Gravity Field (LF) in inner planets of Sun system described by theory of new axioms and laws

Dr. Valentina Markova (PhD)

Bulgarian Academy of Sciences

***Corresponding author:** Dr. Valentina Markova (PhD); Bulgarian Academy of Sciences, i.b.r.dr_vm@mail.com.*

Abstract

Gravity Field (Low Frequency) in Sun system is described by analogy to description of Atom system. The system of electron-proton in Atom is explained by theory of new axioms and laws[10]. The theory of new axioms and laws is published by the same author [2,6,8,9]. It describes nonparametric and nonlinear processes and contains 2 new axioms and 8 new laws. Unlike Classical field theory, it describes longitudinal or transverse non-uniform motions which are accelerating or decelerating. According to the Axiom1 every unevenly rotation of one vector forms open vortex which can be transverse or longitudinal and accelerating or decelerating .It is well known that there is analogy between the electrons and an planets including the planet Earth. According the Law1 the model of the electron or the Earth represents a decelerating transverse vortex swirling into a plane in 2D and generating in its center accelerating longitudinal Gravity Funnel in 3D, perpendicular to the same plane. Because of positive acceleration in center the accelerating longitudinal Gravity vectors form the accelerating Gravity Field in-up. Because of resistance of environment outside in periphery is formed Back wave or decelerating Gravity vortex that passes outside the body of Earth and embraces it like a cocoon. According Axiom 2 by analogy to electron-proton , the reason for the creation of internal planets is the Sun. More precisely- the reason is a specific longitudinal vortex in 3D coming from outside to the third cylindrical resonator in the volume of the Sun. It generates a Low Frequency transverse vortex in the third in a row cylindrical resonator in Sun that corresponds to Earth. According Law2 the proton is generated as accelerating transverse vortex from center of sphere of atom .The cylindrical resonator inside the Sun generates an accelerating transverse vortex with an amplitude proportional to the width of the third cylinder. This transverse vortex in 2D is launched to the space in direction to the Earth. Due to the friction later it decelerates and according to Law1 it is rolled up as a decelerating transverse vortex and in this way it generates the body of Earth. According Law5 decelerating vortex emits decelerating secondary cross vortices from itself . The similar is a decelerating transverse vortex generates Earth from periphery to the center .It emits energy from surface (periphery) to inside (center) and warm the center of the Earth. That is why the surface of Earth is cool ,but the center of Earth is hot and empty . According Law6 the accelerating vortex sucks accelerating cross vortices to itself . The similar is a super accelerated longitudinal central vortex in the 3D funnel along the y- axe of the Sun. It sucks energy from center of Sun and cool it down. That is why the center of Sun is cool. At the same time the outermost longitudinal vortices in the 3D funnel become slower and more powerful. They begin to rotate faster and faster the denser plasma in 2D in the transverse direction (perpendicular to the funnel in 3D). In this way they accelerate themselves transverse from center to periphery That is why in the periphery the transverse vortex is extremely accelerated and hot .The acceleration of the Sun beams in surface of Sun is so huge that they radiate huge temperature from surface.The described algorithm only applies to the inner solid planets. For the outer gas planets, the algorithm is orthogonal and will be described further.

1. Introduction

From the planetary model of Rutherford it is known that there is analogy between the structure of the solar system and the atom . By analogy - the electrons and the internal planets are similar .Gravitational body ,for example as a proton is similar the transverse vortex in the corresponding of a cylindrical resonator inside the Sun. Gravitational body, for example as the electron is similar an inner solid planet corresponding to its

resonator inside the Sun. Part of these phenomena will be described in the current report.

2. The Classic Axiom .The new Axiom 1 and Axiom 2

The Classic Axiom in the Theory of the Electromagnetic Field certifies Maxwell's laws (1864) [1]. It postulates that the movement of an electric vector E in a closed loop is evenly:

div(rot E) = 0,   (1).

where (rot E) is the movement of the vector E in a closed loop; div (rot E) is the divergence (the variation in increase or decrease) of the vector E during its moving in a closed loop(rot E) It is obviously that the movement of the vector E in a closed loop (rot E) with zero divergence (variation) of the vector E is equivalent to evenly movement or to movement with constant velocity V[1] . The disadvantage of Classic Axiom (1) is that it does not describe movements in an open loop (or a vortex) or movements with a non-constant or variable velocity V.

The New Axiom1 for rotor and for vortex (vor)

The New Axiom1 describes the movements in an open loop or in a vortex with a non-constant (variable)velocity V of vector E [2].

div (rot E) $\neq$ 0 ,   (2).

Definition: div (VorE) $\neq$ 0 for vector E in 2D (in plane)   is named transverse (cross) vortex.
div (VorH) $\neq$ 0 for vector H in3D(in volume) is named longitudinal vortex.

Definition: An unevenly cross vortex (E_{2D}) is an unevenly vortex (E) spinning transversally in a 2D plain. The transverse open vortex in 2D is designated as Vor E_{2D} (Figure 1c).

Definition: An unevenly longitudinal vortex (H3D) is an unevenly vortex (H) spinning in the volume of 3D. The longitudinal open vortex in 3D is designated as   Vor H3D (Figure 1d).

The definitions for natural unevenly vortices ignore the thickness of the vortex itself (cross in 2D or longitudinal in 3D).
It exists a vortex div (VotE) $\neq$ 0 as an open loop (div (rotE) $\neq$ 0) in 2D . It exists a vortex   div (VotH) $\neq$ 0 as an open loop (div (rotH) $\neq$ 0) in 3D or:

div (VorE$_{2D}$) $\neq$ 0, div (VorH$_{3D}$) $\neq$ 0.   (3).

The existence of an open loop   means that it can exists a decelerating or an accelerating vortex in 2D or in 3D: div

(Vor E$_{2D}$) <0;   div (Vor E$_{2D}$)> 0;   (4).

div (Vor H$_{3D}$) <0;   div (Vor H$_{3D}$)> 0.

Axiom 1. The moving of a vector with monotone-decreasing or monotone-increasing velocity becomes along an open vortex.   (5).

Consequence : (of variation of moving):
We immediately received 4 types of movements – transverse (4a), which can be accelerated or decelerating and longitudinal (4b) , which can also be accelerated or decelerating. Therefore there are 4 types of vortices : a transverse vortex in 2D (E_{2D}) that can be accelerated (E_{2D+}) or decelerated (E_{2D-}) (Figure1c) and a longitudinal vortex in 3D (H3D) that can also be accelerated (H_{3D+}) or decelerated (H_{3D-}) (Figure1d) [2] .

Consequence : (of visual perception)
It is known that light is spreading crosswise and the cross vortex reflect the light rays.Therefore an external observer will perceive the image of the transverse vortex. Thus the cross vortex is well visible for an external observer.But the thread of the longitudinal vortex does not reflect the light. The reason is that the light crosses the thread of longitudinal vortex , surrounds the thread, and continue its path without reflecting the longitudinal vortex. So the light   forms diffraction around the thread Therefore, the longitudinal vortex is invisible to an external observer [6] .

