurrent in the

direction of progress and the photomagnetic of the vertical vector are produced simultaneously. Also, the unit system can be maintained permanently by the effect of infinite repetition on the mutual conversion of the photocurrent and the photomagnetic. Therefore, the integrated model of <light wave = photocurrent + photomagnetic> specifying the unification of the photocurrent and the photomagnetic shall be selected (accommodated). In other words, the integrated model of <light wave = electric field + magnetic field> specifying the unification of the electric and magnetic fields shall be eliminated as stated by Maxwell.

Photons (photocurrent) and kinetic electrons penetrate through space, and the space tolerates the penetration of the photons and the electrons simultaneously. Also, the vertical vector (rotation direction) of magnetic field is occurred (produced) in common around the photons and the electrons penetrating in the space, and the magnetic field of the photons and the electrons are preserved in the space. Therefore, it can be assumed that the space has the elements (ingredients and materials of the magnetic field) of the magnetic field.

The electron of the elementary particle releases or absorbs the photon of the light wave (electromagnetic wave) freely. Also, The inside of the light wave has very intense activation function (activation energy) by the mutual conversion of the photocurrent and the photomagnetic, and various phenomenon such as reflex effect, diffraction effect, interference effect, polarization effect, photoelectric effect and compton effect are occurred in the current progressive form by the activation function of the light wave.

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#### IV. References of the Cyber site

- [1] young sik, kim. <Flaws of Newton's Mechanics and Distorted Concepts Adopted by Modern Physics>. 2016. <<http://batangs9.com/E-1.pdf>>
- [2] young sik, kim. <The Defect in the Special Theory of Relativity and the Formulation of the Absoluteness Theory>. 2016. <<http://batangs9.com/E-2.pdf>>
- [3] young sik, kim. <Spatial Independence of the Earth's Gravitational Field and Fabrication of the Law of the Constant Speed of Light>. 2016. <<http://batangs9.com/E-3.pdf>>
- [4] young sik, kim. <The Fictional Coordinate Concept in the Special Theory of Relativity and the Search for Another Alternative>. 2016. <<http://batangs9.com/E-4.pdf>>
- [5] young sik, kim. <The Necessity of the Absolute Coordinate System and the Verification Method>. 2016. <<http://batangs9.com/E-5.pdf>>
- [6] young sik, kim. <Elements in Space and the Condition for the Existence of Light Waves>. 2016. <<http://batangs9.com/E-6.pdf>>
- [7] young sik, kim. <The Structure and Active Functions of Elementary Particles>. 2016. <<http://batangs9.com/E-7.pdf>>
- [8] young sik, kim. <Interaction between the Active Functions and Electric Forces of Elementary Particles>. 2016. <<http://batangs9.com/E-8.pdf>>
- [9] young sik, kim. <The formation of atomic structure and mathematical expression>. 2016. <<http://batangs9.com/E-9.pdf>>
- [10] young sik, kim. <Active functions of elementary particles and interactions of nuclear force>. 2017. <<http://batangs9.com/E-10.pdf>>
- [11] young sik, kim. <Fictional Perception of Mass and Inertial Force>. 2017. <<http://batangs9.com/E-11.pdf>>
- [12] young sik, kim. <The Deficiency in the Principle of Equivalence and the

- Need for Alternatives>. 2017.  
<<http://batangs9.com/E-12.pdf>>
- [13] young sik, kim. <The Active Functions of Elementary Particles and the Principle of Motion>. 2017. <<http://batangs9.com/E-13.pdf>>
- [14] young sik, kim. <The Action of Gravity and Controlled Domination in Outer Space>. 2017. <<http://batangs9.com/E-14.pdf>>
- [15] young sik, kim. <The Structure of Graviton and Spatial Independence>. 2017. <<http://batangs9.com/E-15.pdf>>
- [16] young sik, kim. <Fictitiousness of the expanding universe theory and the search for alternatives>. 2017. <<http://batangs9.com/E-16.pdf>>
- [17] young sik, kim. <The Structure and Functional Characteristics of Electromagnetic Waves>. 2017. <<http://batangs9.com/E-17.pdf>>
- [18] young sik, kim. <Atomic Energy Level and Modulation of Light Waves>. 2017. <<http://batangs9.com/E-18.pdf>>
- [19] young sik, kim. <Various Effects and Working Principles of Light Waves>. 2017. <<http://batangs9.com/E-19.pdf>>
- [20] young sik, kim. <Verification method of causes which reduce light velocity inside a transparent glass>. 2017.  
<<http://batangs9.com/E-20.pdf>>
- [21] young sik, kim. <The Expression of Magnetic Field and Verification Method of its Operating Principle>. 2018.  
<<http://batangs9.com/E-21.pdf>>
- [22] young sik, kim. <Expression of Induced Electromotive Force and Verification Method of its Operation Principle>. 2018.  
<<http://batangs9.com/E-22.pdf>>
- [23] young sik, kim. <Verification method on errors in the theory of general relativity>. 2018. <<http://batangs9.com/E-23.pdf>>

- [24] young sik, kim. <Introduction of invention – Destruction Device of Elementary Particles>. 2018. <<http://batangs9.com/E-24.pdf>>
- [25] young sik, kim. <Fundamental interaction results from autonomous motion of an elementary particle.>. 2018.  
<<http://batangs9.com/E-25.pdf>>
- [26] young sik, kim. <Significant common defects of classical physics and modern physics, and necessity of new alternatives.>. 2018.  
<<http://batangs9.com/E-26.pdf>>
- [27] young sik, kim. <Spatial structure of the Earth's Gravitational Field and Misunderstanding of the Law of the Constant Speed of Light>. 2018.  
<<http://batangs9.com/E-27.pdf>>
- [28] young sik, kim. <The Defect in the theory of special relativity and the Introduction of New the Theory of Absoluteness>. 2018.  
<<http://batangs9.com/E-28.pdf>>
- [29] young sik, kim. <The Erstwhile Misunderstandings and A New Interpretation of Maxwell's Electromagnetic Wave Equation>. 2018.  
<<http://batangs9.com/E-29.pdf>>

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

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