

ELEMENTARY CHARGING IMPULSE

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Preamble

"The nature represents realisation of the elementary mathematically conceivable elements"
– Einstein confirmed.

The main moment in a birth of guess is the sensation of harmony and completeness of ensemble about what the great French mathematician and physicist Henri Poincare wrote in XIX century.

On a question: "What mathematical characteristics which we attribute properties of beauty and grace and which are capable to excite in us some kind of aesthetic feeling?" Poincare answers: "It is elements which are harmoniously located in such a manner that mind without effort can capture them entirely, guessing details".

Introduction

In 2003 group of mathematicians led by Jeffrey Weeks, using data of space vehicle Wilkinson Microwave Anisotropy Probe (WMAP) have established, that density waves in a space microwave background look in the same way as they should look, having arisen in a correct geometrical figure with 12 pentagonal sides. According to their assumption the Universe has the dodecahedron form.

Recently, Frank Steiner with colleagues from Universität Ulm, have executed new calculation and have specified, that the Universe has the form 3-torus in diameter of 56 billion light years (Moebius's three-dimensional bagel).

To explain infinity of the Universe scientists are compelled to use a postulate of the closed space i.e. as a dodecahedron, and 3-torus should have only one surface.

In our previous work the new explanation for the closed Universe is offered:

http://vlamir43.narod.ru/PARALLEL_WORLD_OF_STILL_TIME_e.pdf

This explanation has appeared, as result of the logic analysis of the formula by D.Bernoulli for body movement in the incompressible isotropic environment, formulas by J.W.Strutt and Rayleigh for pressure of a sound wave, formula by Langevin for pressure of a sound beam, the vector by Umov for an acoustic wave and the by Poynting for an electromagnetic wave. The received result is – the Universe is closed on itself by means of a speed of light. Besides, we managed to show, how inert mass of electron is connected with an electromagnetic field.

Being guided by the statements resulted in the preamble by A.Einstein and H.Poincare we will try to construct physical and mathematical model of transformation of electric field in magnetic and back.

Elementary charging impulse

First, it is necessary for us to be defined with the base units of measure entering into a constant of Planck which, as is known, is called as quantum of electromagnetic action. Our choice is caused by that the formalism "mass", which is till now a subject of the tightened opposition between various theoretical schools does not enter into this constant.

$$h = 6.62606876 \times 10^{-34} \quad |J| \times |s|$$

Let's open a unit of measure of quantum of electromagnetic action as follows:

$$|J| \times |s| = |N| \times |m| \times |s| = |N^{1/2}| \times |m| \times |N^{1/2}| \times |s| \quad (1)$$

In one of our early works what is called "On INTERCOUPLING of SOME PHYSICAL CONSTANTS"

http://vlamir43.narod.ru/intercoupling_of_constants_e.pdf

it has been shown, that the unit of measure of an electric charge is equal to product of a root square of force multiplied by time $|C| = |N^{1/2}| \times |s|$.

As it is possible to see from record (1), the electric charge already is present at quantum of electromagnetic action.

For revealing of the physical nature of second half of quantum of electromagnetic action we will enter concept of an elementary charging impulse which is equal to product of an elementary charge by speed of light in vacuum.

$$\Phi_e = q_e \cdot c = 4.8032042 \times 10^{-11} \quad |\text{N}^{1/2}| \times |\text{m}| \quad (2)$$

where: $q_e = 1.602176462 \times 10^{-19} \text{ C}$ – elementary charge;
 $c = 299792458 \text{ m/s}$ – speed of light in vacuum.

The most intriguing moment in constant Φ_e consists that its dimension coincides with dimension of a magnetic stream $|\text{Wb}| = |\text{N}^{1/2}| \times |\text{m}|$.

The most precise experiments with superconductivity have allowed to find out quantum of the magnetic stream which is equal $\Phi_0 = 2.067833636 \times 10^{-15} \text{ Wb}$

The formula for calculation of an elementary magnetic stream looks like

$$\Phi_0 = \frac{h}{2 \cdot q_e} = 2.067833636 \times 10^{-15} \quad |\text{N}^{1/2}| \times |\text{m}| \quad (3)$$

Thus, Planck's constant is equal to the doubled product of an elementary magnetic stream by an elementary electric charge.

$$h = 2 \cdot \Phi_0 \cdot q_e = 6.62606876 \times 10^{-34} \quad |\text{Wb}| \times |\text{C}| \quad (4)$$

Agree, that symmetry of units of measure in record (1) and in the formula (4) suggests, that quantum of electromagnetic action h , is created by two monopoles – magnetic Φ_0 and electric q_e .

The formula (2) specifies that interaction can occur in two various systems of readout separated from each other by a speed of light in vacuum. In other words, in two parallel worlds, one of which is the world of motionless space, and another we name the world of stopped time.

In our preliminary opinion process of transformation of an electric monole in magnetic monole should look as follows.

The moving charge creates a vortical magnetic field round a trajectory of the movement. At achievement of speed of the movement equal to a speed of light, the charge "dives" into the parallel world, leaving after itself a dispersing circle of a magnetic field.

*КУЛОН ушел, оставив ВЕБЕР,
 Пред Космосом лицом к лицу.*

*COULOMB elapsed, abandoning WEBER,
 In front of Cosmos face to face.*

How our electric charge turns to magnetic monopole at transition in the parallel world of stopped time?

From a school bench we consider, that the elementary electric charge has a field of the central character. It in our motionless space. In the parallel world the space flows. Means, by this current our charge somehow will twirl in a whirlwind and as a result electric and magnetic fields will exchange places.