Consequence :(eccentric vortex ,vortex turns to a dipole).
The open vortex turns from concentric to eccentric vortex or to dipole. The reason is in the acceleration of velocity. For example, in decelerating vortex: E1> E3 .Therafore the Geometric Center will aim to move to the bigger vector E1(to up). At the same time : E2> E4.

Therefore   the Geometric Center will aim to move to the larger vector E2(to the left). Therefore, the Geometric Center will move to Gravity center ,or it moves to second quadrant (Figure1b) [8].

Consequence : (of complex vector)
The vector E is not a simple but complex vector. .When E2 = V + iA, the velocity V is reason,   the amplitude A is result (Figure1e).When E1 = A + iV,the amplitude A is reason ,the velocity V is result (Figure1f) [9].

Definition: The objects with this vectors (E1 = A + iV ,E2 = V + iA) are called complementary vortices or *complementary pairs* .
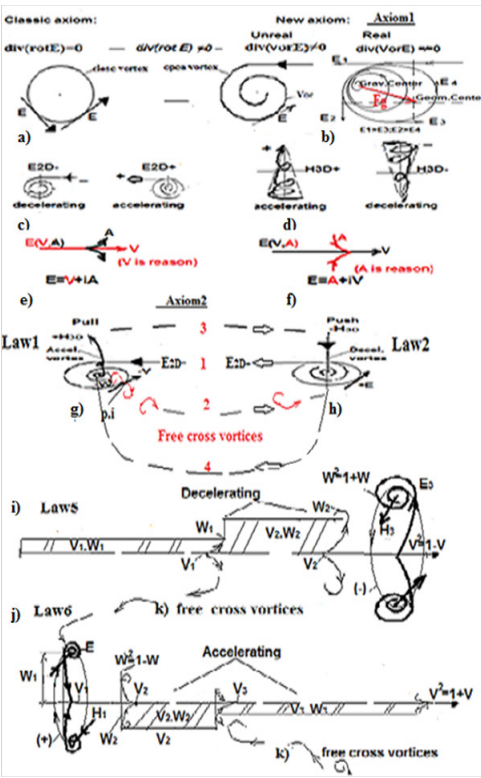

Figure 1: The new Axiom 1, Axiom 2 and Law 1, Law 2, Law 5, Law 6

Axiom 2 . A pair of complementary vortices forms a resonance system.

Because one object pushes (E1 = A + iV) (Figure1h), the other should be pulls (E2 = V+ iA) (Figure1j) (or inversely) .So they *form a pair of complementary objects*. Something more, because of one object pushes and the other pulls, the *both of them are active generators [8]* .

Consequence: There is no energy losses in the pair of open complementary vortices. The reason is that the *both of them are active* .

For comparison in the Electromagnetic Field, the electrical circuit contains one generator element and one or several passive consumers.They only transform energy from one view (kinetic) to the other view (potential).

Consequence: Pair of complementary objects (E1=A+iV,E2 = V + iA) *exists at the same time.*

Consequence: Pair of complementary objects (E1 = A + iV , E2 = V + iA) *is connected by a links* (1,2) in one and the same direction (Figure 1g,h).

The link 1 transports energy by longitudinal vortex from accelerating object (proton-Sun) (Figure1h) to decelerating object (electron-Earth) (Figure1g). The link 2 is Back link and it transports many cross vortices that emit from transverse vortex of decelerating object (electron-Earth) , which is strongly decelerating in center, towards the accelerating transverse vortex(proton -Sun) which sucks them (Figure1g,h).

Consequence: There are two opposite directions of impact of complementary pair:

(E1 = A + iV, E_2 = V + iA) and (-E_1= -A – iV , -E_2 = -V - iA).

In straight direction: For proton:(E_1 = A + iV) amplitude (A) is the reason (Figure1h) but the speed (V) is the result. For electron: the velocity (V) (E_2 = V + iA) is the reason but the amplitude (A) is the result (Figure 1g). An example of such *straight direction* is the proton-electron and resonator *inside the Sun-Earth.*

In the opposite direction: For antiproton: (-E_1=-A - iV) amplitude (-A) can be the reason but the speed (-V) is the result .For positron: the velocity (-V) (-E_2 = -V - iA) can be the cause and the amplitude (A) is the result [9] . An example of such *opposite direction* is the antiproton-positron and resonator inside the Sun- Venus.

3. Law 1 forms the electron and the planet Earth from outside , Law 2 forms the proton and the star Sun from outside

Law 1: The open cross vortex (E2D) generates (inward or outward) an open longitudinal vortex (H3D) in its center through a cross-longitudinal transformation Δ1:

$$\text{Vor}(E_{2D}) \overset{\Delta 1}{=\!\!>} - \text{Vor}(H_{3D}),$$ 6.

where Vor (for Vortex, meaning an unevenly vortex) which replaces rot (rotor, meaning closed loop) [8].

Therefore the cross vortex in 2D (E2D) *continues its development* in 3D as a longitudinal vortex (H3D) (Figure1g). *While Maxwell's Law states that vector E generates vector H*, the present law (6) postulates that the cross vortex Vor (E_{2D}) of E in 2D generates a longitudinal vortex Vor (H_{3D}) of H in 3D. The sign (-) for Vor (H_{3D}) 3D means that E2D and H3D have opposite dynamics .For example when div (Vor E_{2D}) < 0 (is decelerated) , div(Vor H_{3D}) > 0 (is accelerated).

Consequence: The open cross vortex (E2D) generates inward (Δ1in) an open longitudinal vortex (H 3D) outward . This action takes place from the center of the cross vortex (E 2D) through a cross-longitudinal transformation Δ1:

$$\text{Vor}(E_{2D}) \overset{\Delta 1_{in}}{=\!\!>} - \text{Vor}(H_{3D}) .$$ 6a.

The Consequence (6a) of Law1 describes in 2D the model of electron (e-) as the ***transverse vortex inward*** in the chain of proton-electron (Figure 1h-Figure 1g).

Result by analogy: *As analogy to the electron are planet Mercury, Earth (Figure 2), Mars (Figure 4) without the second planet Venus* (Figure 3).

Result by analogy : The chain from proton-electron has analogy to the chain from the first cylindrical resonator inside Sun and planet Mercury, third cylindrical resonator inside Sun and planet Earth (Figure 2a, b,c) and fourth cylindrical resonator inside Sun and planet Mars (Figure 4c,d,e).

