

System Electron – Proton

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Abstract

This report uses only two Axioms and six Laws from the theory of new Axioms and Laws. This theory consists of two new Axioms and eight new Laws which have been proposed and developed in previous reports by the same author. According to the first axiom (Axiom1), we can replace uniform motion in a closed circle with non-uniform motion in an open vortex. According to the second axiom (Axiom2), there are pairs of vortices that are mutually orthogonal or they work in a system by a special type of resonance [3].

Of all possible variants of vortex pairs, the most probable is the following pair: accelerating vortex from the center outwards connected with a delayed vortex from the periphery inwards. This case is a model of the connected proton-electron pair. The properties of a system only of linked electrons and protons are also studied. It is known that the Electromagnetic Field propagates at a constant speed and when it pulsates the waves are only transverse. According to the new Axioms and Laws in the electron-proton system, the internal connections are of variable speed and when pulsating, the waves are not only transverse but longitudinal. The interaction between the proton and the electron is not Electromagnetic but it is a gravity interaction. The interaction between the proton and electron includes cross vortex with variable velocity and longitudinal vortex (and funnels) with variable velocity. From previous developments it is clear that the electron is not a centric open vortex but an eccentric open vortex centered in the second quadrant and the proton is not a centric open vortex but an eccentric open vortex centered in the first quadrant. This is the reason for the formation of eccentricity vectors that decompose along the x and y axes [4].

Because the size of an electron is more than the size of a proton, the eccentricity of the electron is greater than the eccentricity of the proton. Therefore the components of eccentric vector of electron are longer than these of proton. Thus the component of electron along the y axis rotates the electron around the proton. And besides, since the decelerating vortex of the electron emits elementary decelerating vortices (Law 5) outward which are bent in the direction of the decelerating velocity, the electron will rotate parasitically and slowly to left around its own axis. Since the accelerating vortex of the proton sucks the elementary vortices (Law 6) inward which are bent in the direction of the accelerating velocity, the proton will rotate parasitically and slowly to right around its own axis. The electron and proton are gravitationally repelled by means of the transverse component and are attracted gravitationally by means of the longitudinal component. Both of them are and with variable speed. The existence of feedback between the electron and the proton (Law 7 and Law 8) explain the reason for the presence of free elementary cross vortices and they are called "free energy". And because they are invisible are known as "black matter" as well [4,5,6].

1.Review**Eccentricity of electron:**

According to the Maxwell's Axiom and equations from the Classic Field Theory all field structures are built from closed transverse vortices with constant velocity of movement [1,2].

The structure of an electron is well known from previous reports of the same this author. According to the new Axiom1 is obtained that the structure of an electron is an open vortex and the electron is not concentric but it is eccentric vortex. According to the consequence of Law1 is obtained that the structure

of an electron is a decelerating vortex directed from outside to inside as it was described in detail this process [3,4,5].

Axiom 1. The motion of vector with monotone-decreasing or monotone-increasing velocity becomes along an open vortices: $\text{div}(\text{Vor}E) \neq 0$ for vector E in 2D or $\text{div}(\text{Vor}H) \neq 0$ for vector H in 3D . (1)

Therefore: $\text{div}(\text{rot}E) \neq 0$, or $\text{div}(\text{Vor}E) \neq 0$, where the motion of the vectors E in 2D or H in 3D with monotonically-accelerated or monotonically-decelerated motion occurs in the form

of an open vortex (Vor), in which: $\text{div}(\text{Vor } E) > 0$, $\text{div}(\text{Vor } E) < 0$ in 2D,

$\text{div}(\text{Vor } H) > 0$, $\text{div}(\text{Vor } H) < 0$ in 3D

Law 1 : The open cross vortex (E_{2D}) generates (inward or outward) an open longitudinal vortex (H_{3D}) (inward or outward) in its center through a cross-longitudinal transformation $\Delta 1$: $\Delta 1$

$$\text{Vor}(E_{2D}) \Rightarrow -\text{Vor}(H_{3D}), \quad (2)$$

where Vor (for Vortex, meaning an unevenly vortex) replaces rot

(for rotor, meaning opened closed loop); the cross vortex in 2D (E_{2D}) (Figure 1c) continues its development in 3D as a longitudinal vortex (H_{3D}) (Figure 1d).

Consequence : The open decelerating cross vortex (E_{2D}^-) generates inward an open accelerating longitudinal vortex (H_{3D}^+) outward (Figure 2c). This action takes place from the center of decelerating cross vortex (E_{2D}^-) through a particular cross-longitudinal transformation $\Delta 1$: $\Delta 1$ -

