



Generation and Distribution of Protons in the Nucleus According to New Axioms and Laws

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ABSTRACT: The Theory of new Axioms and Laws contains 2 new Axioms and 8 new Laws and is created by the same author. This Theory claims that elementary particles are constructed simultaneously from 2 different vortices: open transverse vortex and open longitudinal vortex. They are mutual orthogonal in space S and in time T . These vortices can be accelerating or decelerating. The transverse vortex is open, transversely coiled in 2D. Pulsating in time T it forms pulsating transverse vortex that spread in space as transverse wave. Every points on this transverse wave move with a constant time $T = \text{const}$. This is the real time-space of light waves and Electromagnetic waves.

The longitudinal vortex is also open, but is wound longitudinally in 3D. Pulsating in time T it forms longitudinal waves. If it has positive acceleration the accelerating longitudinal vortices suck in free vortices from outside to inward. They attract and pack such that they insert each inside other and form an accelerating longitudinal Funnel. In Funnel the longitudinal and angular speed of spirals are changing so that the length all spirals is one and the same: $S = \text{const}$. The accelerating longitudinal Funnels generate the Gravitational time-space of attraction.

Transverse and longitudinal vortices transform each other: when the transverse vortex expands in radius R , the longitudinal vortex shrinks in length L and vice versa.

The proton is generated by a longitudinal decelerating vortex with length L in 3D that comes from outside space. It winds up a transverse acceleration vortex in a 2D from in to outward direction in form of sphere with radius R (Law 2).

It is known that the nucleus of atom is formed by many shells of protons inserted one into another. Because the protons repel each other, that is why it is necessary are tightened and laced up each other. This take place by (software approach) the accelerating longitudinal Funnels coming from all directions of 3D from out-inward and by (hardware approach) implemented by the of the neutrons.

The central spirals of accelerating longitudinal Funnel have maximal longitudinal velocity (in direction of the moving) and minimal angular speed (along the radius) (Law6). That is why the generated in center protons have maximal length L_{max} of longitudinal vortex and minimal transverse radius R_{min} (Law2). Thus the central protons look like to invisible points.

The peripheral spirals have minimal longitudinal velocity (in direction of moving) and maximal angular speed (along radius) (Law6). That is why the peripheral protons have minimal length L_{min} of longitudinal vortex and maximal transverse radius R_{max} (Law2). Thus the peripheral protons look like of well visible spheres.

I. ACCORDING THE THEORY OF NEW AXIOMS AND LAWS

According the Axiom of Classical Field Theory: $\text{div}(\text{rot } E) = 0$, (Figure 1, Ia) [1].

According new Axiom1: A field in which the vector E moves with a monotonically non-uniform speed (decelerating or accelerating) becomes an open vortex field structure: $\text{div}(\text{rot } E)$ is not equal to zero (0) (Figure 1, Ib) [2,3,4].

The Axiom 1 claims that there are 2 type open vortices - transverse (in plane 2D) (Figure 1, Ic) and longitudinal (in volume 3D) (Figure 1, Id). Each of them can be accelerating or decelerating. Therefore we receive 4 type of open vortices.

According Axiom2: There are mutually orthogonal field structures that form a resonant system by exchanging energy and matter with each other, (Figure 1, IIa, b) [2,3,4].

Axiom2 claims that orthogonal pairs form 6 pairs of particles (connected in the right direction) and 6 pairs of antiparticles (connected in the opposite direction) (Not pictures). The main pair of particles is electron - proton (Figure 1, IIc, d). Their generating direction is from proton to electron. There are pair and inverse direction that form positron and antiproton.

According Law1: A decelerating transverse vortex in plane 2D generates in its center perpendicular in volume 3D accelerating longitudinal vortex (Figure 1, IIc: electron) [3,4].



According Law2: A decelerating longitudinal vortex in volume 3D generates in center of perpendicular plane in 2D an accelerating transverse vortex (Figure 1,IIId : proton) [4,5].

Law 5 for 2D : The main decelerating vortex (in 2D) decreases in (n) portions (ψ^n) times; the emitted primary transverse vortices increases in (n) portions (ψ^n) times, where ψ is equal to the Golden proportion (Figure 1e) [5,6].