Consequence: The open cross vortex (E 2D) generates outward (Δ1out) an open longitudinal vortex (H 3D) inward . This action takes place from the center of the cross vortex (E 2D) through a cross-longitudinal transformation Δ1:

$$\text{Vor}(E_{2D}) \overset{\Delta 1_{out}}{=\!\!>} \text{Vor}(H_{3D}) .$$ 6b.

The Consequence (6b) of Law1 describes in 2D the model of positron (e+) as the transverse vortex outward in the chain of antiproton-positron (not shown in figure).

Result by analogy : As analogy to the positron is a second planet Venus (Figure 3a,c).

Consequence: The open ***decelerating cross vortex (E$_{2D}$-) generates inward (Δ1$_{in}$)*** an open accelerating longitudinal vortex (H$_{3D}$+) outward. This action takes place from the center of decelerating cross vortex (E$_{2D}$-) through a particular cross-longitudinal transformation Δ1$_{in}$:

$$\text{Vor}(E_{2D}\text{-}) \overset{\Delta 1_{in}}{=\!\!>} \text{Vor}(H_{3D}+).$$ 6c.

The Consequence (6a) of Law1 describes in 2D the model of

electron (e-) as the decelerating inward vortex (dec(e-) (Figure1g) in the chain of proton-electron (Figure 1h - Figure 1g) . Every electron (dec(e-) of this type look likes to :" expanded cross vortex and a shortened longitudinal vortex".

Result: The generation of a maximally inflated transverse vortex in electron is due to maximum negative deceleration (-amax) of the input vortex in electron from the outside to the inside (div Vor E < 0) = (-amax)(Axiom1).

Result: The greater negative acceleration (- a_{max}) of the one orthogonal element (electron) is due to the greater the positive acceleration (+ a_{max}) of the second orthogonal element (proton) (Axiom2) . Therefore between this two orthogonal elements (electron-proton) forms some kind of parabola with a greater distance (D) . It follows that the repulsive force: (Frepuls e~ amax . mfluid) is greater, and the distance (D) between the two orthogonal elements is greater ($D_{max} \sim F_{max}$. T) ,where the sighn (~) means right proportionally .

Result: The greater the negative acceleration of the transverse vortex(-amax), the larger the diameter (d_{max}) of this vortex in 2D and the smaller the perpendicular vector (h_{min}) in 3D (Law1).

Result: Because distance (D) is greater this type of electrons (dec(e-) : " expanded cross vortex and a shortened longitudinal vortex" are located in outer orbits.

Result by analogy: By analogy with the planets : *the expanded planets with shorten perpendicular longitudinal vortex are located in outer orbits.*

For example: The planet Earth is an example of an expanded planet inouter orbit.

-The planet Earth is generated by an expanded transverse vortex(dec(e-)in 2D and has as a result an shortened longitudinal vortex in 3D.This decelerating transverse vortex(dec(e-)is generated in cylindrical resonator inside the Sun as an accelerating transverse vortex(acc(p+).

-Due to the bigger radius of the third cylindrical resonator, the transverse vortex is longer and is coiled in more rotations .In output it forms longer parabola and longer distance (D) which keeps the planet Earth at an outer orbit.

- Something more – the planet Earth has the most privileged position of all the inner planets. Because of the Earth is the third planet in a row, it corresponds to the third cylindrical resonator inside the Sun . But the *third cylindrical resonator has the maximum volume.* That is why and planet *Earth has the maximum volume and maximum density* in comparison with other inner solid planets .

-The maximum volume of the third resonator inside the Sun means the maximum power of transverse vortex (acc(p+) .The maximum power cause the *maximum acceleration* and respectively *maximum eccentricity* in cylindrical resonator (Fg) inside the Sun.

According to Axiom 2, the planet *Earth is an orthogonal object of the Sun*. Therefore, in the third resonator inside the Sun, the maximum expanded and inflated a transverse vortex is generated which is *shot from Sun to the spherical resonator of the Earth.* This fact leads to maximum eccentricity and *maximum vector and of eccentricity ($F_{g, max}$)* inside the Earth (Figure1b).

-As a result of maximum vector of eccentricity ($F_{g, max}$) inside the resonator of the Earth, the maximum component of the Fg, max on the x-axis is obtained. This x-axis component keeps the Earth's mass at the possible maximum distance (D) to the Sun(Figure g,h) [10].

-Due to the decomposition of the eccentricity vector along the y axis ,the maximum component of the Fgmax on the y-axis *rotates the planet Earth with maximum orbital speed [10].*

-According to the Law 5 the decelerating transverse vortex with maximum deceleration (-a_{max}) emits to inside the secondary cross vortices with maximum amplitude (+W_{max}). Since these emitted secondary vortices are also decelerated, they are curved from right to left. Therefore they rotate the Earth around its axis from right to left with maximum speed. The direction of rotation is determined by an independent observer *looking against the direction of the longitudinal vortex - from top to bottom* [3,10].

Consequence: The opened accelerating cross vortex (E_{2D}+) generates inward ($\Delta1_{in}$) an opened decelerating longitudinal vortex (H_{3D}-) outward . This action takes place from the center of accelerating cross vortex (E_{2D}+) through a cross-longitudinal transformation $\Delta1+$:

$$\text{Vor} (E_{2D}+) \overset{\Delta1_{in}}{=>} \text{Vor} (H_{3D}-) . \qquad 6d.$$

The Consequence (6d) of Law1 describes in 2D the model of electron (e-) as the accelerating inward vortex (acc(e-) (Figure 1g) in the chain of proton-electron (Figure 1h - Figure 1g).

Result: The Consequence (6a) and (6b) describe decelerating or accelerating cross vortex to inwards .We immediately obtain 2 types of electrons: (dec(e-)) and (acc(e-)) that look likes to " expanded transverse vortex and a shortened longitudinal vortex" and "shrunken transverse vortex and longer longitudinal vortex.

Result: The less the negative acceleration of the transverse vortex (-amin) the less the diameter (d_{min}) of this vortex in 2D and the longer is elongated perpendicular vector (h_{max}) in 3D (Law 1).

Result: The second type of electron (acc(e-) look likes to: "shrunken cross vortex and longer longitudinal vortex". This type of shrunken electrons are located in inner orbits (D_{min}).

Result by analogy: By analogy with the planets - the shrunken planets with elongated longitudinal vortex are located in inner orbits.

For example: The planet Mercury is an example of a shrunken

planet generated by a shrunken transverse vortex and an elongated longitudinal vortex in the innermost (first) cylindrical resonator in the Sun. *Due to the minimal radius(d_{min}) of the cylindrical resonator, the transverse vortex has a minimum transverse acceleration(-amin) that keeps the planet Mercury at a minimum distance (D_{min}).*

Law 2: The opened longitudinal vortex (H_{3D}) generates (inward or outward) an opened cross vortex (E_{2D}) in its center through a longitudinal-cross transformation Δ2:

$$Vor (H_{3D}) => - Vor (E_{2D}) \qquad \overset{\Delta 2}{} \qquad 7.$$

Consequence: The open longitudinal vortex (H_{3D}) *inward ($Δ2_{in}$)* generates an open transverse vortex (E_{2D}) outward .This action takes place in the center of cross vortex (E_{2D}) through a particular longitudinal-cross transformation Δ2in:

$$Vor (H_{3D}) => -Vor (E_{2D}). \qquad \overset{\Delta 2_{in}}{} \qquad 7a.$$

The Consequence (7a) of Law 2 describes in 2D the model of *proton* (p +) as the *transverse outward vortex* in the chain of proton-electron (Figure 1h - Figure 1g).