$$\text{Vor}(E_{2D}^-) \Rightarrow \text{Vor}(H_{3D}^+). \quad (3)$$

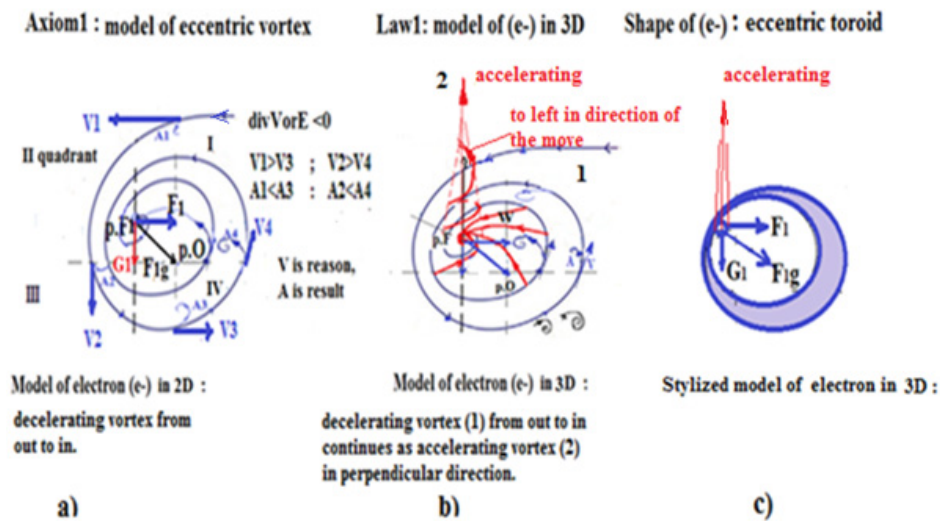


Figure 1: Model of electron

Because of that the velocity vector (V) decreases continuously when it moves from the outside to inwards, the whole spiral shifts toward the second (II) quadrant. The center of classic centric spiral was in the geometric center ($p.O$). But the new center of the decelerating eccentric spiral ($p.F1$) shifts to up and left or to the second (II) quadrant. That is way the distance between the classic geometric center ($p.O$) and the new center of gravity ($p.F1$) forms a vector of eccentricity or Vector of Gravity ($F1g$) (Figure 1a).

Result : The mechanism of action of the delta1 operator ($\Delta 1$) contains all variations of full resonance.

Definition: Full resonance is resonance in amplitude, frequency and phase, i.e. resonance in space and time. It will be described in detail in the following articles.

The Vector of Gravity ($F1g$) exists as the inner force that attracts and tightens the coils of the vortex toward an inner point ($p.F1$) that does not coincide with the geometric center ($p.O$). Because of that the Vector of Gravity is $F1g$, it is decomposed to x-axis and to y-axis. The composite vector on the x-axis is a vector $F1$. In a previous report the role of this vector ($F1$) was described in detail. In this report it will describe the composite vector on the y-axis which is a vector $G1$ (Figure 1a,c).

Eccentricity of proton:

According to the Axiom 2 the proton should be an orthogonal to the electron particle because both of them form a complementary pair (Figure 2) [3].

Axiom 2. Two vortices of one complementary pair in mode of resonance to one direction in 2D: $E = +A + iV$; $E = +V + iA$ or two vortices of complementary pair in mode of resonance to opposite direction in 2D: $E = -A - iV$; $E = -V - iA$, exist simultaneously in 3D.

$$\text{In right direction : } E = +A + iV; E = +V + iA, \quad (4a)$$

$$\text{In left direction: } E = -A - iV; E = -V - iA. \quad (4b)$$

Definition: A pair of objects which work such as they complement each other in resonance and they are mutual orthogonal is called pair of complementary objects.

According to Axiom 2 if one object pushes (p)($E = +A + iV$) (Figure 3a) then the other have to pulls (e)($E = +V + iA$) (Figure 3a). Therefore the both of them are active generators or they form a pair of active generators in complementary resonance work.

Result : The first pair is in right direction: amplitude (A) can be the reason but the velocity (V) is the result ($E = +A + iV$)

(Figure 3b) (model of proton). At the same time the velocity (V) can be the reason and the amplitude (A) - the result ($E = +V + iA$) (model of electron) (Figure 3a).

According to the consequence of Law2 the proton's structure should be an accelerating vortex from inside to outside (Figure 2a).