Law 5 for 3D : The *decelerating* vortex in 3D is described with a system of 4 equations in which: longitudinal velocity (V) decreases in (n) portions (ψ^n) times; the angular velocity (w), the amplitude (W) and the number (N) of cross vortices increase in (n) portions (ψ^n) times:

$$\begin{aligned} \mathbf{I} V^2 &= V_0 (1 - V), \\ \mathbf{I} W^2 &= W_0 (1 + W), \\ \mathbf{I} w^2 &= w_0 (1 + w), \\ \mathbf{I} N^2 &= N_0 (1 + N). \end{aligned} \quad \mathbf{1)}$$

where v_n, w_n are periodic roots with period n; v_n, w_n are **mutual orthogonal** that fulfill the requirement for orthogonality: $\mathbf{v}_n \cdot \mathbf{w}_n = \mathbf{V}_0 \cdot \mathbf{w}_0$, $\mathbf{v}_n \cdot \mathbf{\omega}_n = \mathbf{V}_0 \cdot \mathbf{W}_0$; $n = 0 \div \infty$; the roots v_n, w_n and ω_n and n_n are expressed as: $\mathbf{v}_n = (1/\psi^n) \cdot \mathbf{V}_0$, $\mathbf{\omega}_n = \psi^n \cdot \mathbf{W}_0$; $\mathbf{w}_n = \psi^n \cdot \mathbf{W}_0$, $[\mathbf{n}_n] = \psi^n \cdot \mathbf{N}_0$; linear velocity V_0 is the starting value of V_n , amplitude of cross vortex W_0 is the starting value of ω_n , angular velocity w_0 is starting value of w_n , **number N_0 is starting value of n_n** , $[\mathbf{n}_n]$ is the closest integer; ψ is a proportional that fulfills the requirement: $\psi - 1/\psi = 1$, ψ is known as Golden ratio (Figure 1,IIIa) [4,5,6].

In Space where we live the most movements are decelerating. The reason is that the transverse vortices have density and their some kind of mass. The result is that this Space is full of transverse vortices and they exerts resistance. The corresponding Space-Time is described by constant of Time (as a proportion).

According Law 5 for pulsating in Time (T), the transverse vortex coiled in electron and proton pulsates in time (T) as well.

- In the initial phase, when the electron shrinks it decreases in volume. The reason is that the velocity at the entrance of the transverse vortex is high because the acceleration is positive. This means, in short, that the velocity of the entrance of the transverse vortex of the electron, is accelerated.

Law 6 for 2D : The main accelerating vortex (in 2D) has increasing longitudinal velocity (V) and sucks inward many primary accelerating vortices with decreasing amplitudes (W), where at every i-th step the variable is changed by a degree (i) of the parameter ψ or (ψ^i), where ψ is equal to the Golden proportion (Figure 1f) [5,6].

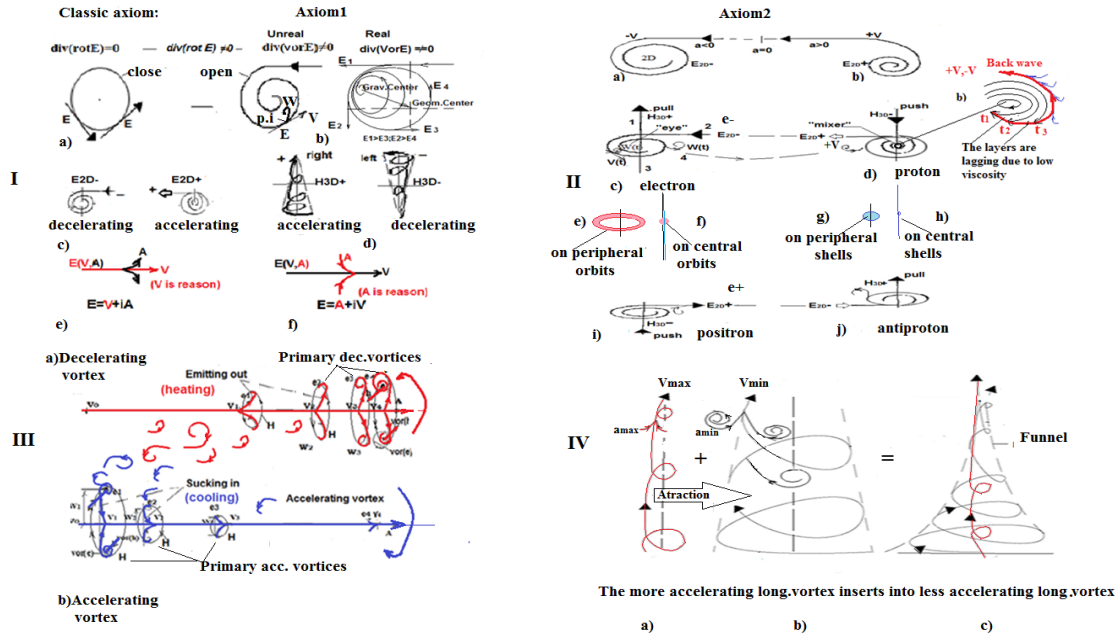
Figure 1.

I a) Classic Axiom :closed vortex, b) New Axiom1:open eccentric vortex, c) Transverse decelerating and accelerating vortices, d) Longitudinal accelerating and decelerating vortices, e) Decelerating vortex emits dec. primary vortices: Law5, f) Accelerating vortex suck in acc. primary vortices :Law6.