Result by analogy: As analogy to the proton are the first ,third and fourth cylindrical resonators inside the Sun . They rule planets Mercury ,Earth and Mars (Figure 2).

Consequence: The open longitudinal vortex (H_{3D}) outward (Δ2out) generates an open cross vortex (E_{2D}) inward .This action takes place in the center of cross vortex (E_{2D}) through a particular longitudinal-cross transformation Δ2out:

$$Vor (H_{3D}) => -Vor (E_{2D}). \qquad \overset{\Delta 2_{out}}{} \qquad 7b.$$

The Consequence (7b) of Law 2 describes in 2D the model of antiproton(p-) as the *transverse inward vortex* in the chain of antiproton-positron (not shown in figure).

Result by analogy: As analogy to the *antiproton* is a second resonator inside the Sun .

It rules the second planet *Venus* as positron (Figure 3c).

Result by analogy: The chain from antiproton-positron has analogy to the chain from the *second cylindrical resonator inside Sun and planet Venus* (Figure 3a, b,c).

Consequence: In accordance with the outermost electrons (Law1),the outermost protons, are *inflated protons* (dec (p+)) (Law2) .They also are extremely eccentric and highly polarized.

Consequence: In accordance with the innermost electrons(Law1) , the *innermost protons*, are shrank protons(acc (p+))(Law2).They are not eccentric and they are zero polarized.

Conclusions: The outermost layers of atomic nucleus consist of inflated protons (dec (p+))which are extremely eccentric and highly polarized .They control the outermost electrons, which are also inflated electrons (dec (e-)) They are also extremely eccentric and highly polarized. The innermost layers of of atomic nucleus consist of shrunken protons (acc (p+)) . They control electrons from the innermost orbits (acc (e-) that are contracted and are not eccentric and polarized [10].

Result by analogy: The inner most first resonator inside Sun corresponds to generator of Mercury. That is way this first cylindrical resonator is a model of shrunken proton (acc (p+)). Therefore planet *Mercury is a model of shrunken electron* (acc (e-) . Because Mercury is not eccentric and polarized , its y-axe is exactly perpendicular and has no slope. That is way it rotates around Sun synchronously .

Result by analogy: The third resonator inside Sun is more outer resonator. It corresponds to the generator of Earth. That is way this third cylindrical resonator is a model of expanded proton (dec (p+)). Therefore planet *Earth is a model of expanded electron* (dec (e-). Because Earth is outer planet it is more eccentric and polarized and its y-axe is not perpendicular and has any slope (23deg.). That is way it has not synchronously rotation around Sun (Figure 2) .

Result by analogy: The fourth resonator inside Sun is outermost resonator .It corresponds to the generator of planet Mars . That is way this fourth cylindrical resonator is a model of expanded proton (dec (p+)) . Therefore planet *Mars is a model of expanded electron* (dec (e-) as well. Because Mars is outermost planet it is the most eccentric and polarized and its y-axe is not perpendicular and has the most slope. That is way it *has not synchronous* rotation around Sun as well (Figure 4) .

4. Law 5 forms the electron (positron) and the internal planets from *inside*,
Law 6 forms the proton(antiproton) and the star Sun from *inside.*

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

$$I\ V(t)^2 = V_0 (Vo - V(t)),$$
$$I\ W(t)^2 = W_0(Wo +W(t)), \qquad 8.$$
$$I\ w(t)^2 = w_0 (wo+ w(t))$$
$$I\ N^2 = N_0 (No+ N)$$

where the roots vn , wn and ωn and nn are expressed as: **vn= (1/ $ψ^n$).V_0 , $ω_n$ =$ψ^n$.W0; w_n= $ψ^n$. W_0, [nn]=$ψ^n$.N_0**; linear velocity V0 is the starting value of Vn , amplitude of cross vortex W0 is the starting value of ωn , angular velocity w0 is starting value of wn , number N0 is starting value of nn , [nn] is the closest integer; ψ is a proportional that fulfills the requirement: **ψ-1/ ψ =1**[8].

Therefore a decelerating vortex (E_{2D}-) with a velocity vector (V) emits to the environment decelerating vortices with increasing amplitude (W)(because of sign + in second equation of system 10a) (Figure 3b).

Result: The main decelerating transverse vortex of electron *emits* to center decelerating transverse secondary vortices. At the same time electron emits to (outside) environment decelerating transverse secondary vortices .

Result: Two or more decelerating longitudinal vortices *repel each other* and form *Decelerating Gravity Funne*l.

The Result by analogy: On the one hand the main decelerating vortex emits secondary decelerating vortices which are emitted inwards to center of planet Earth .On the other hand the main decelerating vortex emits outwards to the surrounding space in direction to Sun the same secondary decelerating vortices. Thus is formed back link to Sun and *it closes a full circle (closed loop)* in 2D (Law 7).

Law 6 for 3D: *The accelerating vortex in 3D* is described with a system of 4 nonparametric equations in which: longitudinal velocity (V) increases in (n) portions (ψn) times, the angular velocity (w) , the amplitude (W) and the number (Nn) of cross vortices decrease in (n) portions (ψ^n) times:

$$I\ V(t)^2 = V_0\ (Vo + V(t)),$$
$$I\ W(t)^2 = W_0(W0 - W(t)), \qquad\qquad 9$$
$$I\ w(t)^2 = w_0\ (w0 + w(t))$$
$$I\ N^2 = N_0\ (N_0 + N_n)$$

where the roots v_n, w_n and ω_n and nn are expressed as:
$v_n = (\psi^n).\ V_0$, $\omega_n = (1/\psi^n).\ W_0$, $w_n = (1/\psi_n).\ W_0$, $nn = (1/\psi^n).\ N_0$; linear velocity V0 is the starting value of V_n, amplitude of cross vortex W_0 is the starting value of ωn , angular velocity w_0 is starting value of w_n, number N_0 is starting value of nn; ψ is a proportional that fulfills the requirement: $\psi-1/\psi = 1$[9].

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

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

Result: The main accelerating vortex *suck in* from environment secondary accelerating cross vortices.

Result: Two or more accelerating longitudinal vortices *attract each other* and form *Accelerating Gravity Funnel*. The reason is due to the suction of secondary   accelerating cross vortices from environment to inside.