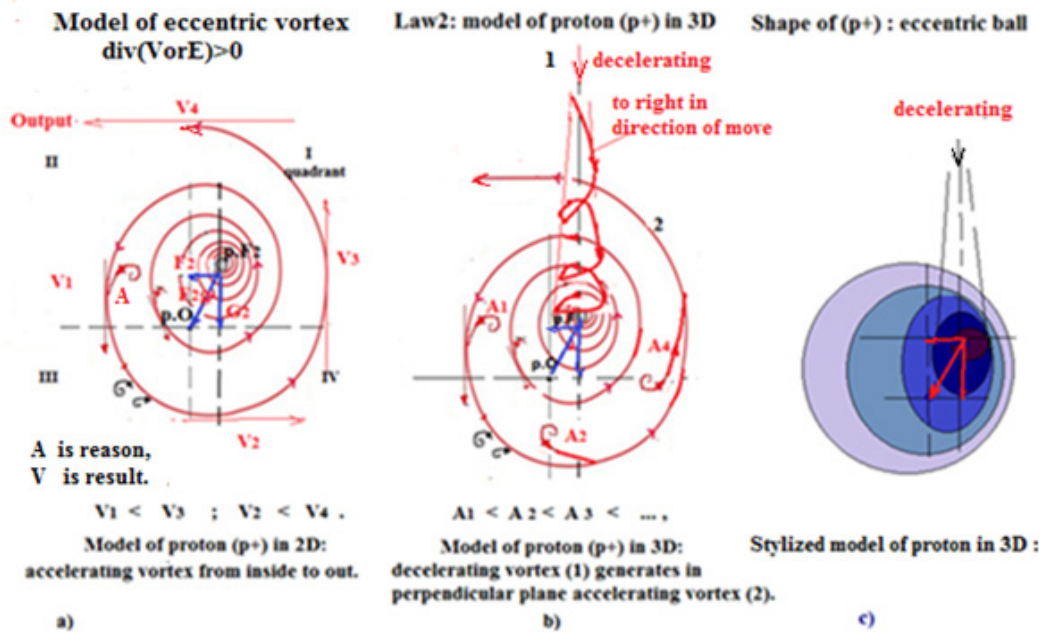


Figure 2: Model of proton

Law 2: The open longitudinal vortex (H3D) generates (inward or outward) an open cross vortex (E2D) (inward or outward) in its center through a longitudinal-cross transformation $\Delta 2: \Delta 2$

$$\text{Vor} (H_{3D}) \Rightarrow -- \text{Vor} (E_{2D}) \quad (5)$$

Consequence : The open *decelerating longitudinal vortex* (H_{3D}^-) inward generates an open accelerating cross vortex (E_{2D}^+) outward through longitudinal-cross transformation $\Delta 2^-: \Delta 2^-$

$$\text{Vor} (H_{3D}^-) \Rightarrow \text{Vor} (E_{2D}^+) \quad (6)$$

Because of that the velocity vector (V) increases continuously when complex vector (E) moves from the inside outwards ($E=A+i.V$), the whole accelerating spiral shifts toward the first (I) quadrant. The center of classic spiral was in the geometric center (p.O). But the new center of the accelerating spiral (p.F) shifts to up and right or to the first (I) quadrant. That is way the distance between the classic geometric center (p.O) and the new center of gravity (p.F2) forms a vector of eccentricity or Vector of Gravity (F2g) (Figure 2a).

Result : The mechanism of action of the delta2 operator ($\Delta 2$) contains all variations of *so called* "Back wave". It will be described in detail in the following articles.

This Vector of Gravity (F 2g) exists such as the inner force that *inflate and expand*. It works such as a mixer the windings of the accelerating vortex. Therefore the new center moves toward an inner point (p.F2) that does not coincide with the geometric center (p.O) (Figure 2a). Thus the Vector of Gravity

is F1g. It is decomposed to x-axis and to y-axis. The composite vector on the x-axis is a vector F2. In previous report the role of this vector (F2) was described in detail. In this report it will be describe the composite vector on the y-axis which is a vector G2 (Figure 2a).

The reason for eccentricity of electron:

According to the Law1 electron consists of decelerating cross vortex rolled from outside to in.

There is new Law (Law5) which describe that decelerating vortex emits decelerating elementary vortices to environment.

Law 5: The velocity (V) of a decelerating longitudinal vortex in 2D decreases in (n) portions ($1/\psi^n$) times, while the amplitude (W) of cross vortices increases reciprocally in (n) portions (ψ^n) times:

$$I V^2 = V_0 (V_0 - V), \quad (7a)$$

$$I W^2 = W_0 (W_0 + W), \quad (7b)$$

where v_n and w_n are periodic roots with period n that fulfill the requirement for orthogonality: $v_n \cdot w_n = V_0 \cdot W_0$; $n = 0 \div \infty$; the roots v_n and w_n are expressed as: $v_n = \psi^n \cdot V_0$, $w_n = (1/\psi)^n \cdot W_0$; V_0 is the starting value of V_n ; W_0 is the starting value of w_n and ψ is a proportion which fulfills the requirement: $\psi - 1/\psi = 1$ and it is called golden proportion.

Result: Decelerating vortex of electron emits elementary cross vortices from periphery to center inward (and from periphery to environment outward as well) because of sign (+) in second

equation (7b).

Result: The elementary cross vortices which are emitted from periphery to the center are phased at the Gravitational center (p.F1) in the second quadrant (II) (Figure 2c, Figure 4a).

Consequence: According to the Consequence of Law1 (3) as a result of the phasing in the Gravitational center (p.F1) a *vertical acceleration vortex is generated* (Figure 2c). Therefore decelerating cross vortex continues in accelerating longitudinal vortex *perpendicular* to the plane of the transverse vortex (Figure 2c). This process of transformation is described by the operator $\Delta 1$ of Law1(4).

Consequence: The process of transformation which is described by the operator $\Delta 1$ of Law1 (3) is realized through so-called *full resonance*. It is resonance of amplitude, frequency and phase or of space and time.

The reason of eccentricity of proton:

According to the Law2 proton consists of accelerating cross vortex rolled from inside to out.

