

Theoretical Atomic Model and the Theory of Everything

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Abstract In the atom, the negatively charge electrons move about positively charged nucleus. Bohr suggested a model which was intended to explain the connection between atomic structure and the frequencies of the spectral lines. Following the Rutherford atomic model, it assumes that the electrons move about the nucleus like planets around the sun in circular orbits [1]. However, the explanation of what prevents the negatively charged electrons from falling into the positively charged nucleus due to the strong electrostatic attraction is poorly known. Here I show that the photon move about the electron like the moon around a planet depending on the solar system model. The moon controls the motion of the planet and so as photons with the electron. In an inertial frame of reference there is no such thing as centrifugal force [2]. The centrifugal force between the nucleus and the electron is not hypothetically considered in the existence of orbiting photon around electron. So, the repeating involves the atom and the solar system. From this atomic model, it is concluded the theory of everything which is the repeating in our universe. It shows the provident that our universe is infinite.

Keywords: *atomic model, theory of everything, the nature of photon, the origin of gravitational force*

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1. Introduction

In 1911, the work of Rutherford's young colleagues Hans Geiger and Ernest Mardsen showed conclusively that a hydrogen atom consists of one electron outside the positively charged nucleus, where almost all the mass is concentrated [3]. The Rutherford scattering experiments investigated what happens to alpha particles fired at a thin gold foil. The results of this experiment helped reveal the structure of atoms [2].

When Rutherford directed a beam of alpha particles at a thin gold foil, he found that almost all the particles passed through the foil undeflected. However, a very small number were deflected at an angle, and a few actually bounced back toward the particle source. Rutherford explained his results by proposing that a metal atom must be almost entirely empty space and have its mass concentrated in a tiny central core that he called the nucleus. If the nucleus contains the atom's positive charges and most of its mass, and if the electrons are a relatively large distance away, then it is clear why the observed scattering results are obtained: most alpha particles encounter empty space as they fly through the foil. Only when a positive alpha particle chances to come near a small but massive positive nucleus is it repelled strongly enough to make it bounce backward [4].

Rutherford's discovery of the atomic nucleus raised a serious question: What prevented the negatively charged electrons from falling into the positively charged nucleus due to the strong electrostatic attraction? Rutherford suggested that perhaps the electrons revolve in orbits about the nucleus, just as the planets revolve around the sun [2].

In 1913 a Danish physicist working with Ernest Rutherford made a revolutionary proposal to explain both the stability of atoms and their emission and absorption line spectra. The physicist was Niels Bohr, and his innovation was to combine the photon concept with a fundamentally new idea: The energy of an atom can have only certain particular values. Bohr's reasoning went like this. The emission line spectrum of an element tells us that atoms of that element emit photons with only certain specific frequencies and hence certain specific energies. Bohr's hypothesis established the relationship between atomic spectra and energy levels. He addressed this problem for the case of the simplest atom, hydrogen, which has just one electron. In the Bohr model, Bohr postulated that each energy level of a hydrogen atom corresponds to a specific stable circular orbit of the electron around the nucleus: Therefore, said Bohr, each atom must be able to exist with only certain specific values of internal energy. Each atom has a set of possible energy levels. According to Bohr, an excited atom can make a transition from one energy level to a lower level by emitting a photon with energy equal to the energy difference between the initial and final levels [2].

However, according to the suggested atomic model, if you compare the atom with the solar system model, the electrons move about the nucleus like planets around the sun. In addition, it is believed that the photon orbits the electron like the satellites orbits the planets (Figure 1). The moon controls the motion of the planet and so as photons with the electron.

In an inertial frame of reference there is no such thing as centrifugal force [2]. The centrifugal force between the nucleus and the electron is not hypothetically considered in the existence of orbiting photon around the electron.

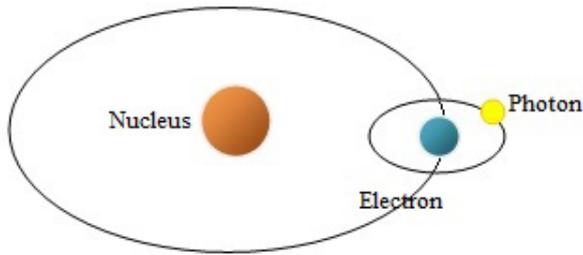


Figure 1. The suggested model for the atom

In addition, De Broglie postulated that electrons and other particles have wave properties [2]. However, it is suggested that the atom or any component of it like electron or photon behave as wave in the dimension of atom, but when the electron or the photon leave the atom and reaches our dimension, they behave as particles. It believed that wave-particle duality is related to momentum and the spinning motion (Figure 2).

