God Does Not Play Dice

Junichi Hashimoto

ABSTRACT

Relational physics, which I founded, views energy as a relationship (pulse) between objects. It painted a simple real picture of energy pulsing through the rotational motion of each object, creating an alternating relationship between the two extremes. Such a way of looking at things could be an appropriate explanation for various physical phenomena, such as the double-slit experiment and the measurement of electrons in hydrogen atoms. In this paper, the discussion is particularly focused on experiments to investigate the position of electrons. From such challenges, results that could affirm the reality of microscopic objects were obtained. The success of the attempt here tells us that determinism will prevail over non-determinism. The history of physics is about to undergo a major shift.

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I. INTRODUCTION

Scientists have long debated what light (energy) is. Eventually, when light diffraction and double-slit experiments were conducted, it was thought to be a wave, as it exhibited phenomena similar to water surface waves. Later, however, when experiments on the photoelectric effect were conducted, phenomena that could not be explained by the wave theory were observed. When high-energy light was shined on the metal, electrons were ejected from inside, which can be explained by considering light as particles, like bullets, leading to the development of the particle theory. Eventually, with the advent of quantum mechanics, it was settled that light is a wave when it is observed as a wave and a particle when it is observed as a particle (particle-wave duality). Indeed, such theories have had some success. However, the excessive emphasis on mathematical consistency led to the introduction of fictitious, non-figurative factors such as wavelength and frequency, and as a result, objects had to be regarded as probabilistic entities (denial of reality). Such an idea of quantum mechanics seems strange as an explanation of natural phenomena, and there are many counterarguments. Therefore, I took the position of the remote theory and founded relational physics, which views light (energy) as a relationship (pulse) between objects, thereby eliminating the duality between particles and waves [1]. In this paper, I will discuss the reality of objects based on this idea.

II. METHODOLOGY

While mathematics must be used to explain natural phenomena and experimental results in the language of science, it is never desirable for the content to be unrealistic. Therefore, while mathematical consistency is important, the concept of realism, which facilitates grasping the behavior of objects, is even more important for the search for truth. In relational physics, in order to establish a norm that satisfies both of these, the atomic model and the solar system model are considered identical, and a unique pulse equation is derived. It was created by incorporating a new rotation law equation into the electromagnetic force equation in this theory [2]. The equation is as follows.

$$t = \sqrt{\frac{4En_c^2\pi^2l^3}{k_aL}} \ [\mathrm{s}] \qquad (1)$$

t represents the pulse interval, E represents the energy of light or attraction, n_c represents the number of object rotations, l represents the distance between objects, k_a represents the electromagnetic force constant (value of "1"), and L represents the energy foundation range. As can be seen from the equation, this model is an equation relating energy to pulse interval (equivalence of electromagnetic waves and pulses). Thus, the mechanism of the pulsing relationship between the rotational motion of an object and the rotational motion of an object could be perfectly explained. Conversely, the reason for the creation of pulse can now be found in the rotational motion (rotation and revolution) of objects (the identity of rotation and pulse).

Now, let us take the example of electrons in a hydrogen atom to verify the reality of the object. Relational physics treats the atomic model as the same structure as the solar system model and interprets one orbit of an electron around a proton as the same as one rotation of a hydrogen atom. It is as if the sunspots at the equator of the sun appear to be orbiting the sun's core, but this is merely because one sun is rotating on its own axis. If that is the case, then even if an electron moves in a circular motion around a proton, it is only the rotation of a single hydrogen atom as a certain entity, so there is no loss of kinetic energy (cyclotron radiation) as claimed by classical electromagnetism. This makes the atomic structure stable.

