What is a Neutrino?

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Abstract. The emission of antineutrinos is interpreted by the inductive-inertial phenomenon as independent E/M formations, which are created when a neutron breaks down into a proton and an electron (beta decay). Specifically, at the contact limits of the neutron quarks, due to the acceleration of the surface charges of the neutron cortex, the adjacent opposite units are strongly accelerated, causing grouping units outside the neutron cortex as independent E/M formations of one spindle.

Keywords: Inductive phenomenon; grouping units; neutron cortex; quarks.

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1. Neutrinos as independent E/M formations of one spindle

By the unified theory of dynamic space,[1,2] the inductive-inertial phenomenon[3] is developed, which is a precondition to create E/M waves,[4] while the cause for creation of E/M formations is the phenomenon of rotary oscillations[4] of the electron.

The E/M spectrum has, as known, a maximum frequency $\nu = 10^{24}$Hz. The dynamic space can give E/M radiation of even greater frequency, but not by oscillation or by changing the kinetics of the electron, which has a significant inertial mass that prevents larger accelerations. Therefore, the formations of neutrinos cannot be photons or independent E/M waves.[5] Hence, there remains the search of strongly accelerated electric charges with minimal inertia, such as the charges of the particles, consisting of units[6] with zero inertial mass. Consequently, the creation of neutrinos is located at the strongly accelerated motions of the units, which happen in the cortex[7] of the particles.

So, the emission of antineutrinos is interpreted by the inductive phenomenon as independent E/M formations,[5] which are created when a neutron breaks down into a proton and an electron (beta decay).

Specifically, when a neutron breaks down into a proton and an electron (beta decay), then at the contact limits of the neutron quarks[8] the adjacent opposite units are strongly

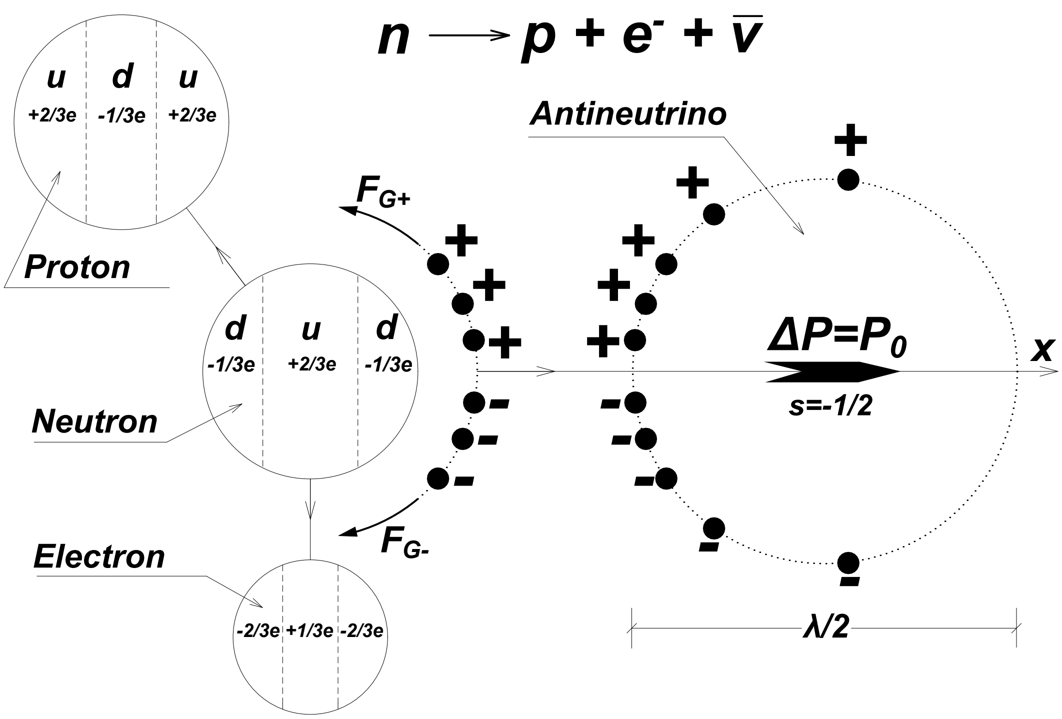

Figure 1. The beta decay creates the grouping units of antineutrinos (of one spindle) at the contact limits of the neutron quarks,[8] formed (as schematically is designed) by the induction forces F_{G+} and F_{G-}

accelerated, causing grouping units[3] (inductive phenomenon) outside the neutron cortex as a full spindle of E/M formation (Fig. 1). Therefore, the antineutrino is similar to an independent E/M formation of one spindle with a wavelength $\lambda/2$ and a spin[8] $s = +1/2$ or $s = -1/2$. Below, the high frequency of neutrinos will be calculated.