There is new Law (Law6) which describe that accelerating vortex sucks accelerating elementary vortices from environment[3,4,5].

Law 6: The velocity (V) of an accelerating longitudinal vortex in 2D increases in (n) portions (ψ)n times, while the amplitude (W) of cross vortices decreases reciprocally in (n) portions ($1/\psi$)n times;

$$I V^2 = V_0 (V_0 + V), \quad (8a)$$

$$I W^2 = W_0 (W_0 - W), \quad (8b)$$

where v_n and w_n are periodic roots with period n that fulfill the requirement for orthogonality: $v_n \cdot w_n = V_0 \cdot W_0$; $n = 0 \div \infty$; the roots v_n and w_n are expressed as: $v_n = \psi^n \cdot V_0$, $w_n = (1/\psi)^n \cdot W_0$; V_0 is the starting value of V_n , W_0 is the starting value of w_n and ψ is a number which fulfills the requirement: $\psi^{-1} / \psi = 1$, ψ and it is called golden proportion.

Result: Accelerating vortex of proton sucks elementary cross vortices because of sign (-) in second equation (8b).

Result: According the Law2 (6) vertical decelerating vortex generates accelerating cross vortex from Gravitational center

(p.F2) to periphery (Figure 4b). Therefore decelerating longitudinal vortex, which is perpendicular to the plane of the transverse vortex, continues into accelerating cross vortex (Figure 4b). This process of transformation is described by the operator $\Delta 2$ of Law2 (6).

Consequence: The process of transformation which is described by the operator $\Delta 2$ of Law2 (6) is realized through so-called back wave. It will describe further.

2. System of electron and proton

The difference between of electron and proton in regard to complementarity :

System is formed through cross vortices in plane 2D (Law7) and longitudinal vortices in volume 3D (Law8).

Law 7: A pair of open cross objects in 2D forms a closed loop in 2D by feedback in 2D of primary cross vortices.

The Law 7 describes closed loop in plane 2D of pair proton-electron. This pair conducts energy through the real connection (crosslink1) and conducts matter through a feedback (feedback1) in 2D (Figure 3).

Result: The pair proton-electron in 2D conducts energy from proton to electron and conduct matter from electron to proton in the form of primary elementary cross vortices.

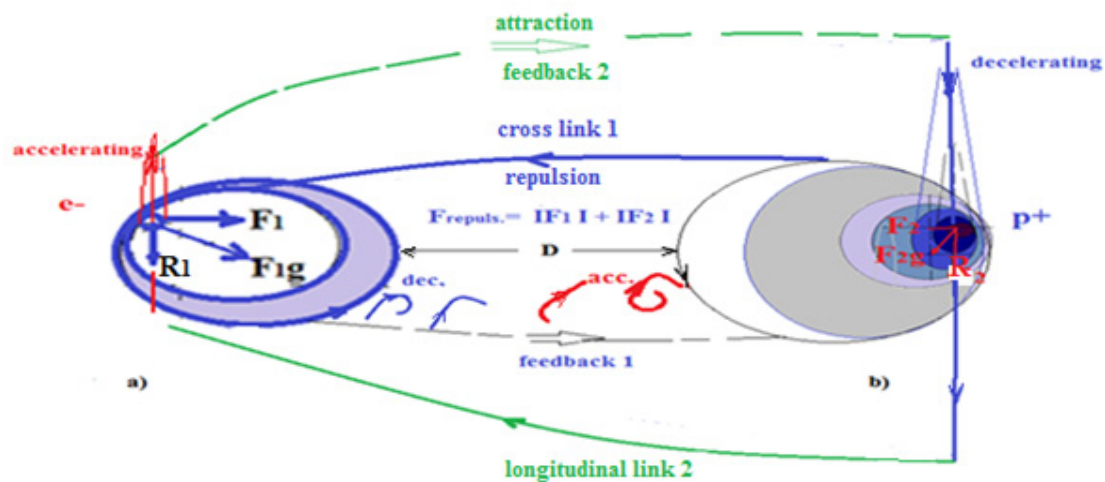
Result: Exactly these primary elementary cross vortices represent transferred "dark" matter, called "free" energy. This part of the chain in 2D is invisible and unexplored part.

Consequence : The reason for the emission of primary elementary cross vortices is the deceleration (dec.) of the main longitudinal vortex of electron (e-) (Figure 3a).

Their movement toward the space between the two vortex objects in 2D is due to the sucking action of the accelerating (acc.) of the main longitudinal vortex of proton vortex(p+). This is done through feedback (feedback1) (Figure 3a-Figure 3b).

Law 8: A pair of open complex objects in 3D forms a closed loop in 3D by feedback in 3D of primary longitudinal vortices.

The Law8 describes closed loop in volume 3D of pair proton-electron (feedback2). This pair conducts energy through the real connection (longitudinal link2) and conducts matter through a feedback (feedback2), (Figure 3).



$$D = |F_1| + |F_2|; \quad F_{1g} > F_{2g}, \quad F_1 > F_2, \quad G_1 > G_2.$$

Figure 3: Gravity relationship between proton (p+) and electron (e-).

