Wave-particle «paradox» as a wave-like form Gosdas's wave function replaces Schrödinger's equation

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Abstract

In this paper, the inductive-inertial phenomenon G is developed, as well as the force F_G, which acts on the units of the dynamic space (see http://viXra.org/abs/1410.0040). This explains the nature of the magnetic forces, that are Coulomb's electric forces (see http://viXra.org/abs/1503.0210) between grouping units (namely electric charges or forms of the electric field), created by the accelerated electron. Also, Coulomb's Law for magnetism, the physical significance of magnetic intensities and the strangeness of the fluctuation of nucleons magnetic moment are interpreted.

De Broglie's wave-particle is Gosdas's motion wave (wave-like form) and his wave function replaces Schrödinger's equation. So, the wave phenomena of particles, the atomic orbitals and the wave-particle «paradox» are interpreted.

1. Phenomenon *G* - Force F_G - Pressure difference ΔP as motion arrow - Magnetic force

In a changing motion of an **electron** a shift of **units** of the proximal **space** is caused and a **pressure difference** ΔP is created. This shift of units at a proximal area of an electron is the **inductive-inertial phenomenon** *G* and the **force** F_G is the cause that moves the units. This **inductive force** (*Figure 1*), is applied on the **positive units** (F_{G+}), has the same direction with the **acceleration** γ of the electron, while if applied on the **negative units** (F_{G-}), it has the opposite direction to γ. The inductive-inertial phenomenon *G* takes place, when an **external force** is applied on an electron, due to which it reacts, hindering the change of its kinetics by sending positive units in front and negative units behind.

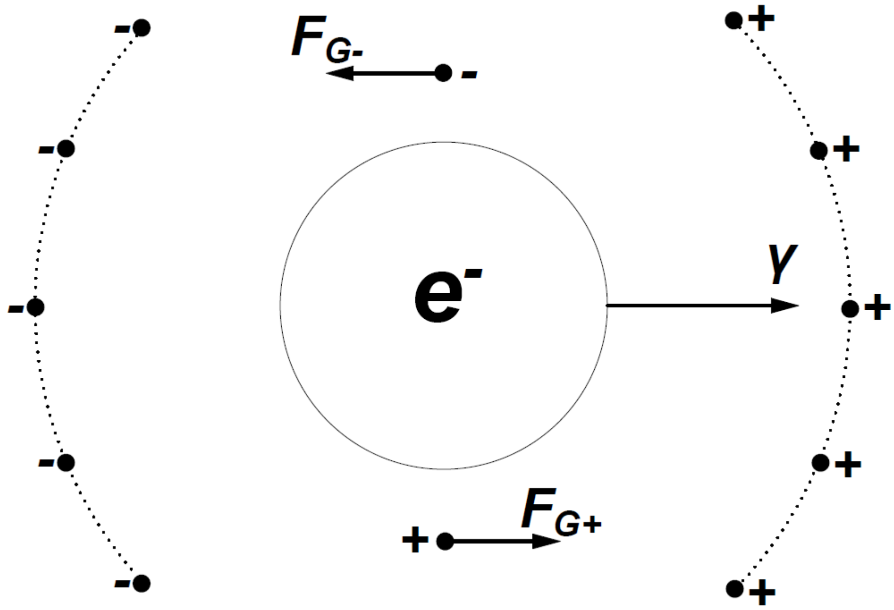

Figure 1: *Phenomenon G and its inductive-inertial forces* F_{G+} *and* F_{G-}

The phenomenon *G* is another expression of the **antithesis** (opposition) **principle** and the cause is the acceleration of the electron. Therefore, due to the principle of antithesis, the electron reacts to the change of its **kinetics** and tries to hinder the approach of the **positive charge** by which it is attracted, by placing positive units in front and removing negative ones behind (*Figure 2*). Like in **uncharged particles** inertia is the **reaction mechanism** to the change of its kinetics, the same in **charged particles** the corresponding reaction mechanism to this change is the phenomenon *G*.

In front of the uniformly moving ($\gamma=0$) electron (right in figure 2), a positive unit of its **electric field** is balanced. However, the accelerated electron leaves (due to acceleration γ) a part of the **electrostatic attraction** that acts on the positive unit, proportionally to force F_{G+}, by which the unit is moving to the right at the same direction with acceleration γ.