2. Frequency of neutrinos

The energy E_n of the neutron before the breakdown will be

$$E_n = E_p + E_e + E_{\bar{\nu}}, \tag{1}$$

where the second part of Eq. 1 are the energies (after the decay) of proton, electron and antineutrino. However, $E_p = 938,28$MeV is the rest energy of proton,[9] assumed to be approximately equal to the energy kinetics after the decay and $E_n = 939,57$MeV is the rest energy of neutron.[9] So, their energy difference is $E_n - E_p = 1,29$MeV and the Eq. 1 becomes

$$E_e + E_{\bar{\nu}} = E_n - E_p = 1,29MeV = 2 \cdot 10^{-13}J. \tag{2}$$

However, because the energies of the electron and antineutrino are approximately equal ($E_e \approx E_{\bar{\nu}}$), then the energy of antineutrino, due to Eq. 2, is

$$E_e \approx E_{\bar{\nu}} = 10^{-13}J \Rightarrow E_{\bar{\nu}} = 10^{-13}J. \tag{3}$$

We assume a train of independent E/M waves[5] has energy $E_{\bar{\nu}} = 10^{-13}$Joule (Eq. 3), then their frequency will be

$$\nu = \frac{E_{\bar{\nu}}}{h} = \frac{10^{-13}}{6,6 \cdot 10^{-34}} = 0,15 \cdot 10^{21} Hz \Rightarrow \nu = 0,15 \cdot 10^{21} Hz. \tag{4}$$

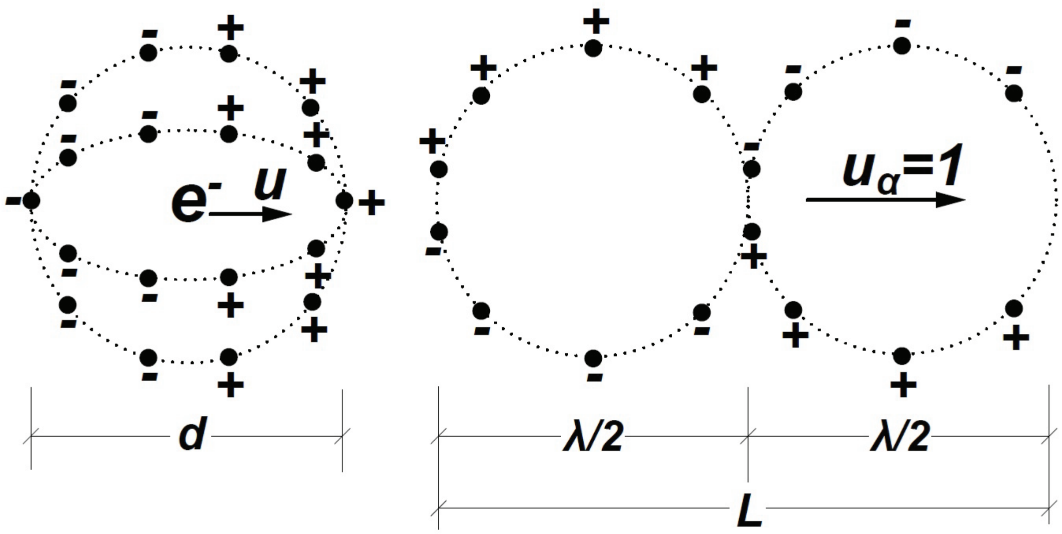

Figure 2. Correlation of a meridians pair with a fundamental E/M wave ($d = \lambda/2$, $\lambda = L$ the photon length and $u_a = 1$ the constant timeless speed[10] of light)

The number of fundamental E/M waves[4] the above train is then

$$\kappa = \frac{\nu}{\nu_\tau}, \tag{5}$$

where

$$\nu_\tau = 10^5 Hz \tag{6}$$

is the frequency[11] of the fundamental[4] E/M wave (Fig. 2). So, the Eq. 5, due to Eqs 4 and 6, becomes

$$\kappa = \frac{\nu}{\nu_\tau} = \frac{0,15 \cdot 10^{21}}{10^5} = 15 \cdot 10^{14} \Rightarrow \kappa = 15 \cdot 10^{14}. \tag{7}$$

However, the number of spindle-antineutrinos corresponding to the wavelength of this frequency is twice ($\kappa' = 2\kappa$) of this number of E/M waves of the supposed train,[5] that is

$$\kappa' = 2\kappa = 2 \cdot 15 \cdot 10^{14} = 30 \cdot 10^{14} \Rightarrow \kappa' = 30 \cdot 10^{14}. \tag{8}$$

Therefore, the frequency of antineutrinos will be found as the product of the number of spindle-antineutrinos $\kappa' = 30 \cdot 10^{14}$ (Eq. 8) times the frequency $\nu = 0,15 \cdot 10^{21}$Hz (Eq. 4) of the supposed train[5] of independent E/M waves, namely it is

$$f = \kappa' \nu = 30 \cdot 10^{14} \cdot 0,15 \cdot 10^{21} = 45 \cdot 10^{34} Hz \Rightarrow f = 45 \cdot 10^{34} Hz. \tag{9}$$

Frequency $f \approx 10^{35}$Hz of neutrinos-antineutrinos is impressively large.

3. References

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