Moreover, in 1922 in atomic-beam experiments performed in Germany by Otto Stern and Walter Gerlach. When they passed a beam of neutral atoms through a non-uniform magnetic field, atoms were deflected according to the orientation of their magnetic moments with respect to the field. This and a variety of other experimental evidence have shown conclusively that the electron does have a spin angular momentum and a spin magnetic moment that do not depend on its orbital motion but are intrinsic to the electron itself. An orbiting electron experiences an interaction between its spin and the effective magnetic field produced by the relative motions of electron and nucleus [2]. It is suggested that spinning motion of the electron is related to the orbiting photon. The photon controls spinning motion of the electron and prevents it from falling into the nucleus (Figure 2).

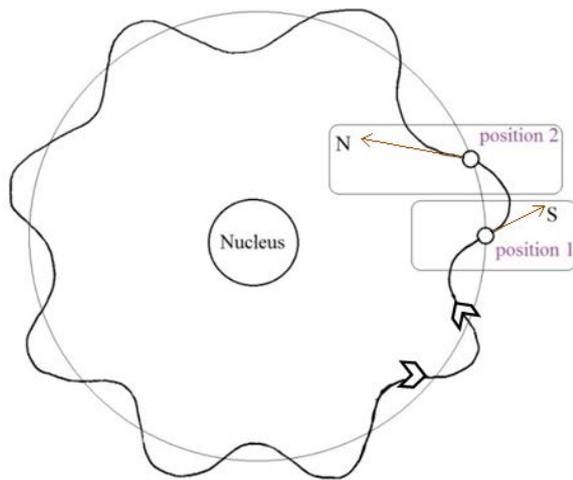


Figure 2. Electron spin, electron in (position 1) where the direction is clockwise, behaves as a south pole, but electron in (position 2) where the direction is counter clockwise, behaves as a north pole.

Furthermore, during the emission of a photon, the internal energy of the atom changes by an amount equal to the energy of the photon [2]. So, any increase in the energy of the atom, the photon will obtain it before the emission and after it. The electron may have more than one orbiting photon. Whenever moving away from the nucleus, the circumference of orbits increases. So, when the atom is excited, the electron moves from the ground

level to the excited levels [5] for further movement to invest its new energy with a longer distance.

The energy levels become straighter when moving away from the nucleus because of the speed of orbiting photon around the electron making the electron to move in restricted area.

The more increase in the energy level, the more increase in momentum of orbiting photon around the electron. The speed of light or the photon speed is proportional to the energy of the level. In the Bohr model of the hydrogen Atom, The energy levels of the hydrogen atom are given by

$$E_n = -\frac{hcR}{n^2}, \tag{1}$$

where R is the Rydberg constant [2]. This equation predicts the presence of the photon around the electron in the energy levels.

In addition, the atom emissions the photon (Figure 3A) in the form of light, so the photon is a particle which is lighted and burned when leaves the atom with the light speed and reaches a medium like the atmosphere or when transferring between dimensions . However, when the photon moves in the vacuum, it does not burn. It is deduced that every particle that reaches the light speed in the presence of a medium, it burns. This may explain that exposing to sunlight for a long time can make sunburn because light contains burned photons.

It is believed that the meteoroid may originate from a moon of a planet that has left its solar system and showed as a meteoroid. The photon may appear as a meteoroid in space.

Table 1.

In the state of atom	What we see in the universe
Photons	Satellites
Light (emission of photons)	Meteoroids (meteor)
Electron	Planet
Nucleus	Star

Another form of light which is the laser, the laser has directivity of its beam. On watching visible laser light, it is at once recognizable that it is a narrow beam propagating in almost a straight line. However, even the laser radiation is not a perfectly parallel flux of light, but at large distances it gradually broadens due to diffraction [6]. Moreover, Photons have no electrical charge [7], so it has negative and positive charge (Figure 3A). It is believed that if the negative part of a photon fuses with the positive part of another photon, the amplification occurs, and the laser photon becomes even greater because of fused photons (Figure 3B). This may be an explanation of how the light transfers into laser.