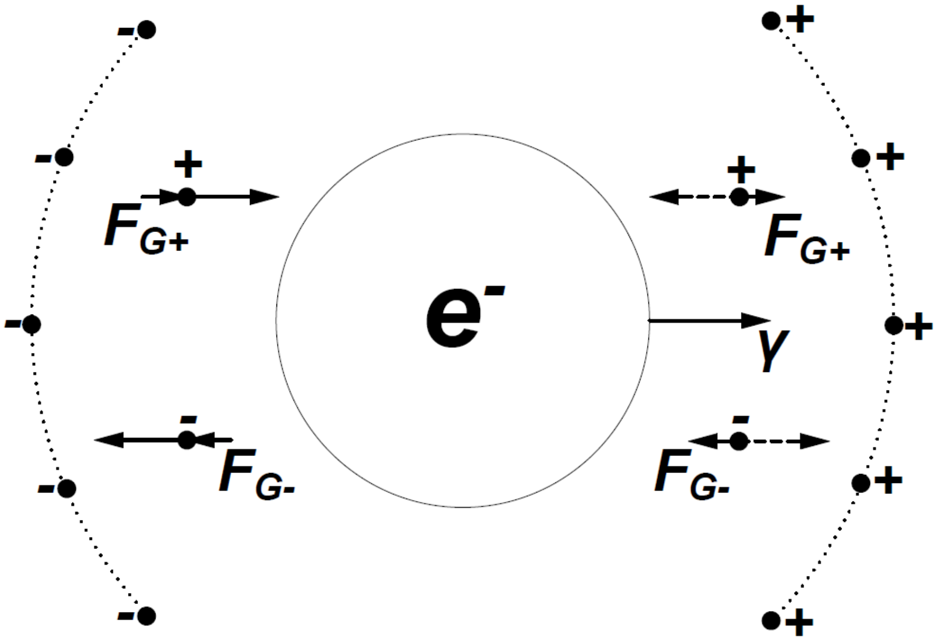

***Figure 2**: Dynamics of phenomenon G (the electron acceleration γ imposes a loosening of electrostatic attraction and repulsion in front and a strengthening of them behind)*

A similar analysis of the phenomenon G can be done for a negative unit in front of the electron (right in figure 2), since the accelerated electron leaves a part of the **electrostatic repulsion** that acts on the negative unit, proportionally to force F_{G-}, by which the unit is moving to the left at the opposite direction to acceleration γ.

Also, the same dynamic analysis can be done behind the electron (left in figure 2), but here the electrostatic attraction and repulsion on the positive and negative units are strengthened, due to the electron acceleration γ, resulting the positive units to move to the right and the negative ones to the left in figure 2.

This loosening of the electrostatic attraction and repulsion of the units in front is created, due to the thickening of them (inertial phenomenon G-**geometric deformation**), imposed by the electron acceleration γ, resulting in the reduction of dipole forces $F=kL_0$ (see http://viXra.org/abs/1410.0040). The opposite happens behind the electron, where the strengthening of attraction and repulsion is created due to the dilution of units, imposed by the electron acceleration γ, thus increasing the dipole forces F.

This tends to increase the **cohesive pressure** of space behind the electron and reduce it in front of it (inertial phenomenon G). However, the **dynamic space** reacts to this change with the inductive phenomenon G, reversing the phenomenon (principle of antithesis). This is achieved by placing positive units in front and negative ones behind (**electric** or **quantitative deformation-**inductive phenomenon G), forming the **grouping units**, thus increasing the cohesive pressure in front of and reducing it behind the electron, since the positive units in front are added to the negative ones of the electron field, increasing the **pairs** of **oppositely charged units** and, consequently, the cohesive pressure of space. The opposite happens behind the electron, wherein the negative units of electron field are increasing, due to the **negative grouping units** of the inductive phenomenon G, decreasing the pairs of oppositely charged units, resulting in reducing of the space cohesive pressure.

Therefore, in this geometric deformation (inertial phenomenon G) the dynamic space reacts with the inductive phenomenon G and imposes an electric or quantitative deformation of the space in front of and behind the electron, installing a pressure difference ΔP as a **motion arrow** of the electron. This **extremely fine texture** of **motion** is developed in site http://viXra.org/abs/1507.0079.

The achieved pressure difference ΔP, in front of and behind the electron, is the cause of the **accumulated forces** on the **electron spherical zone**. Of course, during the **electron deceleration**, a discharge of grouping units happens and therefore a reduction of pressure difference ΔP, by a discharge of forces at the spherical zone of electron.

Therefore, acceleration creates the grouping units (the phenomenon G) and **uniform motion** maintains them. To confirm the conservation of grouping units with uniform motion, we suppose that, as **oppositely charged units**, they are attracted and tend to coincide, causing the electron to receive a force F_{G-} backwards (*Figure 3*), due to the acceleration γ_1 of the negative units and a force F_{G+} also backwards, due to the acceleration γ_2 of the positive ones. These two forces would have neutralized the **kinetic force** of the electron as opposite of motion, but that is contrary to the **principle** of **conservation** of kinetic force or **energy**. Therefore, acceleration γ of the electron creates the grouping units and its **constant speed** u maintains them.