Now, based on such a concept, let us calculate the pulse period of hydrogen atom using equation (1). Please refer to my previous papers for the values for the substitutions [3][4]. The following calculation process gives the solution.

$$t = \sqrt{\frac{4\times(1.11265\times10^{-17})[\mathrm{kg\cdot m^2\cdot s^{-2}}]\times1^2\times3.14^2\times(3.90206\times10^{-11})^3[\mathrm{m^3}]}{1[\mathrm{kg\cdot m^4\cdot s^{-4}}]\times(3.90206\times10^{-11})[\mathrm{m}]}}$$

$$= 8.17396687\times10^{-19}\,[\mathrm{s}]$$

Let us verify that it is the same as the rotation period of the hydrogen atom by the following computational process.

$$t = \frac{2\pi l}{v}\,[\mathrm{s}] \tag{2}$$

$$= \frac{2\times3.14\times(3.90206\times10^{-11})[\mathrm{m}]}{299792458[\mathrm{m\cdot s^{-1}}]}$$

$$= 8.17396707\times10^{-19}\,[\mathrm{s}]$$

Thus, it is proved that one rotation of one hydrogen atom and one pulse emitted by one hydrogen atom are the same in value. In the next section, I will further explore the reality of the object by discussing an experiment in which an electromagnetic wave is shone on an electron in a hydrogen atom to determine its position.

III. DISCUSSION

In order to observe the position of an electron in a hydrogen atom by directing electromagnetic waves at it, the three-way relationship between the proton in the hydrogen atom, the electron in the hydrogen atom, and the emitting device must be stable as a single ordered entity. The ideal experimental condition to form it is that the energy of the electromagnetic wave being shot is equal to the pulse energy (the electromagnetic force between a proton and an electron) contained in a single hydrogen atom. This is because if the light energy being shot is greater than the electromagnetic force between one proton and one electron, it will bounce off the electron, and if it is less, it will reduce the observational resolution. The distance between a

device and one electron should be equal to the distance between one proton and one electron, but even with current nanotechnology, the maximum proximity is limited to about 10^{-9} [m] at most. Therefore, it is important for the success of the experiment to adjust the optimum conditions that can be set up with persistence, while being subject to the above limitations. This means that it is necessary to make various trials for each value to be substituted into the equation (1) as a preliminary preparation. Please see Table 1.

Table 1: List of device setting conditions

	Light energy being shot (E)	Number of rotations Number of pulses (n_c)	Distance between one device and one electron (l) Light energy foundation range (L)	Pulse interval (t)
(1)	1.602051×10^{-14} [J]	1	$1.028336049\times10^{-12}$[m]	8.17396687×10^{-19}[s]
(2)	1.602051×10^{-32} [J]	1	1.028336049×10^{-3}[m]	8.17396687×10^{-19}[s]
(3)	1.11265×10^{-21}[J]	1	3.90206×10^{-9}[m]	8.17396687×10^{-19}[s]
(4)	1.11265×10^{-17}[J]	1	3.90206×10^{-9}[m]	8.17396687×10^{-17}[s]
(5)	1.11265×10^{-17}[J]	0.01	3.90206×10^{-9}[m]	8.17396687×10^{-19}[s]

In the case of (1), gamma rays were set as the light to be shot. However, the energy is too great to repel electrons, and the device-electron distance is too small to install with modern technology. In the case of (2), an extremely long waves (ELF) were set up as the light to be shot. However, the energy is too small, so no resolution can be expected. In the case of (3), sub-millimeter waves were set as the light to be shot. However, the energy is still too small, so no resolution can be expected. In the case of (4), ultraviolet light was set as the light to be shot. It is at a distance that can be set up with modern technology, and there is no danger of it repelling electrons. However, the pulse period is exactly 100 times the electron orbital period. How this will affect the observation results will be known only after the experiment. In case (5), ultraviolet light was set as the light to be shot as in case (4). Although the pulse period and the electron orbital period match, there is an element of uncertainty in that the number of rotations (number of pulses) must be set to 0.01. Even if it is theoretically possible to set this value, whether or not it can be faithfully reflected in the experiment will be known only after the experiment. In this regard, and this is true only for the case (4), it is interpretively possible to modify some of the conditions on the side of the electron in the hydrogen atom, while reserving the conditions on the device side as they are (Table 2).