Law 7: A pair of orthogonal open transverse objects forms a closed loop by feedback in 2D of primary transverse vortices.
The Result by analogy : It exists an *inverse movement* in the space between internal planets (including Earth) to the Sun .It closes the Closed loop from the Sun to internal planets (Earth) and from internal planets to Sun (Figure 3c).

The Result by analogy: On the one hand the *main longitudinal vortices* are sucked from outward to inwards to center of Sun from the surrounding space   and transverse vortices are emit to inward planets. On the other hand the *secondary longitudinal vortices* are emitted from inward planet to Sun. (Mercury, Earth, Mars)   or sucked (Venus) by the Sun. Thus is formed closed loop in 3D(x,z) volume (Law 8).

The Result by analogy: For   first, third and fourth resonator inside Sun (corresponding to   Mercury,Earth and Mars) the main longitudinal vortices *are   pushed to inward.* The main transverse vortices a*re emitted from Sun* to planets Mercury, Earth and Mars .At the same times the secondary longitudinal vortices are emitted from Mercury, Earth and Mars to Sun.

For second resonator (corresponding to Venus) longitudinal vortex   is pulled out. The secondary longitudinal vortex is sucked from Venus. At the same time Venus sucks secondary longitudinal vortex from second cylindrical resonator in Sun

The Result by analogy : *The closed loop in 3D (x,z) plane (Law8) is perpendicular to the 2D(x,y) plane (Law 7).*

Law 8: A pair of open longitudinal objects in 3D forms a closed loop in 3D by feedback in 3D of primary longitudinal vortices.
On one hand the Law 8 show that the longitudinal decelerating vortices are emitted (Mercury, Earth, Mars) or sucked (Venus) by the Sun . On other hand this Law 8 describes the closed loop between longitudinal vortices of internal planets and   planets which are placed outside the Asteroid Belt (between Mars and Jupiter) and also internal planets (Earth, Mars) and satellites of internal planets (Moon , Phobos and Deimos). The longitudinal vortices of internal planets generate   outer gas planets and its satellites.

The Result by analogy: The closed loop in 3D   (x,z) plane (Law8) is perpendicular to the closed loop in 2D (x,y) plane (Law7).

The Result by analogy: The Sun generates the inner planets by emitting (Mercury, Earth, Mars) or sucking(Venus) by a transverse vortex (in 2D). But the planets also emit free transverse vortices during the   motion of the main transverse vortex (in 2D) that generates them.

The Result by analogy: The inner solid planets generate the outer gas planets through the main longitudinal vortices which they emit (Mercury,Earth,Mars) or suck (Venus) through their poles(in 3D).

The Result by analogy: The internal planets(Earth, Mars) generates their satellites planets (Moon , Phobos and Deimos) by means of secondary longitudinal vortices shooting through their poles.

The Result by analogy: The outer gas planets generates their satellites by orthogonal algorithm .It means that he outer gas planets generates their satellites by transverse vortices which are targeted to their solid satellites

The Result by analogy: It was shown that the internal planets are model of elecrtons (Mercury, Earth, Mars) or positron (Venus). *Mercury, Earth, Mars generate correspondingly Jupiter, Uranus, Neptune by their main longitudinal vortices as protons .They generate their satellites as electrons. This is a reason their satellites to look like to Earth with solid and dense bodies and hot nucleus. Venus generates Saturn through sucking from its main longitudinal vortex as antiproton . Its satellites look like to positrons.*

5. Structure of the Sun
The proton
It is well known that the protons are arranged in layers inside the nucleus. According the author the outermost layers consist of inflated protons(dec (p+)). They control the outermost electrons, which are also inflated electrons (dec (e-)) .They also are extremely eccentric and highly polarized. The innermost layers of the nucleus consist of shrunken protons (acc (p+)). They control electrons from the innermost orbits (acc(e-) that are contracted and not polarized. In central protons the longitudinal velocity is maximum (v_{max}) but the transverse (angular velocity ω) tends to zero (ω_{min}).Therefore *in center the mode is : (v_{max} , ω_{min}).*

In periphery protons the longitudinal velocity is minimum (v_{min}) but the transverse (angular velocity ω) is maximum (ω_{max}). Therefore *in periphery of nucleus the mode is*: (v_{min} ,ω_{max}). [10].

Such a structure of protons is possible because the generating vectors are coming in from all directions to the nucleus from the outside to the inside in condition of new space-time (Vconst) [11].

The Sun
On one hand, in the Gravitational funnel which generates Sun there are in addition to central strongly accelerated longitudinal vortices and slower peripheral less accelerated and more coiled vortices. These more peripheral vortices have low longitudinal velocity (v min) and high transverse velocity (ω_{max}) vortices and generate the periphery of body of Sun (Law 2)

On other hand the generating Funnel comes towards the Sun from only one direction of the space . It is a powerful bundle of many vortices inserted into each other in space-time with Sconst. which form this generating Gravity Funnel . The longitudinal vortices are nested into each other according to their velocities. Thus, in the center of this package is found a longitudinal vortex with maximum longitudinal velocity (v_{max}) and minimum transverse rotation speed (ω_{min}). Or in center is found the vortex : (v_{max} , ω_{min}). However a longitudinal vortex with minimum longitudinal speed (v min) and maximum transverse rotation speed (ω max) is wound in the periphery .Or in periphery of Sun is wound a transverse vortex: (v_{min} , ω_{max}) (Figure 2a) [3,4] . Therefore Sun look likes to the *proton* [10]

Consequence: Sun look likes to the *proton*.

Consequence: In the generating funnel coming to the Sun in special space-time (Tconst., S~V) there is an increase in the linear velocities from the center(vmin) to the periphery (v_{max}) and a decrease in the transverse velocities from (ω_{max}) to (ω_{min}) [11]. Here the sign (~) means direct *proportionality*

Consequence: In atom nucleus the velocity distribution corresponds to the distribution of longitudinal (vi) and transverse velocities (ωi)) in layers outside to the center in extremely special space-time (Sconst.,V~ 1/T) [11]. Here the sign (~) means *inverse proportionality*.

The Result by analogy: The velocity distribution of protons in atom nucleus in real space-time (Tconst., S~V) completely corresponds to the distribution of longitudinal (vi) and transverse velocities (ωi)) from the outside to the center in space-time of the generating Gravity Funnel (Sconst.,V~ 1/T).

Consequence: Sun look likes to the very *extended proton.*

The longitudinal vortex which comes from outside to inside and generates the transverse vortex from center to outside creates Sun's body as proton (Law 2) . At the transverse exit the accelerating vortex is shot out to Earth .

In particular for Earth ,the longitudinal Funnel from longitudinal vorticesthe coming from the outside space generates in the third resonator of Sun (corresponing to Earth) transverse vortices from center to outside (Law2)(Figure2d). At the exit of the Sun this connection is an accelerating vortex, and at the entrance of the Earth this connection turns into a delayed vortex. The reason for this transformation is the natural friction of the medium.

