Advances in Physics Theories and Applications
ISSN 2224-719X (Paper) ISSN 2225-0638 (Online)
Vol.49, 2015

The Behavior of Beta is Explained by Constant U

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Abstract
In the nuclear range, the distance r of an electron from a proton in the neutron (as a system) is inversely proportion to the electron's energy according to constant U which is identical with the neutron's system. Therefore at a distance equals the basic nuclear diameter the electron's energy is at its minimum value (.511 Mev) where the electron moves with the speed of light c and here it begins to be called a beta ray. When the distance r is at its shortest value equaling the basic nuclear radius, the electron's energy is at its maximum value (1.17 Mev) where the electron's speed exceeds that of light. Therefore through constant U we can understand the behavior of beta with its various energies getting out the nucleus simply and naturally far from the problems created by Quantum theory that prevents the existence of the electron in nuclear range, and S. Relativity that prevents any speed exceeding that of light, and according to it moving with the speed of light transfers the whole mass into a pure energy. In fact, science must continue examining its concepts in order to deal correctly with the facts of universe.

Introduction:
I referred to beta problems previously in some of my papers, but now I feel that it must be discussed in a special one. The behavior of beta contradicts both S. relativity and Quantum theory, for this reason beta decay presented a great puzzle to physicists. In 1930 Pauli suggested a solution for these problems representing in an uncharged particle of very small or zero rest mass energy and spin $\frac{1}{2}$ emitted in beta decay together with the electron, this particle called neutrino(1) . We are going to prove that there are no problems at all in the behavior of beta decay using constant U in understanding its behavior before showing how beta opposes the principles of quantum theory and s. relativity.

1- Constant U explains beta behavior:
This constant was presented in 2014(2) as follows

$$m_e v^2 r = \frac{e^2}{4\pi\varepsilon_0} = 2.30 \times 10^{-28} J - m \qquad [1]$$

Where the electron's energy inversely proportionate with its distance r from another opposite charged particle like a proton or a positron inside the nucleus. In fact celebrated Maxwell's equation in its analytical form is a special case in constant U when r in this constant equals exactly $2.8 \times 10^{-15} m.$ which is the basic nuclear diameter, as follows

$$c^2 = \frac{e^2}{4\pi r m_e \varepsilon_0} = \frac{1}{\mu_0 \varepsilon_0} \qquad [2]$$

From this equation which changed deeply our world by opening the wireless age(3), we have the minimum value of beta ray from its analytical form where

$$m_e c^2 = 8.199 \times 10^{-14} = .511\, Mev \qquad [3]$$

This is the real energy of the electron in this case (not the its rest mass energy according to s. relativity) where the electron moves actually with the speed of light. Also we can have gamma ray in its minimum energy when the electron interacts with a positron, and the energy here is $2m_e c^2$
Beta has various energies ranging from this minimum one in [3] to the maximum one (1.17 Mev)(4) , because the speed of the electron is determined by its distance r from the proton in the neutron system therefore this distance is not the same in neutrons inside the nucleus, and hence the energies of beta differ from one to another due to the locations of these neutrons from the center of the nucleus where at the center the distance r is at its shortest value.
In the case of 1.17 Mev = $1.67 \times 10^{-13} J$ as the maximum energy of beta the electron moves with the following speed

$$\frac{1.87 \times 10^{-13}\, J}{9.11 \times 10^{-31} Kg} = 2.057 \times 10^{17}$$

Therefore the distance r between the electron and proton inside the neutron system according to constant U is

$$\frac{2.30 \times 10^{-28} J - m}{1.87 \times 10^{-13} J} = 1.22 \times 10^{-15} m.$$

And this value is the basic nuclear, meaning that the maximum energy of beta is connected with the center of the nucleus.

2- Beta with S. Relativiy :
What passed now about the energy of beta was enough to disturb physicists deeply. Pauli in 1930 and Fermi in 1934 suggested another particle with no charge, and almost zero mass, and $\frac{1}{2}$ spin called neutrino to overcome this

problem sharing the amount of energy exceeding m_0c^2 with the electron, but even if this is the case and the neutrino bore its load of energy it will move with a speed exceeding greatly the value of light c without solving the problem of s. relativity with because

$$E = m_0 c^2 + K^{(5)}$$

As $m_0c^2 = .511\ Mev$, then the energy remained from the maximum value $1.17\ Mev$ is $.659\ Mev = 1.055 \times 10^{-13}\ J$, and if the mass of the neutrino is near zero its speed would then be huge (not only exceeding the speed of light c !)

Beta with Quantum theory :

According to de Broglie formula[6] based on Planck constant, the electron cannot exist inside the nucleus because

$$\lambda = \frac{h}{mc} = 2.422 \times 10^{-12}\, m$$

This amount is 1730 times the nuclear radius, but because the electron actually comes out of the nucleus in the form of beta ray, quantum theory explained this fact by that the electron is emitted only in the moment of departing the nucleus! In another paper we proved that the electron not only exists inside the nucleus but it moreover is the source of the nuclear binding energy beginning with the simplest nucleus forming from one proton and one neutron that is the deuteron , using our constant U we could extract the basic nuclear radius where the electron divides its energy between the proton in neutron's system and the other proton where

$$\frac{2.30 \times 10^{-28}\, J-m}{3.52\times10^{-13}\ /_2} = 1.30 \times 10^{-15} m.^{(7)}$$

In addition, the spin of electrons, protons and neutrons according to Planck constant is described as $\frac{1}{2}\hbar$, therefore

$$N \neq p + m$$

Here the neutrino according to Pauli and Fermi could be added to the right side to let N remaining equal to $\frac{1}{2}$, but how we can imagine a particle with almost zero mass like neutrino to spin with almost zero radius ? It is clear that the neutrino had been suggested to adapt beta behavior with s. relativity and quantum theory. Even if the neutrino had been found in the universe it is another story.

In fact far from the problems of the behavior of beta with S. Relativity and Quantum theory the most important and beautiful thing in using constant U for understanding this behavior is that the difference between the minimum and maximum energy of beta is result of the difference between the nuclear diameter and radius in the distance between the electron and proton inside neutron system which is identical with constant U, including the special case of Maxwell equation in its analytical form as passed ubpove.

Conclusion

Far from S. Relativity that based on the speed of light as the greatest one in the universe and Quantum theory that prevents the existence of the electron inside nucleus, far from them, constant U enables us understanding correctly and accurately the behavior of beta ray which is a speedy electron coming out the nucleus where the number of neutrons decreases by one and the number of protons increases by one. Constant U is the neutron itself as a system forming from one electron + one proton, the distance r between them is inversely proportion to the energy of the electron which at distance equals the basic nuclear diameter from the proton has its minimum value .511Mev, here the electron moves actually with the speed of light, and at a distance equals the basic nuclear radius it reaches its greatest value 1.17 Mev moving with a speed exceeds that of light. The various energies of beta ranges between the minimum and maximum one indicating that the distance r between the electron and proton differs according to the situation of neutron from the nuclear center.

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