Table 2: Setting conditions for one electron in one hydrogen atom (modified version)

	Proton-electron coupling energy (E)	Number of rotations Number of pulses (n_c)	Proton-electron distance (l) Foundation range of proton-electron coupling energy (L)	Pulse interval (t)
(6)	1.11265×10^{-17}[J]	100	3.90206×10^{-11}[m]	8.17396687×10^{-17}[s]

As shown in (6) above, by assuming a value of 100 for the number of rotations (n_c), the energy pulse interval value (t) encompassed by one hydrogen atom can be set to 8.17396687×10^{-17}[s], which is perfectly consistent with the value of t in the case (4). By doing so, the tripartite relationship between the luminous device, one electron in one hydrogen atom, and one proton in one hydrogen atom is fully harmonized via the incident electromagnetic wave and the coupling energy in the hydrogen atom.

Thus, if we were to experiment under the setting conditions of (4) or (5), we would obtain new and interesting data that would suggest realism. I look forward with great anticipation to further progress in this research.

IV. RESULTS

In order to confirm the existence of objects (electrons), I focused on the harmonic structure of the three-way relationship between luminous device, electrons in hydrogen atoms, and protons in hydrogen atoms, and devised experimental conditions that could verify this structure. Underlying this thinking is the equivalence principle that electromagnetic waves and pulses are the same thing, pulses and rotations are the same thing, and solar system models and atomic models are the same thing. By combining these concepts, I developed my own pulse equation, and as a result of my calculations, I succeeded in perfectly matching the pulse periods of both the device side and the hydrogen atom side. This means that the behavior of electrons could be quantitatively understood. In other words, mankind was able to affirm the reality of microscopic objects. The success of this experiment must be industrialized beyond the realm of academia and lead to various applications and practical use in the future.

V. CONCLUSION

Although not discussed in detail in this paper, the mechanism by which energy is pulsed can be briefly described as follows. First, assume that there are two or more objects (spheres), both of which rotate at high speed. Then, both front and back hemispheres will alternately show their respective faces to each other. Therefore, the relationship between them becomes a high-speed beat that alternates between “face-to-face” and “non-face-to-face”. This is, in other words, a high-speed beat of “connected relationship” and “unconnected relationship”. The result is a pulse of energy. There are only two components of the pulse: “connected” and “unconnected”. That being so, it is extremely compatible with the double-slit experiment, which uses a wall consisting of two components, “slit” and “non-slit”. The degree of such pulse components is quantified by the variable pulse interval. The greater or lesser of it determines the greater or lesser work rate. A large pulse interval implies a long “connected” time (light period) but also a long “disconnected” time (dark period). For example, if we determine the pulse interval from the brightness of the light emitted by a hydrogen atom, the sun, and a quasar, we find that the brighter and more distant the object, the larger the value. Based on such facts, let us summarize in the form of a list the factors that characterize the nature of light. They are as follows.

Table 3: Factor contrast table characterizing light

	Proximity theory (duality of particles and waves)	Remote theory (Equivalence of pulses and electromagnetic waves)
Light brightness	Number of photons	Pulse interval
Light intensity	Wavelength Frequency	Distance Individuality Number of parties

The characteristics of light are determined by factors such as “brightness” and "density"as described above. In the soup analogy, the soup is characterized by two factors that determine whether it is thick or thin, how much soup is in it, and so on. The same is true of light. The proximity theory holds that the abundance of photons determines the “brightness” of light, while the remote theory holds that a generous pulse interval determines the “brightness” of light. The relational physics that I originated developed over the years, deriving Junichi Hashimoto’s law and incorporating the Rotational Law to create my own pulse equation. The pulse interval values calculated from it depicted the real image of “connected” and “unconnected” high-speed beats. It also presented the principle that the longer the “incident time” of light is, the longer the “non-incident time” is. Philosophically speaking, this is the same as saying that a successful person has many successes but also many failures. In baseball, a home run hitter has many home runs but also has many strikeouts. This is what makes his brilliance stand out. In relational physics, relationships between objects are regarded as pulses. Life is an activity that connects a number of “light pipelines” between various people, objects, and organizations, which come on and off like lamps based on pulse beats. When all the lamp are off, nothing will work. But there will always come a time in life when all the lamps are on, depending on the timing. Those who constantly strive will always be able to seize that opportunity. Conversely, those who are always lazy will miss opportunities, even when all the lights are on. Even the causal relationship between effort and success can be explained deterministically by physics. Exactly what Albert Einstein predicted has become clear.

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