On other hand According in center of this longitudinal Funnel has extremely accelerating vortices .Their positive acceleration are the reason to suck in free cross vortices (quanta) from center of Sun (Law6) .This phenomena strongly cools down the central interior of the Sun .So the central part of Sun is cooler and therefore is denser then the surface of Sun.

The Result by analogy: The *central part of Sun is cooler and denser* then the surface of Sun.

6. The third resonator corresponding to the planet Earth
It is known that the Earth is the third planet after Mercury and Venus. The new vision of author shows that in the third is cylindrical resonator the beams of longitudinal vortices coming from outside generates transverse vortex which corresponds to Earth . Outside the resonator of Earth follows another - the resonator on Mars. Before the resonator of Earth are resonators of Mercury and Venus .Obviously the third cylindrical resonator on Earth has maximum volume compared to the other 3 resonators (Figure 2d) [3].
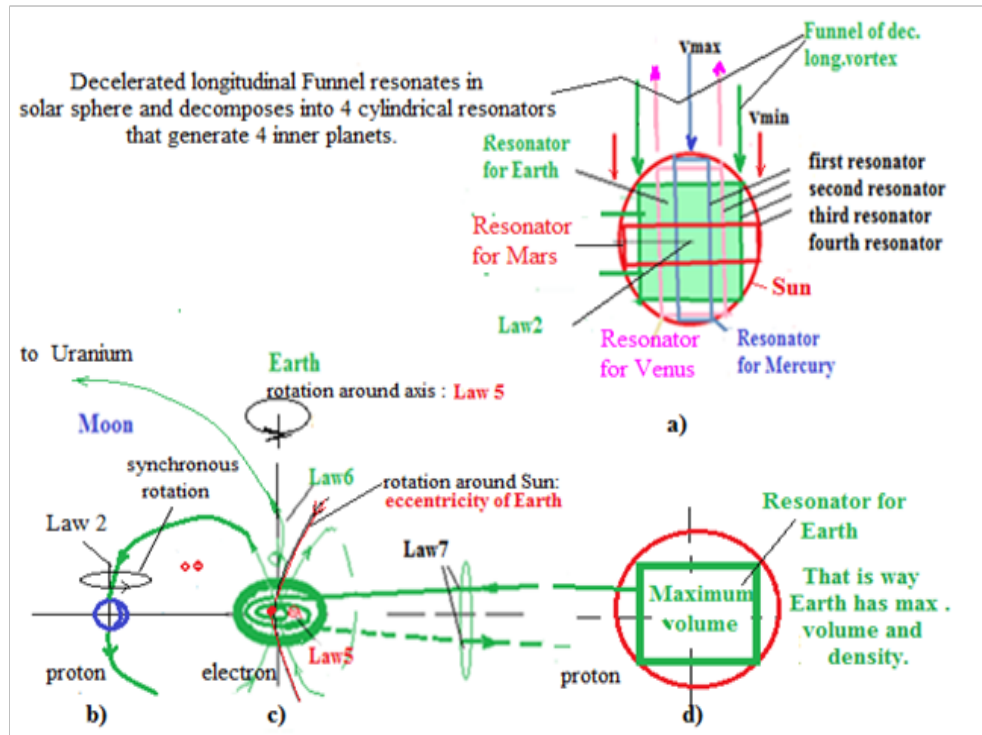
Figure 2: Two complementary pairs: Sun- Earth and Earth- satellite Moon
The System of Sun and Earth -System of one complementary pairs

The System of Sun- Earth (System of one complementary pairs)

It is obviously that the third resonator is located in the middle of the sphere and the dimensions along the x- axis and along the y-axis are almost are the same.

Consequence: In the third cylinder the diameter is equal to the high of cylinder .

This mathematical problem has been solved long ago: Because in this (third cilindrical resonator) cylinder diameter is equal to the high of cylinder it has been proven that this kind of cylinder has a maximum volume inscribed in the sphere (of Sun) .

The Result by analogy: The third cylinder has a *maximum volume* inscribed in the Sun sphere.

That is way the third planet (Earth) has maximum volume .The densityof the Earth is also maximum .The reason is that the *amount of transverse vortices* placed inside this maximum volume is also maximum. Therefore Earth has maximum density as well.

The Result by analogy: The third cylinderhas a *maximum volume* inscribed in the sphere (of Sun) .

The Result by analogy: The third cylinder has *maximum density* of transverse vortices

The Result by analogy: The third cylinder has *maximum density* of transverse vortices.

Consequence: Earth look likes to an *expanded electron.*

The Gravity and Magnetic Field for electronand Earth

-We can describe that the electron generates Gravity Funnel in its center and through the center passes the maximal accelerating vortex (Law 1). *The Gravity Field* passes through center of electron in *direction North (N) to South (S)* (from down to up). This very accelerating central vortex of the Gravity field springs from the center of electron to up

-But the periphery vortices sharply reduce their speed outside the electron surface and sharply change the direction of movement in the opposite direction to the original. Thus, this field of external and slow vortices creates a reverse wave that envelops electron from the outside and form the *Magnetic field* in opposite direction (from up to down) .Unlike the internal Gravity field, the Magnetic field has a *reverse polarization South-North* (from up to down) .Therefore, the Gravitational field through the center of the electron and the Magnetic field outside the electron surface have opposite directions.

Consequense: The Gravitational field through the center of the electron and the Magnetic field outside the electron surface have opposite directions.

The Result by analogy: The Gravity Funnel which springs from Earth owns in its center maximal accelerating vortices. They pass through center of Earth in direction from down to up (North -N to South - S).

But when this very accelerating vortices of the Gravity field comes out from the Earth because of friction by environment

they sharply reduce their speed outside the Earth's surface and sharply change the direction of movement in the opposite direction to the original.

Thus, this field of external and slow vortices forms a reverse wave that envelops the Earth from the outside and is called a Magnetic field. Unlike the internal Gravity field, the Magnetic field has a reverse polarization from up to down(North-South) .Therefore, the Gravitational field through the center of the Earth and the Magnetic field outside the Earth's surface have opposite directions.

The Result by analogy: The Gravity field through the center of the Earth and the Magnetic field outside the Earth's surface have *opposite directions.*

This is the reason the North of the Magnetic field to coincide with the South of the Gravity field, and the South of the Magnetic field to coincide with the North of the Gravity field.This is the reason in the North Magnetic pole is posed the South Gravity pole.

The Result by analogy: Inthe North Magnetic pole of Earth is posed the South Gravity pole of Earth.