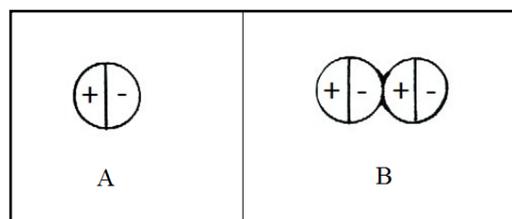


Figure 3. A: Photon, B: Fused photons (line of laser)

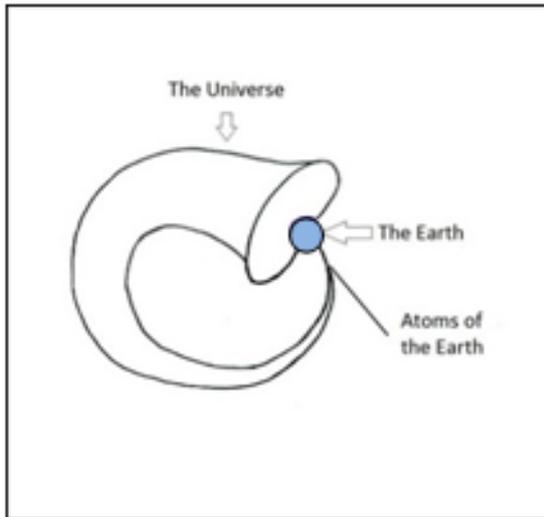


Figure 4. Diagram shows that what happens in the atoms really affects the universe and what happens in the universe affects the earth

2. Results and Discussion

From this atomic model, it is suggested that the universe is a big model of atoms and atoms are small model of the universe. The universe repeats itself from big into small and from small into big. Like, if it is imagined that there is a grand mirror that reflects other sides of the universe and reflects human being's impressions and acts on the universe (Figure 4).

That is why the universe looks the same at all points of space and in all directions [8]. This postulation also may explain what is called the anger of nature.

In this point, it is concluded that Mercury and Venus are not considered planets because they have no satellites. It is believed that the role of both Mercury and Venus planets is like to be the terminals of the necklace of the solar system that prevents its separation and prevents planets from falling into the gravity of the sun. According to this postulation, the first planet in the solar system would be the Earth which means that mankind lives in the first heaven.

It is suggested that the three dimensions of space are reflection of repeating of the universe three times. That is why the universe gained its three dimensions (Figure 5).

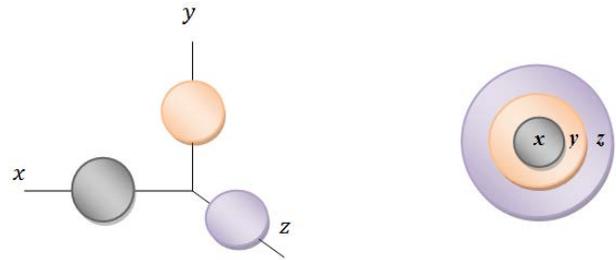


Figure 5. Three dimensions in space are reflections of three worlds

It is also believed that the earth or any object in space may repeat itself about three to seven times in the universe because it's a limited number for repeated unique bodies. This is due to the consequences of the big bang. It limited the conditions that must assemble to repeat any unique object of any kind to that number.

Gravity and time

Rotation is a universal phenomena and many galaxies are rotating. Furthermore, our galaxy has a supermassive black hole at its center. Spiral galaxies have copious amounts of gas and dust [8] (Figure 6A). The arrangement of the gas and the dust in the galaxy represents spiral arms. Any mass that rotates on its axis, it generates arms like the spiral arms of a spiral galaxy. It is believed that these spiral arms are a reflection of the gravitational force. The rotation of the sun on its axis and rotation of the sun around the galactic core is really suggested to be affected by the supermassive black hole rotation in the center of the galaxy.

It is believed that these arms are also generated by the sun and planets. It is represents the gravitational force that is caused by any rotated mass (Figure 6B). It is also have another function which is rotation of the attracted object on its axis. Those two functions cannot be obtained if the density of the mass below certain value when compared to the object. When the sun rotates on its axis, the latter two functions of the spiral arms are considered. So the galaxy, the sun, planets and satellites will have the same direction of the rotation on its own axis, and the rotation around each other which is counter clockwise rotation (Figure 6). Spiral arms represent the stirring in space. When the stirring of the mass (like the sun) is fast, the attracted objects which move around it cannot fall into the center and the objects will continue rotating around it (Figure 6).