Result: The pair proton-electron in 2D conducts energy from proton to electron (crosslink1)

Result: The pair proton-electron in 2D conducts matter from electron to proton in form of primary elementary cross vortices (feedback1).

Result: The primary elementary cross vortices represent in 2D so called "transverse" dark matter "(feedback1).

But there is the difference kind "dark" cross vortices. Therefore there is longitudinal kind of "dark" vortices

Result: These primary elementary longitudinal vortices represent in 3D so called longitudinal "dark matter" "(feedback2, longitudinal link2) .

Result: The pair proton-electron in 3D conducts energy from proton to electron (longitudinal link2)

Result: The pair proton-electron in 3D conducts matter from electron to proton (feedback2).

The chain in 3D composed only from longitudinal vortices is the most mystical, completely invisible and completely unexplored (feedback2, longitudinal link2) .

Consequence: The chain in 2D (crosslink1,feedback1) of Law7 and the chain in 3D (longitudinal link2,feedback2) of Law 8, are mutual perpendicular (Figure 3a,b).

3. Gravity Forces between electron and proton

According to the Axiom1 and Axiom2 the relationships between electron and proton are measured by the distance (D) between them and by the repulsive force (F_{repuls}), between them (Figure 3 a,b)..

Result: In the first pair of complementary objects electron-proton which are linked in the frame of atom, the distance (D) between objects is equal to summation of modules of their forces (F_1, F_2) along x-axes :

$$D = |F_1| + |F_2|. \quad (9)$$

Result: The Force of repulsion (F_{repuls}) between electron and proton is equal to the summation of modules of their forces (F_1, F_2) along x-axes :

$$F_{repuls} = |F_1| + |F_2|. \quad (10)$$

According the Law1 and Law2 we can realize the differences between Force of repulsion (F_{repuls}) and the Force of attraction ($F_{attract}$), among the electron and the proton.

Consequence: The electron repulses the proton through cross waves (cross link 1) or by collision of the transverse windings or the cross coils. (Figure 4a,b).

Consequence: The proton attracts electron through longitudinal vortices (longitudinal link 2) or by tightening of longitudinal threads of perpendicular coils. (Figure 4ab).

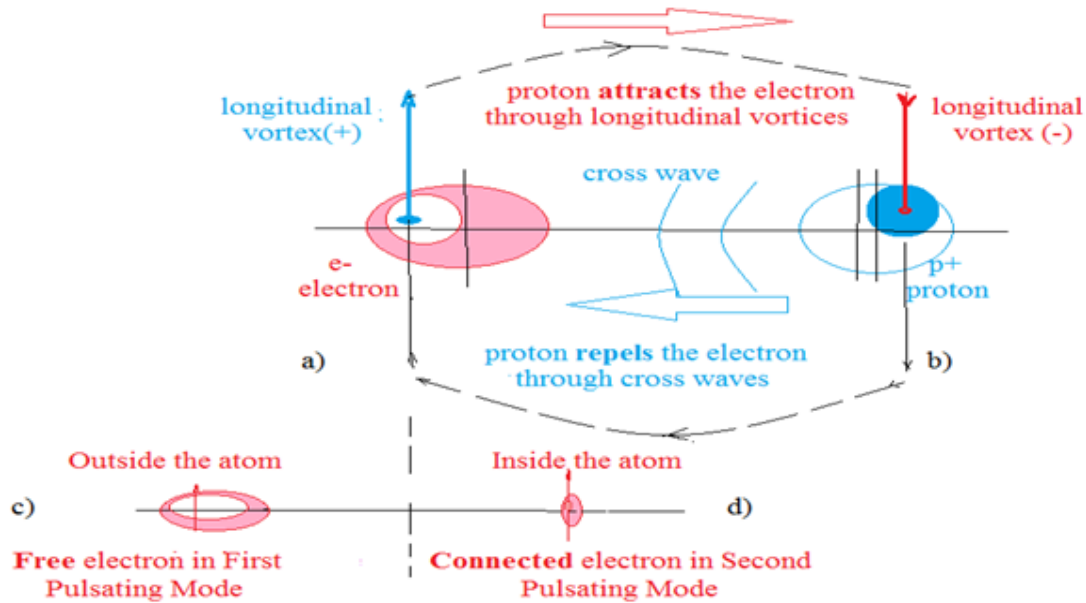


Figure 4: Gravity Forces and Gravity Waves between proton(p+) and electron(e-)

4. Score of electron-proton system

The shape:

The shape of electron looks like to thin ring or narrow toroid. The reason is the decelerating vortex from out to in. The shape of proton looks like to dense little ball. The reason is the accelerating vortex from in to out[4].

The mass of electron and proton:

The mass of electron is much less (as empty ring, Figure 6a) than the mass of proton (as dense ball, Figure 6b). The current measurement method shows that: m_e (electron) = $9,11 \times 10^{-31}$ kg ; m_p (proton) = $1,6726231 \times 10^{-27}$ kg. Or: $m_{p+} = 1836 \cdot m_e$.