II New Axiom2 : a) Model of first orthogonal object, b) Model of second orthogonal object, c) Model of electron : Law1 in pull passive, d) Model of proton :Law2 in push active, e) Model of positron: Law1 in push passive, f) Model of antiproton ; Law2 in pull active

III a) Decelerating vortex with decreasing velocity emits dec. primary vortices with increasing amplitudes : Law5, b) Accelerating vortex with increasing velocity sucks in acc. Primary vortices with decreasing amplitudes: Law6.

IV a) Longitudinal vortex with max. velocity, max acceleration, min amplitude and min. number of loops, b) Longitudinal vortex with min. velocity, min acceleration, max. amplitude and max. number of loops, c) Longitudinal vortex with max. velocity attracts long .vortex with min. velocity and inserts himself in center of slowest one.



Law 6 for 3D: The *accelerating* vortex in 3D is described with a system of 4 equations in which: longitudinal velocity (V) increases in (n) portions (ψ^n) times, the angular velocity (w), the amplitude (W) and the number (N_n) of cross vortices decrease to zero in (n) portions (ψ^n) times: $I V(t)^2 = V_0(V_0 + V(t))$,

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

$$I w(t)^2 = w_0(w_0 - w(t))$$

$$I N^2 = N_0(N_0 - N_n),$$

where the roots v_n, w_n and ω_n and n_n are expressed as: $v_n = (\psi^n) \cdot V_0, \omega_n = (1/\psi^n) \cdot W_0, w_n = (1/\psi^n) \cdot W_0, n_n = (1/\psi^n) \cdot N_0$; linear velocity V_0 is the starting value of V_n , amplitude of cross vortex W_0 is the starting value of ω_n , angular velocity w_0 is starting value of w_n , number N_0 is starting value of n_n ; ψ is a Golden proportion that fulfills the requirement: $\psi - 1/\psi = 1$; v_n, w_n, n_n are periodic roots with period n; v_n, w_n are **mutual orthogonal** that fulfill the requirement for orthogonality: $v_n \cdot w_n = V_0 \cdot W_0, v_n \cdot \omega_n = V_0 \cdot W_0$; $n = 0 \div \infty$; the roots v_n, w_n and ω_n and n_n are expressed as: $v_n = (\psi^n) \cdot V_0, \omega_n = (1/\psi^n) \cdot W_0, w_n = (1/\psi^n) \cdot W_0, n_n = (1/\psi^n) \cdot N_0$.

The first positive root of the first equation is: $v_1 = \psi \cdot V_0 = 1,62 \cdot V_0$. The periodic roots of the first equation are obtained from the expression: $v^n = V_0 \cdot (v^{n-1} + v^{n-2})$.

The first positive root of the second equation is: $w_1 = (1/\psi) \cdot W_0 = 0,62 \cdot W_0$. The periodic roots of the second equation are obtained from the expression: $w^{n-2} = W_0 \cdot (w^n - w^{n-1})$.

Therefore when velocity (V) increases, the amplitude (W) decreases so that at each step (n_i) (according to Consequence of Law 4 and the Law of movement Conservation) the product ($V_i \cdot W_i$) is a constant (Figure 4a). For an accelerating longitudinal vortex, the amplitude (W) decreases **only if** it is directed from the outside to inside, i.e. if the accelerating vortex sucks in cross vortices with decreasing amplitude (W) (Figure 1, IIb) [4,5,6].

II. PROTON AS ELEMENTARY PARTICLE

according Theory of new Axioms and Laws

1. Structure of proton

According to Law 2, the proton is created by a longitudinal delay vortex in volume 3D, which generates a transverse acceleration vortex in a 2D plane, perpendicular to the longitudinal decelerating vortex (Figure 1, II, b) (Figure 3b).

a) Shells of spheres of protons inside nucleus

We accept the hypothesis that the nucleus is made up of concentric layers or spheres of protons (shells) inserted into each other.



According Theory of new Axioms and Laes the nucleus of atom is generated by inserting a time-space of accelerating Funnel along one direction with S const. . Then one accelerating Funnel with S const inserts into N directions in 3D or is obtained (S const) N .[.....].

According and Law 5 for the accelerating Funnel generating the nucleus when the proton is generated **on the outermost shell** of the nucleus, it is more flattened and more bloated.It has minimal length L_{min} of longitudinal vortex and has a maximal volume and radius R_{max} and resembles of a expanded sphere(Figure 1,II g).The reason is that in accelerating Funnel that generates the nucleus its peripheral spirals generates the peripheral protons .The peripheral spirals are more flattened in high and wider in width .Thus in periphery spirals longitudinal velocity V (in direction of moving) is minimal(V_{min}) ,but angular speed w (along the radius is maximal(w_{max}))(Figure 1,IV b).

According and Law 5 for the accelerating Funnel generating the nucleus when the proton is generated **on the innermost shell** of the nucleus, it is more shrunk and more oblong .It has maxima length L_{max} of longitudinal vortex and has a minimal volume and radius R_{min} and resembles of point (Figure 1,II h).The reason is that in accelerating Funnel that generates the nucleus its central spirals generates the central protons .The central spirals are oblonger in high and narrower in width .Thus in central spirals longitudinal velocity V (in direction of moving) is maximal (V_{max}) ,but angular speed w (along the radius is minimal (w_{min}))(Figure 1,IVa).

b)The proton consists a longitudinal decelerating vortex .