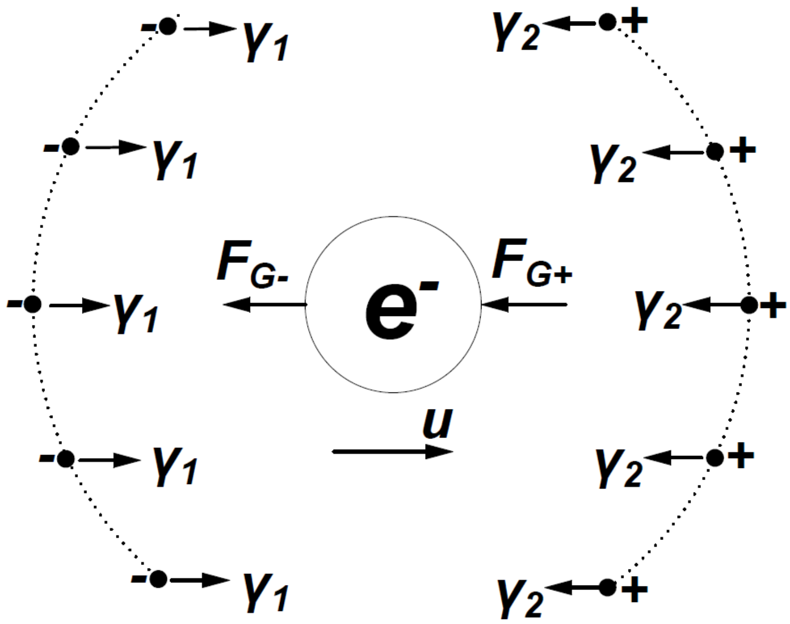

***Figure 3**: The constant speed u maintains the grouping units*

This phenomenon G occurs also at the acceleration of the grouping units, resulting in the reproduction of new grouping units, called **extra grouping units** (*Figure 4*).

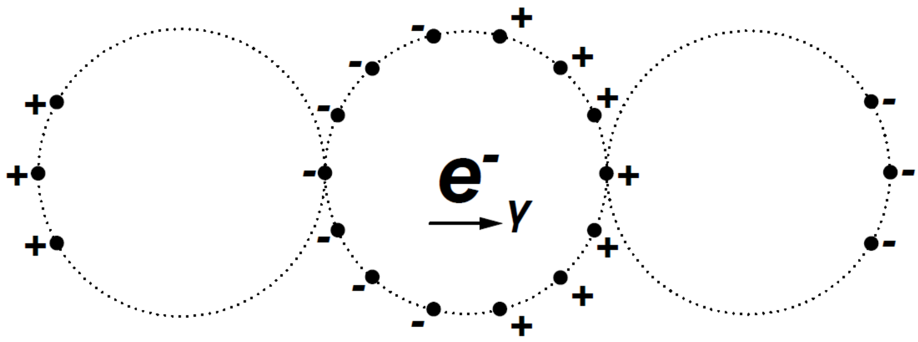

***Figure 4**: The first pair of extra grouping units*

Thus, as the **positive grouping units** of electron are accelerated, they send in front **negative extra grouping units** of the same form, while no positive units are placed behind. Respectively, behind the electron the **negative grouping units** form **positive extra grouping units**, without negative ones in front of them. Additionally, other extra grouping units are created, with a charge decreasing by **geometric progression**, as it will be developed at a next paper.

The phenomenon *G* creates the grouping units and the uniform motion of the charged particle maintains them. So, the **magnetic force** between two parallel electric conductors is interpreted (*Figure 5*), by the fact that their electrons create grouping units during their motion.