The System of Earth - Moon (System of one complementary pairs)
The connection between Earth and Moon is through the longitudinal vortex. At the exit of the Earth along y-axe springs an accelerating vortex from center of Earth .But in periphery is formed less accelerating vortices .Thus this less accelerating longitudinal vortex comes at the entrance to the Moon or it acts an more decelerating vortex. The reason for this transformation is the natural friction of the medium.

In body of Moon this less decelerating vortex enters longitudinally along y-axe from outside to inside in a volume 3D. In the center of Moon has an accelerating transverse vortex in 2D

plane which generates the body of Moon (Law 2).

Consequence: The accelerating transverse vortex generates the Moon's body as *proton*.

In the center of longitudinal Funnel exists an accelerating vortex which sucks from periphery to center a primary transverse vortices(quanta) .This action cools down the Moon's center and it becomes denser than the surface(Figure2a).

The Result by analogy: Moon looks like a *shrunk proton* with denser and cool center and rarer and warm surface.

7. The second resonator corresponding to the planet Venus
We saw from the previous point that the Earth is formed as a *large extended peripheral electron:* It is generated by a delayed transverse vortex moving from the periphery inwards to the center. As a delayed vortex it emits secondary transverse vortices(quanta) nd they are phased in the center by place and time .As this phased transverse vortices are accelerated they shrink their radius and generate a vector perpendicular to the plane of the transverse vortex (Law 1).

But for difference to the Earth , the planet Venus is formed *as a positron :* It is generated by a decelerating transverse vortex moving from the center to the periphery . As it is a decelerating vortex from center to periphery it emits secondary transverse vortices (quanta) that are **bent from left to right**.Therefore Venus rotates around its own axis to the right or *back to Earth* and other inner planets.

The Result by analogy: The planet Venus is formedas a *positron.*

The Result by analogy: Venus rotates around its own axis to the right or in *inverse direction* to Earthand other inner planets.
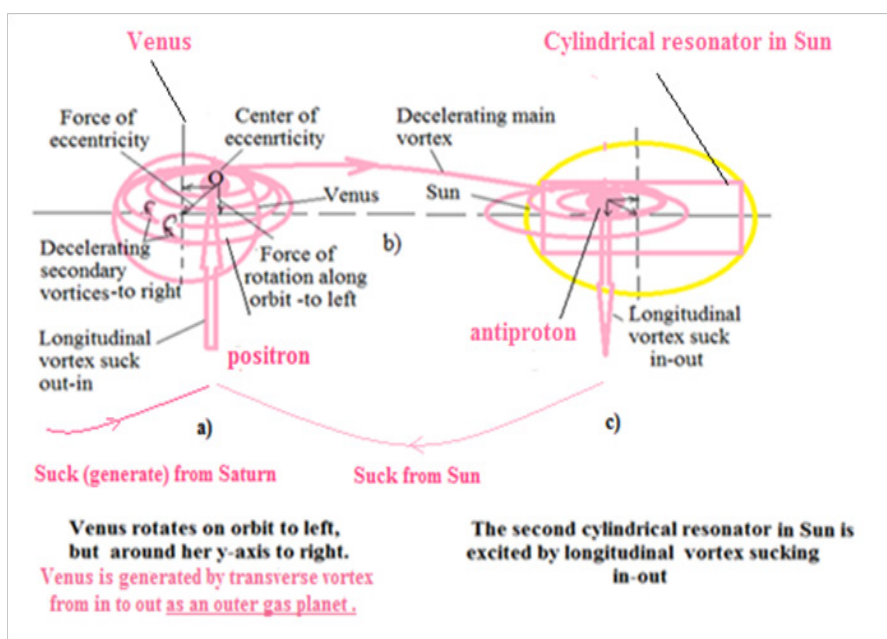

Figure 3: One complementary pairs :Sun- Venus

The center of the eccentricity of the Earth is in the second quadrant (Figure1b) and the center of eccentricity of Venus is in the first quadrant(Figure 3a). But in the projection of the Force of eccentricity along y axe both the Earth and Venus shows in the same direction(Figure1b, Figure 3a). According to the center of eccentricity the direction along y axe is to left. That is why and the Earth and Venus rotate in an orbit around the Sun *from right to left.*

The Result by analogy: Venus rotate in an orbit around the Sun from right to left or in *the same direction as Earth.*

8. The fourth resonator corresponding to the planet Mars and its satellites

The fourth resonator in Sun corresponds to the planet Mars. For this resonator the width is much more than the height. That is way Mars is formed as a extremely extended peripheral (valence) electron. It is generated by a less (than for Earth) decelerating transverse vortex.

It was fired from Sun and moving from the periphery inwards to the center of body of Mars. As a less decelerating transverse vortex (in comparison of vortex of Earth) it emits less number , smaller in amplitude and shorter secondary transverse vortices (quanta) .They are phased in the center of body of Mars by place and time. That is the reason to generate a smaller longitudinal vector perpendicular to the plane of the transverse vortex (Law 1).

The Result by analogy: Mars is generated as veryexpanded *(valence) electron.*

The planet Mars emits 1 main central accelerating longitudinal vortex. For difference to the Earth , Mars emits 2 (not 1 as Earth) peripheral decelerating vortices . The main central accelerating longitudinal vortex generates the outermost gas planet Neptune as proton. But the 2 decelerating longitudinal vortices generate 2 satellites of Mars (Phobos and Deimos) (Law 2).

The Result by analogy: Neptune is generated as *very expanded (periphery) proton.*
For comparison the bigger central accelerating vortex of planet Earth generates 1outer gas planet (Uranium) but only 1 peripheral decelerating vortex generates 1 satellite of Earth (Moon) (Law 2).

Mars is generated by the fourth cylindrical resonator in Sun through shooting an less accelerating-decelerating transverse vortex .It is winding from the periphery to the center of body of Mars (Law1). As a less decelerating vortex from periphery to the center it emits less secondary transverse vortices from periphery to center .They are bent from right to left as in Earth (Law5).

This is the reason Mars to rotates around its own axis from right to left or it rotates around its y- axis as Mercury and Earth , except Venus.

The Result by analogy: Mars rotates around its own axis *from right to left* as Mercury and Earth .

As an outermost solid planet Mars has maximum eccentricity and it is maximum polarized This is the reason that the vector of eccentricity is maximum as well. The projection of the eccentricity vector to the y-axis has direction from right to left as well as in all inner planets.

That is the reason Mars rotates along the orbit around Sun to left as all other inner planet in Sun system.

The Result by analogy: Mars rotates along the orbit around Sun from right to leftas all other inner planet in Sun system.

Two satellites Phobos and Deimos
The planet Mars emits 2 peripheral decelerating longitudinal vortices in 3D longitudinal Funnel ,perpendicular to the plane of transverse generating vortex in 2D. They generate 2 satellites Phobos and Deimos by 2 longitudinal vortices (Law 2). In both of satellites the longitudinal vortex push from outside to center of the bodies as is generated protons (Low 2).Therefore Phobos and Deimos are models of proton.