According to Law 2, the proton is generated by a longitudinal delay vortex in volume 3D, which generates a transverse acceleration vortex in a 2D plane, perpendicular to the longitudinal decelerating vortex (Figure1,II,b). The decelerating longitudinal Funnel pulsates in time T and the result is that the accelerating transverse vortex also pulsats in time T .

c)The proton consists a transverse accelerating vortex.

According Law2 the material body of proton is made by a accelerating transverse pulsating vortex in direction from center to outward in plane 2D . It pulsates in time T and in space S . The transverse accelerating vortex pulsates in time T .It expands and becomes more voluminous to a sphere, and then shrinks and becomes denser to a point. The transverse accelerating vortex also pulsates in place S .In the center of nucleus the accelerating transverse vortex of proton shrinks to a point (Figure 1,II h) . And towards the periphery of the core, the transverse accelerating vortex expands to a dense sphere (Figure 1,II g) [11,12].

d)Proton pulsates in time T and in space (place) S

According pulsating in **time T** when longitudinal vortex is long the transverse vortex shrinks and in next time when longitudinal vortex becomes short then transverse vortex becomes expanded.

According pulsating **in place S** on an outer layer of the nucleus shell, the longitudinal vortex of the proton is smaller because the transverse vortex is inflated in the form of a sphere (Figure 1,II g).But at inner shell of core , the longitudinal vortex lengthens and therefore the transverse vortex shrinks to a point (Figure 1,II h) [11,12].

2. Action of proton

According to Axiom 2, the proton is orthogonal to the electron .Thus the electron is paired with the proton in a resonant system in the time T and space S (Figure 1,II a,b). Since the decelerating longitudinal vortex that generates the proton pulsates in time T , the accelerating transverse resultant vortex of the proton will also pulsate in time T (Figure 1,II c).

a)Parameters of proton

According to Law of Conservation of motion ($L \cdot R = \text{const.}$) when the longitudinal vortex is smallest (L_{min}), then the transverse vortex is inflated to the form of a sphere(R_{max}) .This corresponds to the case when the proton lies on the outer layer of the nucleus (Figure 1,II g).And when the proton lies on the inner layer of the nucleus, the longitudinal vortex is elongated to maximal(L_{max}) because the transverse vortex shrinks to point (R_{min}) (Figure 1,II h).Therefore in outer proton the longitudinal vortex is smallest (L_{min}) and the transverse vortex is inflated to the form of a sphere(R_{max}).In inner proton the longitudinal vortex is elongated to maximal (L_{max}) and the transverse vortex shrinks to point (R_{min}).

b)Protons in outer shells of nucleus

According to Law 2 and Law 5, when the proton lies on the outer layer of the nucleus, its volume is maximum and the eccentricity is maximum (Figure 3,b). Therefore, inside the sphere of the proton, the arc length of the primary accelerating vortices has a maximal amplitude and the proton tends to have a maximum speed of rotation around its axis w_{max} . And because of the curvature of these



accelerating primary vortices, to the left, the peripheral proton will aim to rotate right-to-left around its axis (if the observer is looking along the longitudinal vortex).

According to the Law of Conservation of momentum ($w \cdot v = \text{const.}$) the proton from the outer layer of the nucleus will have a maximum speed of rotation around its axis (w_{max}) and minimal orbital speed (v_{min}).

Result: The proton on outer shells has maximal speed of rotation around its axis (w_{max}), maximal volume and eccentricity Due to the enough space (volume) the proton from the outer layer rotates around its axis and almost there is no to move along the orbit along the layer.

Result: The proton on outer shells has maximal speed of rotation around its axis (w_{max}) but it is almost frozen along the orbit of the nucleus (v_{min}).

According Law2 since the decelerating longitudinal vortex that generates the proton pulsates in time T, the accelerating transverse resultant vortex of the proton will also pulsate in time T (Figure 1,II c)

According to Law of Conservation of motion ($L \cdot R = \text{const.}$) when the longitudinal vortex is smallest (L_{min}), then the transverse vortex is inflated to the form of a sphere (R_{max}). This corresponds to the case when the proton lies on the outer layer of the nucleus (Figure 1,II g). And when the proton lies on the inner layer of the nucleus, the longitudinal vortex is elongated to maximal (L_{max}) because the transverse vortex shrinks to point (R_{min}) (Figure 1,II h).

Result: In outer protons the longitudinal vortex is smallest (L_{min}) and the transverse vortex is inflated to the form of a sphere (R_{max}).

c) Protons in inner shells of nucleus

According to Law of Conservation of motion ($L \cdot R = \text{const.}$) when the longitudinal vortex is smallest (L_{min}), then the transverse vortex is inflated to the form of a sphere (R_{max})

Result: In inner protons the longitudinal vortex is elongated to maximal (L_{max}) and the transverse vortex shrinks to point (R_{min}).