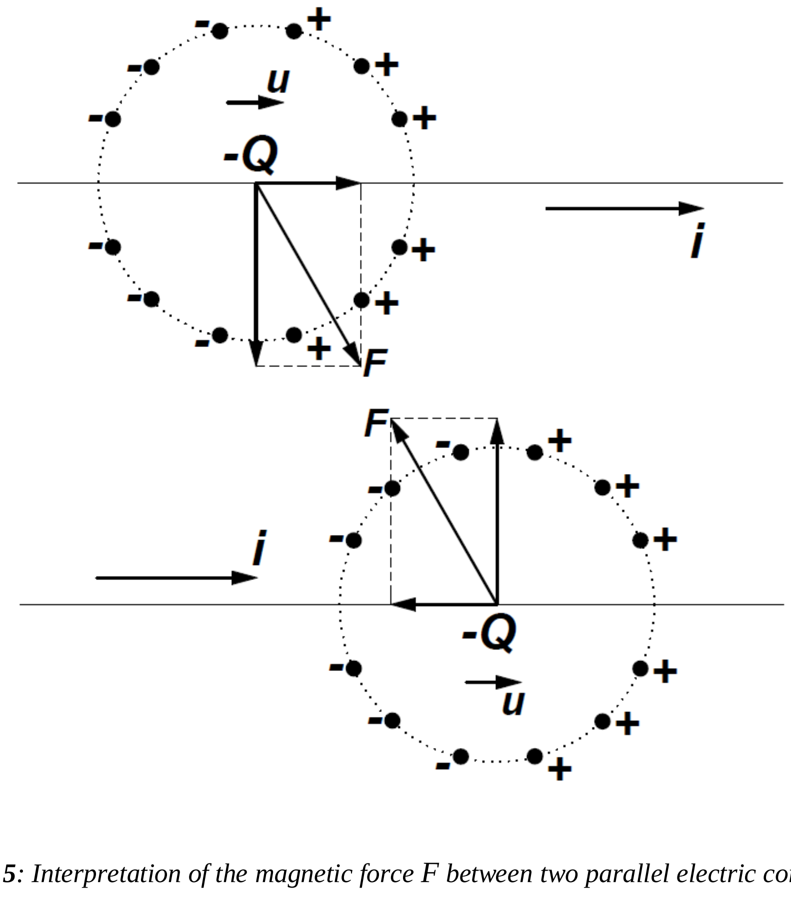

***Figure 5**: Interpretation of the magnetic force F between two parallel electric conductors*

For electrons moving at the same direction, the **oppositely charged grouping units** (at speeds u_1 and u_2 of the **moving electrons)** are always as in Figure 6 and are attracted.

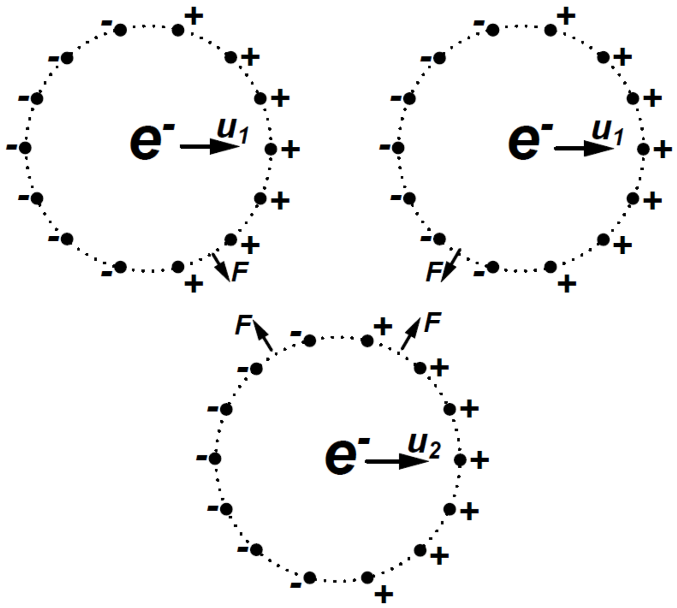

***Figure 6**: Attraction between electrons moving at the same direction*

For electrons moving at the opposite direction, the **homonymous grouping units** (at speeds u_1 and u_2 of the moving electrons) are always as in Figure 7 and are repelled.

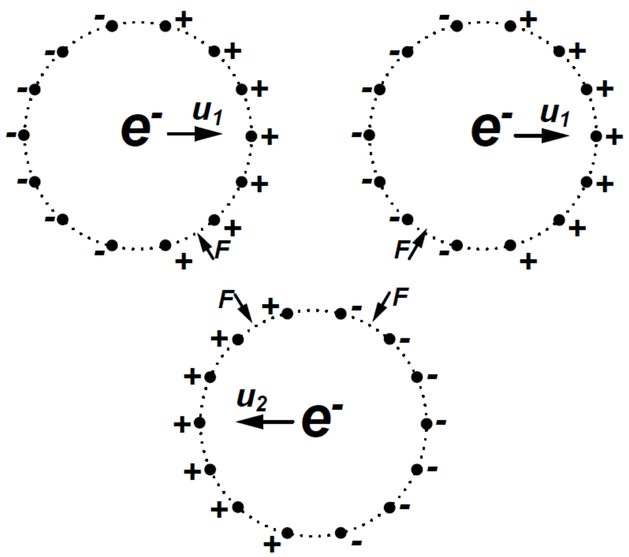

***Figure 7**: Repulsion between electrons moving at the opposite direction*

Thus, the phenomenon G is the cause for the creation of magnetic forces that occur as a result of attractive or repulsive **Coulomb's electric forces** between the grouping units of the moving electrons.