The Result by analogy: Phobos and Deimos are generated as *protons.*

It is known that he inner vortices has more velocity then the periphery vortices in longitudinal Funnel .So the inner longitudinal vortex is much more powerful than the outer longitudinal vortex.The reason is that the inner cross vortices are more powerful ,than the outer cross vortices and that is way the inner longitudinal vortices to be more powerful than outer external longitudinal vortices.

The Result by analogy: More powerful longitudinal vortex is the inner and less powerful longitudinal vortex is the outer.

Therefore in the inner orbit should be the more massive satellite (Phobos) and in outer orbit should be the less massive satellite (Deimos)

The Result by analogy: In the inner orbit is placed the more massive satellite (Phobos) and in outer orbit is placed the less massive satellite (Deimos)

The Result by analogy: The inner satellite Phobosis generated as an *expanded proton*.

Because satellite Phobos is the most internal satellite it should hassynchronous movement around Mars.

The Result by analogy: Satellite Phobos has *synchronous movement* around Mars.

The Result by analogy:The outer satellite Deimos is generated as a *shrunk proton*.

The orbits of the Martian satellites are very different from those of our Moon.

The ten times the more massive Phobos has only two times larger surface gravity. It rotates synchronous but faster than Deimos around Mars.
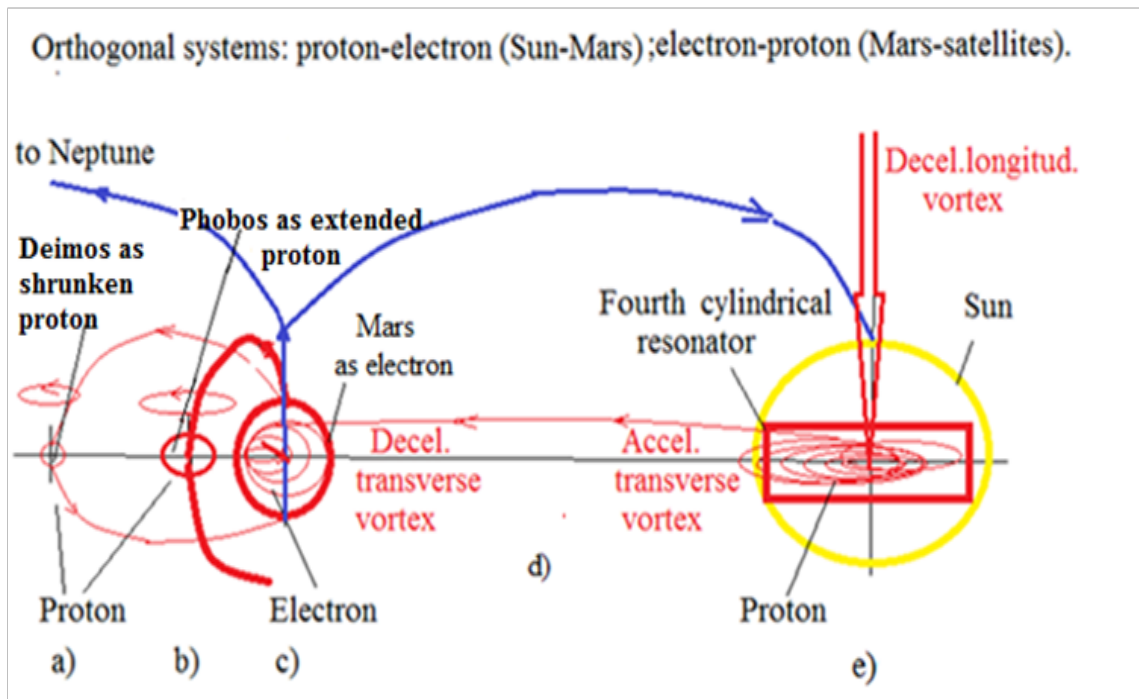
Figure 4: Two complementary pairs: Sun- Mars and Mars – satellites Phobos and Deimos

9. Conclusions

-The system of Sun ,Earth and Moon splits into 2 mutually orthogonal pairs : Sun-Earth and Earth- Moon. The Sun is similar to proton : the center of the Sun is colder and denser than its surface. The speed of the central transverse vortices of Solar plasma is less than the speed of light. But according new law of structure of proton (Law 2) it is very likely the accelerating moving of transverse vortices toward periphery of Sun to reach the speed of light .It is very likely , the reason for thermonuclear process of the Sun to be the enormous longitudinal acceleration of accelerating vortex from center towards periphery .Therefore the reason is acceleration but the itself thermonuclear conversion to be only one of results of described acceleration .

- Because Sun is in form of proton then Earth is in form of electron and Moon in form of proton as well. The Earth is similar to an expanded electron: the center of the Earth is hotter and rarer than its surface. The North of the Magnetic field of Earth coincides with the South of the Gravity field of Earth (and inverse).The reason is that Gravity Field (with high velocity) passes along central y -axe of Earth and Magnetic Field(with much less velocity) envelopes outside the surface of Earth in opposite direction. Earth(electron) generates Moon(proton) by longitudinal vortex which is pushed along y-axe from outside to inside. So Moon is similar to a shrunk proton : the center of the Moon is colder and denser than its surface or it looks like to an outer gas planet. Because Moon rotates in least distance to Earth it rotates around Earth synchronously . This is the reason Moon to show only one part of its surface . At the same time Earth generates also and an outer(the third) gas planet Uranium by very power longitudinal vortex emitted along y-axe from bottom to up.

-Planet Mercury is similar to a very shrunk electron : the center of the Mercury is very slightly warmer than its surface. Because Mercury rotates in least distance to Sun it rotates synchronously. This is the reason Mercury to show only one part of its surface. At the same time Mercury (electron) generates Jupiter (proton) by emitting an accelerating a very powerful and fast rotating pillar (vortex) from longitudinal vortices along its y-axe from the bottom up. When this accelerating vortex starts to be late it becomes to decelerating vortex and they both form a parabola. The decelerating vortex inserts, presses and rotates the primary matter of Jupiter from top to bottom along the y-axis .At the same time it start rotating and accelerating this primary matter transversely from center to periphery of Jupiter.

-Venus is similar to a positron: the center of the is colder and surface is hotter .Venera looks like to gas planet more than to the solid planet. It rotates around its y-axe in inverse direction or to right. Venus generates an outer(the second) gas planet Saturn by not very power longitudinal vortex emitted along y-axe from bottom to up.

-Mars is similar to a very expanded (valence) proton: hot center and cool surface. Mars generates two satellites (Phobos and Deimos) by emitting two decelerating longitudinal vortices along y-axe from bottom to up. At the same time Mars generates and an outer(the fourth) gas planet Neptune by emitting an accelerating longitudinal vortex along y-axe .

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