According Law2 and Law 5 the protons in inner layers have minimal volume and eccentricity.

According to the Law of Conservation of momentum ($w \cdot v = \text{const.}$) the proton from the inner layer of the nucleus will have a minimal speed of rotation around its axis (w_{min}) and maximal tangential speed (v_{max}) (Figure3b)[9,11].

Result : The proton on inner shells has minimal speed of rotation around its axis (w_{min}), minimal volume and eccentricity.

Due to the lack space (volume) the length of primary vortices is almost zero.

Result: The proton on inner shells is almost frozen (not rotate around its axis) (w_{min}) but they have maximal speed along the orbit of the nucleus (v_{max}).

This is the reason why the proton from the inner layer will not rotate around its axis but is aims to move along the orbit along the layer around center of nucleus.

d) Comparison between protons in inner and outer shells

We saw that the protons of inner layer are almost frozen or they do not rotate around its axis (w_{min}). They rotate only along the orbit around the center of nucleus with maximal speed (v_{max}). The protons of outer layers have maximal speed (w_{max}) around their axis but have minimal speed (v_{min}) along the orbit around the center of nucleus or their places are almost stationary.

Result: The protons of outer layers have maximal speed (w_{max}) around their axes, but protons of inner layer have maximal orbital speed (v_{max}) along the orbit around center of nucleus.

Thus due to the enough space (volume) the proton from the outer layer will rotate around its axis and there will be no to move along the orbit of the layer. But in the proton in an inner layer, the volume is minimal and the eccentricity tends to zero. Inside the sphere of the nucleus the inner proton has almost zero speed of rotation around its axis (w_{min}).

Therefore (due to Law of Conservation) the proton from inner shell will acquire maximum orbital velocity (v_{max}). Due to lack of space and volume (Law2), the proton from the inner layer of the nucleus is almost stationary, does not rotate. It even will not have possibility to vibrate around a middle point, but will strive to move in an orbit around the center. This means that the protons from the inner layers will strive maximum to rotate around the center of the nucleus (Figure3b)[6,8,9].

Result : The protons of outer layers rotate prevailingly around their axes but the protons of inner layers prevailingly move along inner orbit around the center of nucleus



The protons from the outer layers much more rotate around themselves, but the most inner protons form a rotating layer around center of nucleus [7,8].

We saw that protons have a different volume depending on the order of the layers in the nucleus. In the larger volume it has opportunity one longer transverse vortex is wound more tightly way .

Result: The free proton have maximal volume, maximal radius (R max) and maximal speed around its axis(w max).

This is the reason that the free protons and the external protons, which are with a larger volume, are visible like particles but others to be invisible. Therefore free protons are well visible and also are perceived as particles

e)Visible or invisible

According to Law 6, the main accelerating transverse vortex sucks toward itself - inwards so called primary accelerating vortices that are invisible. The reason the primary vortices to be invisible is that their thickness is commensurable to light wavelength .Thus the light wave form a diffraction around primary vortices but not reflect by them .

In proton, the main accelerating transverse vortex is wound from the center to the periphery in a transverse spiral .It forms an inner body of the sphere of the proton .This proton body forming by of the main accelerating transverse vortex is visible to an external observer. The reason that the transverse accelerating spiral from the sphere is visible is that it is tightly coiled. Therefore, it reflects the light waves, which are also transverse. Any outside observer would see the reflected waves and perceive the proton of outer sphere as a particle with mass [5,9,11].

Result : The sphere of proton body is more visible .

Sphere is forming by tightly coiled transverse vortex .It reflects the light waves (which are also transverse) and that is why proton is perceived as a particle with mass (Figure3b)[11].

More precisely the protons in outer shells have maximal volume and mass .Therefore they are more visible than the protons in inner shells.

Result: The protons in outer shells have bigger volume and mass , they are more visible than the protons in inner shells.

Thus the free protons and protons in outer shells are more visible than the protons in inner shells.

Result: The free protons have maximal volume and mass , they are maximal visible in comparison the protons in outer and inner shells.

All kind of protons are compiled by particle and wave.

e) The mass of protons

The question immediately arises - which proton exactly do scientists measure the mass of?

The method is used to measure the magnitude of the deviation of the path of a free proton from electromagnetic waves. Therefore, using this method, scientists measure the mass only of free protons.

Result : The known measured mass applies only to free protons

All other protons packed in the nucleus have a smaller and much smaller mass. Thus the free protons have a maximum mass, the outer protons in the nucleus have a smaller mass, the inner protons have a much smaller mass.

Result: Free protons have the maximum mass, the outer protons in the nucleus have a smaller mass, the inner protons have the smallest mass and the central protons can have almost zero mass.