2. Coulomb's Law for Magnetism

In the above paragraph, magnetic forces are described as electric ones created by grouping units of the moving electrons. If Q_1 and Q_2 are the **moving charges** at speeds u_1 and u_2, while Q_1' and Q_2' are the **respective charges** of their grouping units, then it is obvious that $Q_1'=KQ_1u_1$ and $Q_2'=KQ_2u_2$, where K a **ratio constant**. However, between grouping units a Coulomb's electric force (see http://viXra.org/abs/1503.0210) is exercised, being a magnetic force $F_m=K_cQ_1'Q_2'/r^2$, where K_c the **electric constant** and r is the distance between grouping units. Substituting Q_1' and Q_2' from the above formulas, it is $F_m=K^2K_c\ Q_1u_1Q_2u_2/r^2$, where $K_m=K^2K_c$ is the **magnetic constant**, $Q_1u_1=m_1$, $Q_2u_2=m_2$ are the **magnetic quantities** and, hence, it is the magnetic force $F_m=K_mm_1m_2/r^2$ representing **Coulomb's Law** for **magnetism**.

If in formula $Q_1'=KQ_1u_1$, we put speed $u_1=u_\alpha C_0$, where u_α the **timeless speed** (see http://viXra.org/abs/1507.0079) of charge Q_1, then $Q_1'=KQ_1u_\alpha C_0$. As u_α is a dimensionless value, it should obviously apply $KC_0=1$.

If in formula $F_m=K^2K_cQ_1u_1Q_2u_2/r^2$, we put $K=1/C_0$, $u_1=u_{\alpha 1}C_0$ and $u_2=u_{\alpha 2}C_0$, then the magnetic force becomes $F_m=K_cQ_1u_{a1}Q_2u_{a2}/r^2$.

3. In-phase motion of grouping units causes parallel common course of their electrons Superposition of motion waves (wave-like forms) Atomic orbitals

Dividing the magnetic force $F_m=K_cQ_1u_{a1}Q_2u_{a2}/r^2$ (see paragraph 2) by Coulomb's electric force $F_{el}=K_cQ_1Q_2/r^2$, it is $F_m/F_{el}=u_{a1}u_{a2}$.

Timeless speeds of electrons are $u_{a1}<1$ and $u_{a2}<1$ and their product is very small, so that F_m is far smaller than F_{el} and at long distances magnetic force is negligible. However, this situation changes at short distances, where the parallel components of magnetic force F_m (*Figure 5*) cause slippage of electrons in **positions** of **stable balance** and **in-phase motion**, in which magnetic force is zero, since opposite electric charges are neutralized.

In positions of stable balance and in-phase motion of the parallel moving electrons a **superposition** of their **motion waves** (see paragraphs 5 and 6) takes place with an amplitude equal to the algebraic sum of the **fluctuation amplitudes** of the cohesive pressure P_0 (*Figure 9*). So, parallel and in-phase motion waves of moving electrons are created.

The superposition of motion waves takes place at phase difference multiples of 2π or at **wavelength** λ, namely in positions of stable balance. Any other parallel motion of electrons at a different phase from the above creates an **unstable balance**, which tends to be restored at a stable balance with a **parallel slippage** of electrons under the influence of the parallel components of magnetic force.

Therefore, motion waves slide in positions of stable balance so as to be in-phase motion. In the famous **double-slit experiment** moving electrons follow positions in-phase motion of their wave-like forms (motion waves), where a **quantum superposition picture,** caused by the above waves, is displayed, stimulated and created, though, by the electrons!

Also, motion waves (wave-like forms) of the electrons are the cause of the **self-superposition** (**standing waves**), that are creating the **atomic orbitals**. This self-superposition happens so that the recycled formation of a motion wave takes place by the superposition of the corresponding **in-phase amplitudes** of cohesive pressure, between the in front and behind of its **spindles** (*Figure 9*). For example, if $n=2$ is a principal quantum number, then the condition atomic orbital ($2\pi r=n\lambda$) of radius r requires a self-superposition of **symmetrical pairs** of extra grouping units-spindles (*Figure 4*) on the **orbital length** $2\pi r=2\lambda$, thereby creating a standing wave of four spindles. The self-superposition of a recycled motion wave presupposes in-phase positions, achieved by rotation of the **symmetrical spindles** at multiples of $-\pi/2$ for the in front and multiples of $+\pi/2$ for the behind. It is noted that **Professor Physicist N. Gosdas** describes in excellent detail the above (see bibliography: **Unified Timeless Mechanics**), clearly interpreting all of the **quantum numbers**!

4. Fluctuation of nucleons magnetic moment

Magnetic saturation is due to the phenomenon G, in which the moving electron sends positive units in front and negative ones behind. Thus, the separation of the units creates a lack of positive units behind the electron and a saturation of those in front, thereby the weakening of the **magnetism phenomenon** due to the presence of grouping units (see paragraph 1). Therefore, the increase of the electric field reduces magnetism and vice versa. This phenomenon is also observed in the **nuclei**, where their **lower inverse electric field** is changing rapidly (see http://viXra.org/abs/1503.0210) and affects directly their **magnetic field**. This dependence of both fields (electric and magnetic) is the **phenomenon *N***, which has an enormous significance for the nuclei structure.