Result : So the mass of little ball of proton is much more (1836 times) than the mass of empty toroid of electron.

Remark: It should be emphasized that this mass (m_e) is the mass of the outer free electron which is outside the atom and is not bound to any proton. This free electron represents inflated and empty toroid.

As a comparison, the inner electron that is inside the atom and is connected to its corresponding proton has the mass (not marked) of a small and dense sphere. This connected electron is a small and dense sphere.

Consequence: The mass of free electron (m_e^{free}) is less than the mass of electron connected (m_e^{conn}) inside the atom:

$$m_e^{free} > m_e^{conn} \quad (11)$$

Consequence: Therefore, the mass of the free outer electron is assumed to be greater than the mass of the bound inner electron (Figure 4c,d)[5].

The eccentricity:

The eccentricity of the electron depends on the fact that the transverse vortex from the outside to the inside is delayed. The decelerating vortex emits transverse vortices from the periphery inwards, which are phased at one point according to Law 5. This is the reason why the electron acquires the shape of a empty toroid (Figure 4a).

This toroid is inflated and flattened along the x-axis when the electron is free and outside the atom (Figure 4c). This toroid is small and drawn along the y-axis when the electron is inside the atom (Figure 4d).

The eccentricity of the proton depends on the fact that the transverse vortex from the center to the inside is accelerated. The accelerating vortex sucks transverse vortices according to Law 6. This is the reason why the proton acquires the shape of a dense ball (Figure 4b).

Consequence: The eccentricity of the electron (F_1g) (in form of empty ring) is much more than eccentricity of proton (F_2g) (in form of dense ball), (Figure 3a,b) [6]:

$$F_1g > F_2g. \quad (12a)$$

Consequence: The projection to the x-axis (F_1) of the electron's Vector of Gravity (F_1g) is greater than the projection (F_2) to the x-axis of the proton's Vector of Gravity (F_2g), (Figure 3a,b):

$$F_1 > F_2. \quad (12b)$$

The Distance:

Consequence: The Distance between electron and proton is following (Figure 3a,b):

$$D = |F_1| + |F_2|. \quad (13)$$

The Force of Repulsing (Figure 3a,b):

The proton repulse your personal electron. This is done through (cross link1). According to this link it is realized that the proton repulse your personal electron with force F_{repuls} . [7].

Consequence: The proton repulse your personal electron with force F_{repuls} :

$$F_{\text{repuls}} = I F1 I + I F2 I. \quad (14)$$

The Force of Attraction (Figure 3a,b):

The longitudinal vortices (longitudinal link2, feedback2) is not an Electromagnetic connection. It is well known that Electromagnetic waves propagate transversely and at a constant speed. And the longitudinal vortices (longitudinal link2, feedback2) propagates longitudinally at the variable acceleration-deceleration speed. This elastic links ((longitudinal link2, feedback2) of longitudinal vortex with variable velocity is the same example for Gravity Force in the longitudinal direction. The longitudinal vortex from the proton that passes through center of electron attracts the electron to the proton. This elastic link (longitudinal link2, feedback2) of longitudinal vortex with variable velocity is the other example for Gravity Force in perpendicular direction [8]. A formula for the magnitude of this elastic repulsive force cannot be written on this stage.

Electron and proton temperature (Figure1b),(Figure2b):

We saw that the electron consists of a decelerating vortex with a direction from outside to inside. The decelerating vortex emits elementary decelerating vortices (Law5), which raise the temperature inside in the empty space of the electron toroid [9].

Consequence: Inside the electron, the temperature rises or the electron is *hot inside*.

We saw that the proton consists of an accelerating vortex with a direction from inside to outside. Due to the positive acceleration this vortex sucks elementary accelerating vortices (Law6), which reduce and lower the temperature inside the ball of proton [10].

Consequence: Inside the ball of the proton the temperature decreases or the proton is *cold inside*.

Visible, invisible:

It is well known that Sunlight is transverse waves propagating at a constant speed. When these transverse waves cross the thread of the longitudinal vortex, they are not reflected but surround the thread. The reason for this action is the fact that the thread diameter of the longitudinal vortex is commensurate with the wavelength of sunlight. The phenomenon described is known as diffraction [11].

Result: The longitudinal vortices are invisible to an outside observer because they do not reflect sunlight but scatter or diffract it.

For comparison, if Sunlight transverse waves cross an object

consisted by transverse vortex, they are reflected by it. Therefore any outer observer will see this transverse object.

Result: The cross vortices inside the particles objects (electron and proton) are visible to an outside observer because they reflect sunlight but not scatter or diffract it. An outside observer can see only cross vortex objects. The some of the cross vortex objects are the elementary particles.

Result: The cross vortex connection (cross link1) between the proton and the electron is invisible and the cross vortex connection of free vortices (feedback1) between electron and proton is invisible as well. The reason is that the free cross vortices are commensurate to the size of light wave (Figure 3a,b).

Result: The longitudinal vortex connection (feedback2) between the electron and the proton is invisible and the longitudinal vortex connection of free vortices (longitudinal link2) between the proton and the electron is invisible as well (Figure 3a,b).