Therefore the most central protons that generate and command the innermost electrons (Axiom 2) can have almost zero mass.

f) Proton is compiled and is consisted both particle and wave

The free protons and the protons in outer shells are perceived as particles .The reason is that they have big volumes full of the tightly coiled transverse vortex that reflects the light waves (which are also transverse) and they are visible.

Result: The body of transverse accelerating vortex is visible.

The free and outer proton consists the tightly coiled transverse accelerating vortex and they are perceived as a particle with mass.

Result : The tightly coiled transverse accelerating vortex is perceived as particle with mass.

But the longitudinal decelerating Funnel that generates the proton (according Law 2) is invisible .The reason is that the accelerating and decelerating longitudinal Funnel consists by thin threads of longitudinal spirals .They do not reflect the light waves ,which are also transverse waves .Thus the light waves make diffraction and longitudinal vortex is perceived as a wave without mass.

Result: The longitudinal decelerating Funnel is invisible .

The reason is that longitudinal Funnel consists by thin threads of longitudinal spirals and they do not reflect the light waves which are transverse not longitudinal .

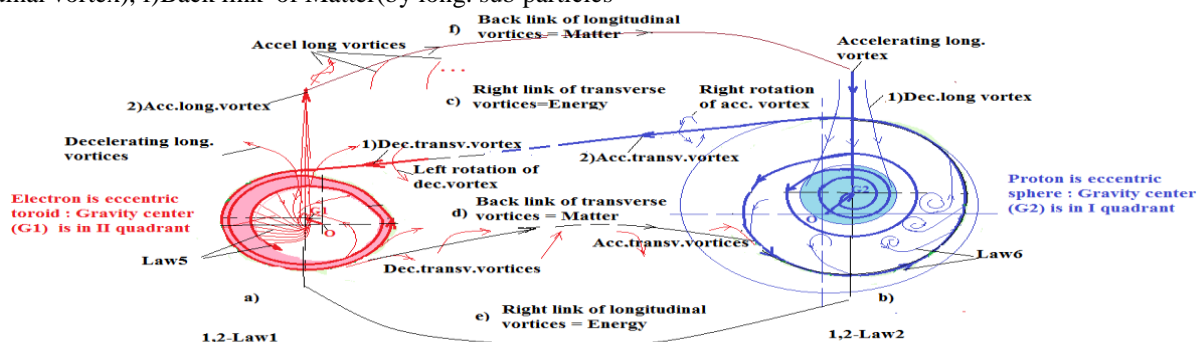
Result: The longitudinal Funnel is wave and is perceived as an wave without mass.

Therefore because the light waves make diffraction then the longitudinal vortex is perceived as a wave without mass (Figure3b) [11].

Figure3.Real form of electron-proton pair

a)The real form of electron ,b)The real form of proton,

c)Right link of Energy (by transverse vortex) ,d) Back link of Matter (by transverse sub particles),e) Right link of Energy(by longitudinal vortex), f)Back link of Matter(by long. sub particles)



Axiom 2: Proton -Electron are mutual orthogonal and form resonance system. Proton is visible as dense sphere and electron is visible as empty toroid. All links between them are invisible.

Proton send to Electron through Right link of long.vortex as Energy and suck in from Electron through Back link of long. vortices as Matter. Electron send to Proton through Back link of transv. vortices as Matter and suck in through Right link of transv. vortices as Energy.

g) Rotation of outer , inner and central protons

According Axiom2 the electrons are rotated around their masters- the protons. As the outer protons have more volume and eccentricity they pulsate in time T with more amplitude.

Thus they turn the circular orbit of their subordinate electrons into an elliptical orbit in space S

Result: The outer proton rotates its own outer electron by elliptic orbit.

But the outer protons also rotate and around their axes .Thus the elliptical orbits of the electrons also will rotate in space S around the axis of each proton.

Result: The outer protons of periphery shells rotate mostly around their own axes.

Because the internal protons almost not pulsate in time T.The amplitude of pulsation is almost zero. Thus they do not turn the circular orbit of their subordinate electrons into an ellipse. Therefore the orbit of inner electrons remain almost circular. Because the internal protons do not rotate around their axis, but rotate in an orbit around the center of the nucleus. Therefore the internal electrons will rotate in circle and around the their protons and around the center of the nucleus .

Result: The inner proton rotates its own inner electron by circular orbit .

The orbit of the inner electron is a circle ,revolved both around its proton and around the center of the nucleus.

Result: The inner protons of more internal shells rotate mostly around the center of nucleus.

Thus the internal protons do not rotate around their axis (they are almost frozen).But they will rotate in an orbit around the center of the nucleus .

Result: The central protons of central shells of nucleus form rotation layer around the center of nucleus.

Therefore because the volume of central protons is minimal then they rotate mostly around center of nucleus.Because the volume of periphery protons is maximal then they rotate prevailingly around their axes .

Result:The protons in intermedial shells have much less mass than the free protons .