The phenomenon G is observed, of course, during of the **particles spin**, wherein the **quarks** act as moving charged «particles» (see http://viXra.org/abs/1502.0097). Thus, the $+2e/3$ quarks (two **positive poles**) of the **rotating proton** send easily negative units in front. The latter are in abundance in the **inverse electric field** of the **proton**, which has difficulty to repel positive units behind due to the lack of them. As result it comes the reduction of the **proton magnetic moment** (will be developed at a next paper).

Correspondingly, the $-e/3$ quarks (two **negative poles**) of the rotating neutron send easily positive units in front. The latter are in abundance in the **inverse electric field** of the **neutron**, which has difficulty to repel negative units behind due to a lack them. As result it comes the reduction of the **neutron magnetic moment**.

However, this situation improves significantly in the nuclear environment. As the **rotating neutron** enters in the lower inverse field of the proton, which has negative units in abundance, it acquires the possibility to increase the **quark grouping units**, by sending negative units behind and positive ones in front, thus increasing the magnetic dipole moment. Additionally, this entrance of the neutron increases the **magnetic dipole moment** of the **proton**, the **electric field** of which is enhanced by the positive units of the **neutron field.** Thus, the proton is facilitated to repulse the positive units behind and an equal number of negative ones in front.

It is noted that, upon the interaction of same nucleons, their magnetic moments are reduced. So, the **strangeness** of **fluctuation** of the **nucleons magnetic moment** is interpreted!

5. Gosdas's motion wavelength is identical to de Broglie's wavelength

The creation of the grouping units (phenomenon G) causes a change of the electric field in front of and behind the electron, resulting in the change of space cohesive pressure.

Thus, a pressure difference ΔP at the proximal field in front of and behind the electron is created, resulting in the accumulation of forces on a **sphere meridians** with axis to the direction of motion and having as center the particle (see http://viXra.org/abs/1507.0079). The displacement of this **forces spherical formation** at the space takes place, of course, by **time** and **spatial fluctuation**. The above **accumulated forces** are created by **talantonia** (oscillators) on vertical meridian pairs of particle spherical zone as a **quantum phenomenon**.

On site http://viXra.org/abs/1502.0097 the physical significance of **Planck's constant** h is mentioned and it is found equal to $h=\varepsilon_\tau \tau$, where $\varepsilon_\tau=6{,}626\cdot 10^{-29} Joule$ the **talantonion** (oscillator) of **energy** and $\tau=10^{-5} sec$ the **quantum time** in the formations region. The accumulation of the above forces takes place with talantonia of force $f_\tau= \varepsilon_\tau /L_0 \approx 10^{26} N$ on pairs of vertical meridians with diameter in the direction of motion, wherein $L_0=0{,}558\cdot 10^{-54} m$ (see http://viXra.org/abs/1410.0040) the **quantum dipole length** of units. This idea is derived from the conclusion, that motion is the only and unique natural phenomenon of **Universe**. However, in the dynamic space motion is made by two kinds of **moving formations**: by the **accompaniment formations** of **particles** and by the **formations** of **autonomous motion** of the **E/M waves** (will be developed at a next paper). Moreover, the E/M wave derived from the change of kinetics of a charged particle and, therefore, it is reasonable that **dynamics** of E/M wave is created from the dynamics, which is accumulated in the particle. Hence, by studying the **dynamic elements** of E/M wave, we probe the way by which they accumulate in the particle. It is also understood that there is no difference between charged and **uncharged particles** in the allocation form of these dynamic elements. Their difference is limited only in the property of the charged particles to release part of their dynamic elements, whenever there is change of their kinetics. Therefore, the E/M wave is concentrated, as an accompaniment formation, in the charged particle.

The accumulation of grouping units (and forces) continues for as long as the acceleration of electron does (see paragraph 1), up to the **emission limit** of the E/M wave with the **less energy**. This **weakest** E/M wave in **Nature** has a frequency $\nu_\tau=10^5Hz$ (known by **Thomson's oscillating circuit**), corresponding to period $\tau=1/\nu_\tau=10^{-5}sec$ of the **rotary oscillations** of an electron (will be developed at a next paper). It is the quantum time in formations region and corresponds to the time of accumulation of force talantonia f_τ on vertical meridian pairs of spherical zone of the particle.

Therefore, up to the so-called **strength frequency** $\nu_\tau=10^5Hz$ of the dynamic space there is no radiation of E/M wave, but phenomena of electric induction due only to the phenomenon G.