Consequence: Therefore, the proton and the electron are visible, but the links between them are invisible (Figure 3a,b).

Pulsating mode:

In pulsating mode is the pulsating of particles in Time and in Space. More specifically for the transverse vortex of the electron there are two phases.

- In the first phase the electron is a free electron and it floats outside the atom. It is swollen, flattened to the x-axis and empty and clearly visible.

Consequence: In the first phase the electron becomes swollen and bloated, massive and clearly visible.

The reason for this phenomena is that the proton throws more energy through cross link1 to corresponding electron. Therefore the electron rejects to more distance (D) and bloats along x axes. At the same time, according to the sing minus (-) in Law1(2), the longitudinal vortex shrinks perpendicular (along the y axes) to the plane of the electron. Thus electron becomes bloated along x axes and flattened along y axes (Figure 4c). Therefore in the first phase of pulsating mode the electron can be clearly visible.

It can break off in a transverse connection (cross link1, Figure 3a,b) and it can fly out of the atom or to become a "free" electron. The electron is located at a long distance to the its own proton, at any place in space. This electron is controlled exclusively by the chain of the longitudinal component (longitudinal link 2, Figure 3a,b) in any point in the space. Therefore in first phase the electron can be an free electron. It is very curious that it breaks the transverse link, but it holds the longitudinal link with its personal proton. This proton continues to control this free electron.

Result: In first phase the electron can become free electron because of that it break off the transverse link toward the proton. This free electron holds the longitudinal link with its personal proton that controls this free electron.

Result: The free electron pulsates and floats almost *independence* with its proton-master.

In the second phase the electron is connected electron and it rotates inside the atom. It becomes shrink and little. It is pulled along the y-axis and it becomes almost invisible.

Consequence: In the second phase the electron shrinks along x axes and *stretches* along y axes.

The reason for this phenomena is that the proton sucks energy through cross link1 (Figure 3a,b). At the same time the proton through feedback 2 pumps a longitudinal vortex to the electron along y axes. Therefore, the electron in the second phase becomes contracted in a cross vortex (x axes) and very stretched in a longitudinal vortex (y axes). But this very contracted cross vortex is almost invisible and longitudinal vortex is completely invisible.

Result: In the second phase of pulsating mode the connected electron becomes *invisible*.

It is located as close as possible to the proton and it is controlled exclusively by the chain of the longitudinal component (longitudinal link 2) (Figure 3a,b). Therefore, this nearby electron moves absolutely synchronously with its proton-master.

Result: The connected electron-slave pulsates and moves absolutely synchronously with its proton-master.

The relationships between proton and connected electron are such as between master and slave. For comparison the free electron pulsates and floats independence with its proton.

Consequence: The relationships between proton and connected electron are such as between *master and slave*.

5. Rotation of electron around its proton

The reasons of rotation:

According to descriptions in previous points [10,11]:

The mass: The mass of proton is almost 2000 times more than the mass of electron (7).

The shape of proton: The proton consists of numerous coils of a slow accelerating vortex, very tightly coiled from the inside to out. This is the reason the proton looks like a very dense but slightly eccentric ball. The eccentricity is small because there is simply no free space inside the ball. The eccentricity of proton (F_2g) is less than the eccentricity of electron (F_1g) (12a) (Figure 3a,b, Figure 4a,b).

The shape of electron: The electron consists of several pieces of coils of a fast decelerating vortex coiled from the outside to inside. This is the reason the electron looks like a very empty and eccentric toroid. The eccentricity is significant because there is simply many free space inside the toroid where to shift the coils. The eccentricity of electron (F_1g) is more than the eccentricity of proton. (F_2g) (12a) (Figure 3a,b, Figure 4a,b).

The difference in Rotating Force between proton and electron:

Because of that eccentricity of electron (F_1g) is bigger than the eccentricity of proton (F_2g):

$F_1g > F_2g$ (12a), then $F_1 > F_2$ (12b). Therefore from 12a,b follows that the Rotating Force of electron R_1 is bigger than Rotating Force of the proton R_2 (Figure 3a,b):

$$R_1 > R_2 \quad (11a)$$

This (11) means that the electron will rotate around its own proton.

Result: One of the reason the electron with Rotating Force R_1 to rotate *around the proton* that has the Rotating Force R_2 is that $R_1 > R_2$.

In the same time this (11) means that the vector R_1 of an electron in periphery of the atom is more than R_2 of an electron in center of the atom. Because of that the Rotating Force R_1 of an electron in periphery of the atom is more than the Rotating Force R_2 of an electron in center of the atom, every electron in periphery will rotate around an inner electron.

Result: Every electron in periphery with Rotating Force R_1 will rotate around an inner electron with Rotating Force R_2 because of the same reason: $R_1 > R_2$.

In order to rotate the periphery electron around the inner electron it is necessary the velocity along its orbit of periphery electron to be bigger than the velocity of inner electron.