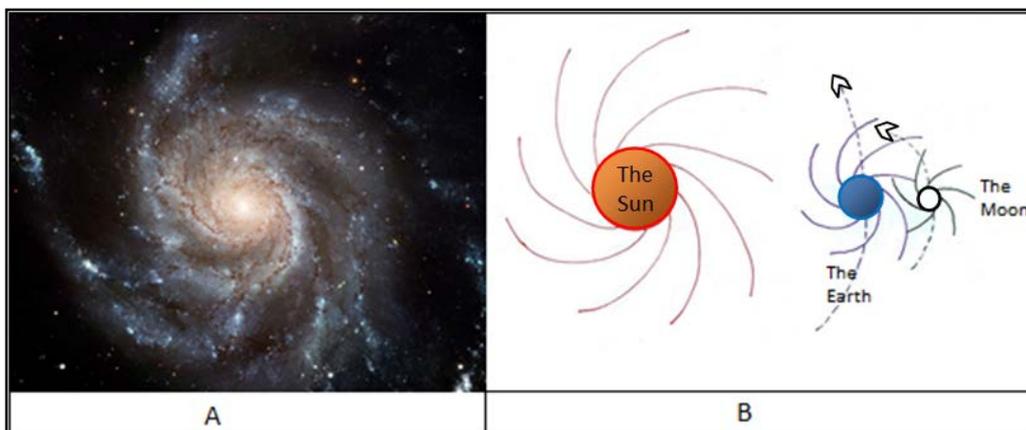


Figure 6. A: spiral galaxy and its arms. (Wikipedia), **B:** Diagram of the spiral arms of each body in space usually has counter-clockwise rotation represents the stirring in space which is fundamental for gravitational force

In the flat spacetime of special relativity, observers moving at different speeds will have different measures of time [9] since the time shrinks in the state of speed of light. To explain time in different manner, the momentum of the earth or any object in space is related to the time because of the more the momentum of rotation of the earth around the sun, the less the time we feel on earth and the time produced on earth will shrink and vice versa. The days and years calculation will be the same, but the feeling of the time on earth will go faster. So, you cannot escape from time because every object that circulating about any mass or have momentum in space, it generates time like the sun circulating about the galactic core. From this explanation, it is concluded that the time is inversely proportional to the momentum and also inversely proportional to gravitational force of the sun. The following equation can be generalized in everything in the universe including the atom.

$$t = \frac{1}{P} \quad (2)$$

$$t = \frac{1}{F} \quad (3)$$

When Werner Heisenberg formulated his famous uncertainty principle, he noted that Planck's hypothesis implies that the more accurately one tries to measure the position of a particle, the less accurately one can measure its speed, and vice versa [11]. This means that we cannot exactly predict the position of a particle in a certain time since time is related to the momentum from the following equation.

$$t = \frac{mx}{P}. \quad (4)$$

In addition, we cannot precisely predict the position of the electron in the future because we cannot determine all the causes that affects the changing of the position of a particle in a certain time and if we could determine them, we cannot predict what will happen in a large percentage due to the complexity of the issue when the effectors or the causes are several.

The gravitational force affects the momentum of the earth, so gravitational force of the sun is equal to the momentum of the earth.

Einstein's theory of gravity cannot explain how space and time come into existence [8]. However, when the big bang singularity was first created, it is created in the form of atoms. Since the universe is a reflection of atoms and time is related to momentum. It is suggested that what initiated the big bang is due to the electrons were first to have momentum about the nucleus, It initiated the spark of the big bang and the beginning of time in the universe, and atoms reflected to shape the great model of the universe like galaxies and solar systems.

The unbounded shape

If someone gets a plane, and starts a journey to explore the earth, the starting point of the journey (sphere) is the ending point of the journey (sphere). So, if this person wanted to start another journey, he had to repeat the first one. This explains why the universe is repeated all around us, and events are repeated in the history of mankind. Therefore, the repeating makes the universe infinite (Figure 7).

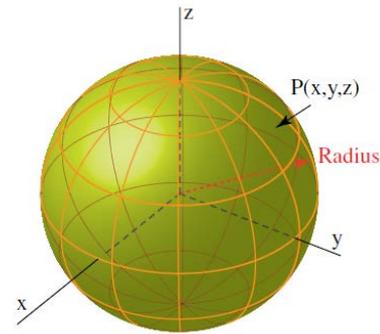


Figure 7. Sphere shape in space shows the provident that our universe is infinite. (Belal E Baaquie & Frederick H Willeboordse. Exploring the Invisible Universe from Black Holes to Superstrings. World Scientific Publishing Co., 2015)

In addition, if it is suggested that the big bang singularity [10] was spherical, the starting point of the sphere is the ending point of it. In fact, it has no beginning and it has no end because it is a sphere which makes an infinite singularity (Figure 7). Another sign that our universe is infinite is that the big bang singularity divided into galaxies, the more the division of the singularity, the more the universe will be infinite. The more the spheres (stars and planets) that settled in the spherical container (cosmos), the more will be the surface area and our universe will be more infinite.

The expanding universe [8] only applied on galaxies and not the vacuum. If it is considered that the big bang singularity is bounded, the vacuum must be considered otherwise. If it is considered that the vacuum is unbounded, all contents of the vacuum like galaxies must be considered as well.

3. Conclusion

In Conclusion, the universe was created in a certain time. However, when the universe exists, the creator created the universe before any other thing exists before his creation or before spacetime existence. So, the universe sometimes appears to have no beginning.

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