Some of them are not perceived as particle and some of them are perceived as particles.

3.The proton body consists of both a particle and a wave

a) The free protons and protons on peripheral shells are perceived as particles

According Law2 the longitudinal Funnel in 3D coming from outward generates in the perpendicular plane 2D the main transverse accelerating vortex of the proton. It is accelerated from the center -outwards and forms a dense sphere. When the proton is free or is located on the peripheral shells of the nucleus it is in the inflated phase .

The free proton and the proton in the inflated phase can be visible. But only when the proton is free outside the nucleus it can be measured its mass.

Result: The free protons can be measured they have maximal volume ,maximal mass and are perceived as well visible particles .

Therefore only the free protons can be measured they have maximal mass .Thus they are visible and are perceived as particles.

Result: The outer protons have less volume ,less mass but yet are perceived as visible particles .

The peripheral protons are visible and have bigger mass in comparison of the inner protons and are perceived as particles .The inner protons of the nucleus, the masses are smaller and smaller .Thus in the center of nucleus the masses of the protons tend to zero. [11].

Result : The protons in internal shells are not visible and are not perceived as particles.

The rest protons in intermedial shells have much less mass than the free protons .Some of them are almost visible and some of them are almost invisible .

Result:The protons in intermedial shells have much less mass than the free protons and some of them are not perceived as particle and some of them are perceived as particles.

b)Protons in inner and central layers are perceived as waves

According Law2 the decelerating longitudinal Funnel generates the proton (Figure 3b,1).According previous paragraph the whole longitudinal Funnel is invisible.The reason is that it consists invisible spirals inserted one into another They have no mass and is therefore perceived as an wave.

Result: Decelerating longitudinal Funnel in proton pulsates as wave emits both transverse and longitudinal waves and is perceived as wave.

From previous paragraph we know the decelerating longitudinal Funnel exists in the time- space with constant length of spirals : $S=const$. She gravitationally repels and expands space to form the body of proton.

Result :The decelerating longitudinal Funnel repels and expands the Space in its perpendicular plane in direction from center to outward and form the space in body of proton.

According Law 6 we know that the accelerating Gravitational Funnel sucks the protons in nucleus .The accelerating Funnel brings protons to a critical a small distance between them . This play role of software approach ,but existing of neutrons play role of hardware approach.

Result : Accelerating longitudinal Funnel in nucleus pulsates as wave ,such as suck into the center of nucleus all protons and is perceived as wave.

Nevertheless that proton is generated by decelerating longitudinal Funnel the nucleus is generated using the accelerating longitudinal Funnel . This kind of Funnel unites protons and neutrons in a common body and it is known as Gravity Funnel.

Result :The accelerating longitudinal Funnel is Gravity Funnel that attracts and collapses the Space in its perpendicular plane in direction from out to the center and tightens the sphere of nucleus in minimal volume.

Therefore the Gravity Funnel pinches and glues protons with the help of neutrons in a common sphere with minimal volume .Thus the neutrons plays role as paper clips that clip protons one to other (Figure 1,IVc) [12].

III. NEUTRONS

1.Action of neutrons

Neutrons represent semiclosed protons.They are closed in a transverse vortex and they are opened only in longitudinal vortex .They look like to very narrow and much long .They sucks protons like paper clips via their arcs of decelerating longitudinal vortices in inverse directions.These longitudinal vortices by the neutrons that return to back are called Back waves.



Result: The decelerating longitudinal Funnel entering into body of neutron and coming out of its center returns in inverse direction in outside forms of Back waves.

Thus the Back waves pass through the centers of neighbor protons and suck in them and tighten them one to other.

Result: The Back waves pass through the centers of neighbor protons.

Thus the direction of neutron have to be inverse than the directions of the adjcents protons .

Result: The Back waves of neutron suck in every adjacent proton and tighten them one to other.

Therefore while the pulsating proton changes its diameter the pulsating neutron does not this but keep diameter constant and minimal. The reason is that neutron pulsates only in longitudinal vortex .

Result: Neutron pulsates only in longitudinal vortex but does not pulsate in transverse vortex or neutron have constant minimal diameter .

The fact is that during the free state protons repel each other. In order not to allow the protons to fly away in all directions , just this kind of suction to inward is necessary, until the pack of protons is compacted. When the compaction reaches large enough size, then the distance between protons reaches sufficiently small dimensions . Thus protons no longer repel.

Result: Neutrons are particles that compact , pull , pinche ,clip and pack the protons surrounding protons .

Thus the neutrons form minimal distance between protons and minimal volume of nucleus .

Therefore the densification effect is enhanced qualitatively by the presence of neutrons.

2. The neutrons exist as particles in form of standing transverse waves.

The neutrons exist in form of transverse standing waves. Neutrons consist in the center by a transverse accelerating spiral from the inside - to the periphery (as in the case of the proton). But by the periphery of neutron a transverse decelerating spiral is reflected in inverse direction - from the periphery inward . This transverse spring continuously pulsates transversely and internally as it overflows from the inside to the outside and vice versa. This pulsating spring form internal transverse standing wave (to outward - to inward and inverse: in-out) .