Result: The velocity V_{per} along the orbit of periphery electron is bigger than the velocity V_{inner} of inner electron.

$$V_{per} > V_{inner} \quad (11b)$$

If we summarize what is described we will get the following. The light and empty and very eccentric toroid of the electron will rotate around the heavy and dense but slightly eccentric proton ball because the vector R_1 in periphery is much more than the vector R_2 in center of circle (11a). The empty and very eccentric electron will begin to rotate around dense and slightly eccentric proton (Figure 3a,b).

Conclusions: The difference in eccentricity (mass and shape) is the reason for rotating of electron around the proton and for rotating the periphery electron around the inner electron (11a,b),(12a,b).

6. Rotation of electron around its own axis

The reasons of rotation

According to the Law5 decelerating vortex which winds electron decreases in velocity because of sign minus(-) in equation (7a). At the same time decelerating vortex emits decelerating elementary vortices in increasing amplitude because of sign plus (+) in (7b) [7,8]. These decelerating elementary vortices are directed from periphery of electron to the center where they are phased in Gravity center F_1 and they are bent to left (Figure 1b).

Result: The main vortex of the electron rotates to the left from

outside to inside.

Result: The decelerating elementary vortices in increasing amplitude of the electron are *bent, curved and convex* in the direction of motion of the main vortex of the electron .

Conclusion: The whole wheel of the electron rotates to the left .
Remark : Left direction in 2D is when the an independent observer looks against the longitudinal vortex in 3D.

The speed of rotation of the electron around its center of Gravity (F_1) depends on the magnitude of the negative acceleration of the main decelerating flux that builds the body of the electron. The greater the negative acceleration, the greater the number of emitted secondary decelerating vortices bent to the left, and the greater is the negative acceleration and amplitude of these secondary vortices(7a,b). This is the reason the electron to rotates around its own Gravity center (F_1) with reduced speed.

Result: The electron will rotate around its own Gravity center (F_1) with reduced speed(ω) .

According to the pulsating Mode when the electron is found in first pulsating Mode it is inflated and empty and it is located at the farthest orbits. Therefore the amplitude of elementary cross vortices increase and their negative acceleration also increase, which causes the wheel arm to rotate at a faster speed [5].

Result: The electron in first Pulsating Mode (outside the atom) which is inflated and empty rotates faster (ω is bigger) (Figure 4c).

In second Pulsating Mode(inside the atom) the electron is contracted and tight and it is located at the closest orbits . Therefore the amplitude of the inside cross vortices decrease and their acceleration also decrease, which causes the *wheel arm to rotate at a slower speed*. The speed of rotation limited to the speed of rotation of its own proton (its own master)[6].

Result: The electron in second Pulsating Mode which is contracted and tight , rotates relatively slower (ω is less) ((Figure 4d).

Conclusion: The free electron and electron in periphery rotates faster(ω_{free}) than the connected electron and electron in inner orbit (ω_{conn}):

$$\omega_{\text{free}} > \omega_{\text{conn}} \quad (12)$$

Therefore the speed of rotation of the electron around its proton depends on the distance (D) between them (Figure3a,b).

Conclusion: The speed of rotation of the electron-slave around its proton –master depends on its distance (D) to this own proton in the nucleus of the atom .

7. Conclusions

The reason the electron to rotate around its proton inside the nucleus is that the electron has greater eccentricity , a longer eccentricity vector (F_1) and correspondingly a larger rotation vector (R_1) as a projection of the eccentricity vector on the y-axis. The

reason the electron to rotate around (Figure 3a,b). The reason the electron rotates around its axis is the direction of bending to the left, the number, magnitude of acceleration and the amplitude of the secondary delayed transverse vortices that fill the empty space inside its toroid (Figure 1a,b).

There is difference between forces outside and inside the atom. The Force of Repulsion (cross link1) from the cross vortex is not Electromagnetic Force .It is other kind cross accelerating-decelerating force or it is a cross Gravity Force inside the atom. The Force of Attraction (feedback 2) from the longitudinal vortex is not an Electromagnetic Force as well. It is the longitudinal force of other kind or it is a longitudinal Gravity Force inside the atom (Low1,Low2) (Figure 3a,b).

Usually until now the elementary particles (electron and proton) are observed and measured as free particles in an Electromagnetic Field outside the atom .Because of that *they are located outside* the atom they emit Electromagnetic waves (Figure 3a,b). But when the particles are observed and measured *inside* the atom the observer will register that they emit and receive the Gravity waves. Consequently, the forces that structure the atom from within are Gravitational forces but not Electromagnetic forces (Low5, Low6) (Figure 4a,b).

As usual the *masses of the free electron* and the free proton are measured outside the atom in the middle of an Electric Field. But according the new laws the *masses of the electrons connected inside* the atom are less than the masses of the free electrons outside the atom (Figure 4c,d).The inner electrons are connected mainly by a transverse component and move *synchronously* with their protons. The outer and free electrons are connected mainly by a longitudinal component and move *more emancipated* of their protons.The *orbital velocity* of periphery electron is less than the orbital velocity of inner electron but the *axle velocity* of periphery electron is bigger than the axle velocity of inner electron (Figure 3a,b).

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