Generally speaking, there is no difference, what whirlwinds to name magnetic, and what electric. Both those and others are drawn with opposite poles, and are repulsed with the like poles.

But one of problems consists that we do not have magnetic monopoles and, therefore, we cannot throw "magnetic bytes" in the parallel world. In the parallel world, accordingly, there are no electric monopoles.

Therefore, if to start to think of search of means of dialogue with in parallel existing civilisation for this purpose there is only a radiation (electromagnetic or magnetoelectric) which should arise at transition of monopoles through border of speed of light.

Radiation of a radial polytron

According to the energy postulate used in the polytronic physics developed by us, atoms of substance are constructed of radial and axial polytrons. Resonant frequencies of fluctuations of polytrons are calculated by means of very simple formula

$$\nu(m) = \frac{c \cdot m^2}{\pi \cdot D_s} = \frac{m^2}{\tau_c} \quad |\text{Hz}| \quad (5)$$

where: D_s – статический диаметр политрона;

m – frequency order of polytron at the given energy level, equal to amount of half waves (or to amount of knots) on a ring;

τ_c – energy cycle time in a ring with a speed of light.

Resonant energy of polytrons, both radial, and axial, it is possible to decompose to components according to used system of co-ordinates. Us energy of tangential fluctuations of a radial polytron will interest in this case. This energy just is that energy of which photons are formed, and, means, and quanta of electromagnetic action. The formula for calculation of tangential energy of a radial polytron has the following appearance

$$w_t(m) = \frac{3 \cdot \pi}{2} \cdot \left[\frac{0.72408 \cdot n_e^4 \cdot 4 \cdot M_e \cdot c^2}{m^2 + 0.089 \cdot n_e^2} \right] |\text{J}| \quad (6)$$

where: $M_e = 9.10938188 \times 10^{-31}$ [kg] – mass of rest of electron;

$n_e = 0.0528466$ – amplitude order of a radial polytron for atom of hydrogen, being relative number.

We ask readers not to be surprised to presence of the numerical factors facing to amplitude order n_e . These factors have appeared as a result of replacement of difficult integral with more simple algebraic expression. Accuracy of calculations has thus changed slightly. Besides, we now will simplify the formula (6) as the second composed in a denominator changes an end result of all to the 100-th shares of percent and its value can be neglected. Thus, we will apply the formula to the further qualitative research

$$w_t(m) = \frac{3 \cdot \pi}{2} \cdot \left[\frac{0.72408 \cdot n_e^4 \cdot M_e \cdot c^2}{\left(\frac{m}{2}\right)^2} \right] |\text{J}| \quad (7)$$

The act of radiation of a photon occurs at transition of a radial polytron with more energy state a frequency order m_i on less energy state m_j

$$w_t(m_{ij}) = w_t(m_i) - w_t(m_j) = \frac{3 \cdot \pi \cdot 0.72408 \cdot n_e^4 \cdot M_e \cdot c^2}{2} \cdot \left[\frac{1}{\left(\frac{m_i}{2}\right)^2} - \frac{1}{\left(\frac{m_j}{2}\right)^2} \right] |\text{J}| \quad (8)$$

In atomic spectroscopy the frequency of radiation of atoms are calculated under formula by Balmer-Ridberg, which for a spectrum of atomic hydrogen looks like

$$\nu(n_{ij}) = c \cdot R \cdot \left[\frac{1}{n_i^2} - \frac{1}{n_j^2} \right] |\text{Hz}| \quad (9)$$

where: $R = 10973731.568549$ [m⁻¹] – Rydberg's constant;

n_i, n_j – main quantum numbers.

As it has been told above, the frequency order of a polytron m is equal to even number of half waves on a ring. Whereas in formula Balmer-Rydberg the main quantum number n corresponds to an integer of full waves in the similar resonator.

Therefore, expressions in square brackets in formulas (8) and (9) are equal each other.

Having divided (8) by (9) we receive new expression for Planck's constant, measured in units of the moment of an impulse or the angular moment

$$h = \frac{3 \cdot \pi \cdot 0.72408 \cdot n_e^4 \cdot M_e \cdot c}{2 \cdot R} \text{ |kg|} \times \text{|m}^2\text{|} \times \text{|s}^{-1}\text{|} \quad (10)$$

In one of our previous works we have shown, that return value of Rydberg's constant is equal to length of a wave of gamma quantum which is capable to ionize the single atom of hydrogen which is at temperature of absolute zero.

$$\lambda_R = \frac{1}{R} = 91.126705 \times 10^{-9} \text{ |m|} \quad (11)$$

After ionization the beaten out electron and the ionised atom of hydrogen (proton) scatter in opposite sides. Thus the electron gets speed 37511|m/s |, the proton gets speed 875|m/s |. Taking into account (11) formula (10) becomes

$$h = 3 \cdot \pi \cdot 0.72408 \cdot n_e^4 \cdot M_e \cdot c \cdot \left(\frac{\lambda_R}{2} \right) \text{ |kg|} \times \text{|m}^2\text{|} \times \text{|s}^{-1}\text{|} \quad (12)$$

Qualitative comparison of units of measure in formulas (4) and (12) which, we will remind looks as follows

$$\text{|Wb|} \times \text{|C|} = \text{|kg|} \times \text{|m}^2\text{|} \times \text{|s}^{-1}\text{|}$$

leads to the conclusion which does not keep within frameworks of materialistic understanding the person of the processes occurring in the nature. An essence of this conclusion that the physical sense of inert mass in our world of motionless space is equivalent to physical sense of force in the parallel world of stopped time.

FROM KNOWLEDGE ANCIENT WE STILL HAD ONLY IT