Result: The transverse spring inside of neutron simultaneously pulsates from center to out and reverse so that it forms so called standing wave.

It is essential for neutrons that they do not have an active vortex to the outside. The vortex is always directed inward. Therefore, with such an internal pulsation, the neutron does not change its outer diameter. The standing wave pulsate in transverse this without external pulsating of diameter . Or diameter of neutron stay constant and minimal. The reason is that when the standing transverse wave pulsates the longitudinal wave also pulsates such that the diameter to stay minimal.

Result : The neutron pulsates as standing transverse wave and does not change its outer diameter of particle .

The longitudinal vortex also pulsates upward - down as it elongates and contracts.

Result: Neutrons pulsates only in longitudinal vortex as wave .

The longitudinal vortex of neutron pulsates upward-downward. When the longitudinal vortex of the neutron becomes shortest (moves downward) its back wave is pushed into the longitudinal hole of the neighboring proton. When the longitudinal vortex of the neutron becomes longest(moves upward) its back wave in opposite direction sucks in , pulls in and sticks to itself the neighboring protons like a paper clip (Not Figure) [12].

c) Neutrons exist as waves in form of longitudinal standing waves

The nucleus of atom is collected and assembled by an accelerating longitudinal Funnel. The accelerating longitudinal Funnel exists in the time space : $S = \text{const}$. It sucks gravitationally all the protons and whole space around them. This time-space ($S = \text{const}$) acts in all (N) directions of 3D and the result is $(S = \text{const})^N$.

Because the protons repel each other and they needs to gather in a tight package . The accelerating Gravitational Funnel play role of Gravity Force that sucks the protons and brings them to a critical a small distance between them. But the accelerating longitudinal Funnel is an invisible wave and its existing does not established. It pulsate up end down as elongates and shortens and exist like an standing longitudinal wave.

Result : Accelerating longitudinal Funnel in nucleus pulsates as wave and is perceived as wave.

Thus Gravity Force unites protons in a common body like intelligent software (Figure 1, IVc) [9, 12].

Result: The Gravity Force of accelerating Funnel sucks in the protons and brings them to a critical a small distance between them.



The Gravity Force pinches the protons with the help of neutrons in a common sphere in minimal volume

Result :The Gravity Force pinches , grips , glues so that all protons become stuck one to another with the help of neutrons in a common body in minimal volume .

The neutrons pinch the surrounding protons through the longitudinal vortices that return from the exit to the entrance and are called Back waves.

REFERENCES

1. L.D. ,E.M. Lifshitz , The Classical Theory of Fields , Volume 2 of A Course of Theoretical Physics, 4 Edition., Butterworth-Heinemann,1975).
2. Markova V.,The other axioms (Monograph, Book 1) Nautilus, Sofia, 2003.
3. Markova V.,The other axioms (Monograph, Book 2). Nautilus, Sofia, 2005
4. Markova .V. , Extended Field Theory. New Axioms, Laws and consequences.,IOSR-JAP,Journal of Applied Physics,e-ISSN:2278 4861,Vol.9,Issue1,Ver.2(Jan.-Feb.2017)
5. Markova V. Modeling of gravitational waves by creating a system of paired cross vortices. Some properties , conclusions and applications, IOSR Journal of Applied Physics (IOSR-JAP),Volume 9, Issue 5 Ver. 3 (Sep. - Oct. 2017), PP 25-32.
6. Markova V. New axiom for description of Gravity, 5th International Conference on Physycs ,Athens, Greece 17-20 July,2017
7. Markova V. About the new axioms and laws, 5th International Conference on Theoretical and Applied Physics, Vienna, Austria, July 02-03 ,2018.
8. Markova V., Extended Field Theory, New Axioms ,Laws and Consequences,2th International Conference on Quantum Mechanics & Nuclear Engineering, Paris, France, September 23-24,2019.
9. Markova V., Modeling of Two Different Space-times, Based on Knowledge of New Axioms and Laws,2nd Global ummit on Physics, Paris, France, September 26-27,2019.
10. Markova V., Essence of Electric Charge of elementary particles according of New axioms and Laws , Adv. Theo Comp Phy, 2020, ISSN: 2639-0108, Volume 3 , Issue 4 , 298-303, www.opastonline.com
11. MarkovaV.,System of electron-proton. Movement, rotation, pulsation and Gravity Forces. Adv Theo Comp Phy, 2021 ISSN: 2639-0108 , Volume 4, Issue 1,p. 14-22 , www.opastonline.com
12. Markova V. The Gravity Funnels, formed by the longitudinal vortices, according to the new Axioms and Laws, Adv Theo Comp Phy, 2021, ISSN: 2639-0108, Volume 4 | Issue 1 | 61-68 , www.opastonline.com