For a higher acceleration of the electron, a talantonion f_τ is accumulated on a pair of vertical meridians of the spherical zone and another talantonion is emitted as a E/M wave, according to the mechanism of its emission, which will be described at a next paper. Hence, the E/M wave consists of force talantonia f_τ, that are released from the motion formation of the electron, after **violent change** of its kinetics. Therefore the talantonion, that gives the **weakest-fundamental E/M wave**, is necessary to be accumulated on a pair of meridians (*Figure 8*), the diameter d of which is equal to $d=\lambda/2$, so that when released to become equal to two spindles of diameter $\lambda/2$.

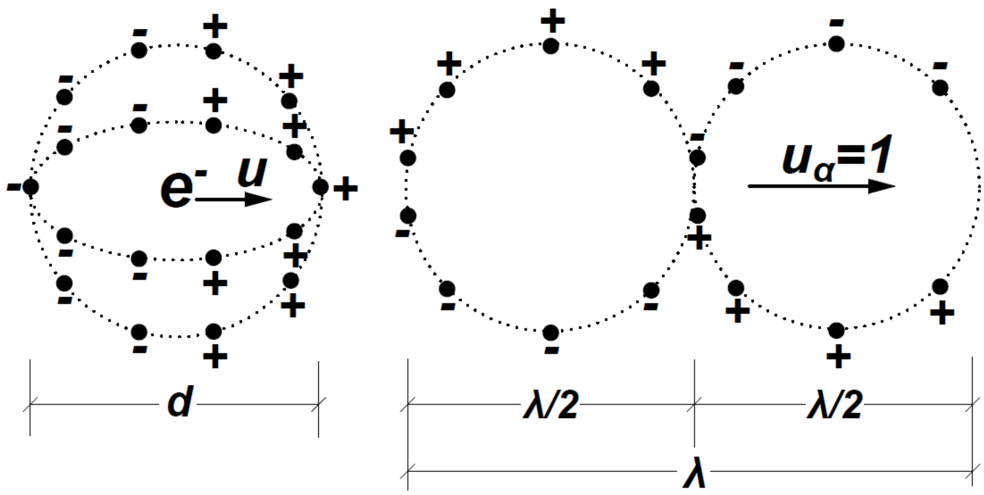

***Figure 8**: Correlation of a meridians pair (talantonion) with a fundamental E/M wave* (d = $\lambda/2$ *and* $u_a=1$ *the constant timeless speed of light)*

The weakest-fundamental E/M wave with a period $\tau=10^{-5}sec$ and a frequency $\nu_\tau=10^5Hz$ has a wavelength $L=C/\nu_\tau=3\cdot10^8/10^5=3\cdot10^3m \Rightarrow L=3\cdot10^3m$. This wavelength is called **photon length** L and at L_0 ($\sim10^{-54}m$), it is $L/L_0=3\cdot10^3/10^{-54}\approx10^{58}$.

This **admirable number** $L/L_0\approx10^{58}$ is the same, that is described as the number of units (see http://viXra.org/abs/1502.0097), by which the neutron is structured and is here identical with the **units number** of the E/M wave. Of course, in different regions of the Universe, the dipole length L_0 depends on the **local cohesive pressure** P_{0x} and is denoted L_{0x}, as a function of the distance x from the **Universe center**. Accordingly, the photon length L is denoted L_x and $L_x/L_{0x} \approx 10^{58}$.

In figure 8 it appears the correlation of a meridians pair and a fundamental E/M wave, wherein a force talantonion f_τ corresponds to a length $2\pi d$, where d is the spindles' diameter of wavelength $L=2d$. Therefore, the πL or $\pi 3000m$ or $\pi L_0 10^{58}$ is the **length** of the **helix**, into which there can be accumulated one or more force talantonia f_τ. For example, two talantonia ($2f_\tau$) need two pairs of vertical meridians, corresponding to photon length $L=4d$, given that four spindles form the E/M wave, while the length of the helix remains constant, i.e. πL. Thus, photon length $L=3000m$ or $L_0 10^{58}$ and helix length $\pi L=\pi 3000m$ or $\pi L_0 10^{58}$ remain constant.

Wavelength λ_1 of the fundamental E/M wave coincides with the photon length L, namely $\lambda_1=L$ and the next will be $\lambda_2=2d$, where $2 \cdot 2d=L$ (four spindles of the photon), therefore, $2\lambda_2=L$, i.e. $\lambda_2=L/2$, $\lambda_3=L/3, \ldots, \lambda_v=L/v$ (1). Then, the **total force** that is accumulated on the entire length of the helix (πL), is $F_s=vf_\tau \Rightarrow v=F_s/f_\tau$, so the (1) becomes $\lambda_v=Lf_\tau/F_s$.

It is noted that, in the units region, the motion force F is accumulated as $F_s=FS_p/L_0$ (S_p is the interval traveled by force F at **light speed** per $\tau_0=0{,}186 \cdot 10^{-62} sec$ with «click»-shifts at each $L_0=0{,}558 \cdot 10^{-54} m$) on pairs of vertical meridians of the particle' spherical zone (in the formations region) as quanta of force talantonia $f_\tau=11{,}87 \cdot 10^{25} N$ per $\tau=10^{-5} sec$ (see http://viXra.org/abs/1507.0079).

If the numerator and the denominator of formula $\lambda=Lf_\tau/F_s$ is multiplied by L_0/C_0, then $\lambda=(f_\tau L_0)(L/C_0)/F_s L_0/C_0$ where $F_s L_0/C_0=p$ (see above site), $f_\tau L_0=\varepsilon_\tau$ and $L/C_0=\tau$, then $\lambda=\varepsilon_\tau \tau/p$. However, $\varepsilon_\tau \tau=h$ and $p=mu$ and therefore $\lambda=h/mu$ as the so-called **de Broglie wave length**, which coincides with the length of **Gosdas's motion wave** (**wave-like form**), as a result of the dynamics of the particle motion formation. Specifically, in charged particles, this motion formation is a **concentrated E/M wave**, which is released from the particles during a violent change of their kinetics, as will be developed at a next paper.

6. Gosdas's wave function replaces Schrödinger's equation

In the above paragraph 5 it is described the time and spatial fluctuation of the forces spherical formation of the electron, which implies the **harmonic fluctuation** of the difference ΔP of space cohesive pressure, the fluctuation amplitude of which appears in figure 9.

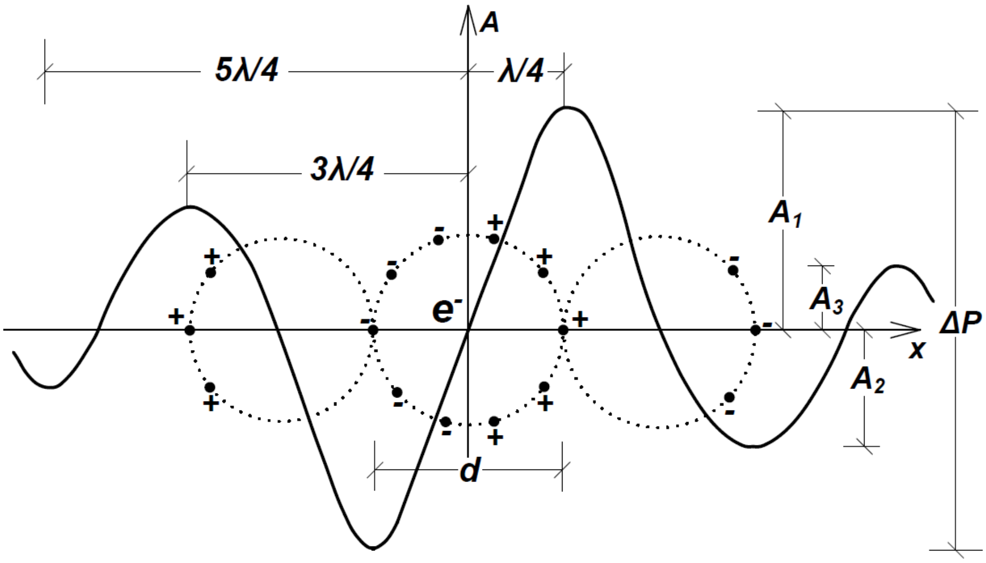

***Figure 9**: Descending change of fluctuation amplitude of space cohesive pressure of the electron motion formation with a formation diameter d=λ/2, where λ the wavelength of the harmonic fluctuation amplitude A ($A_1=P_0u_a^2/2$, $A_2=P_0u_a^4/2$, $A_3=P_0u_a^6/2$, where u_a the timeless speed of the electron)*

Gosdas's wave function (will be proved at a next paper) is a **sinusoidal fluctuation** of ΔP as a function of distance x from the particle, namely

$$\Delta P = \frac{P_o}{2} u_a^{\frac{4|x|+\lambda}{\lambda}} \cdot \sin \frac{2\pi x}{\lambda}$$

where $-\lambda/4 \leq x \leq +\lambda/4$, $|x|$ the absolute value of x, $u_a=u/C_0$ the timeless speed of the particle, u its time speed, C_0 the light speed, $\lambda=h/mu$ de Broglie's wave length, i.e. the length of Gosdas's motion wave (wave-like form), h Planck's constant, m the mass of the particle and P_0 the cohesive pressure of space.

Consequently, **de Broglie's wave-particle** is Gosdas's motion wave and his wave function replaces **Schrödinger's equation**, while it interprets the **wave phenomena** of **particles,** the atomic orbitals and the **wave-particle «paradox»**.

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