(REVIEW ARTICLE)

A Proposal for method of cold nuclear fusion, based on new Axioms and Laws

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Abstract

It is known that the Classical field theory is based on 1 basic Axiom set by Maxwell (1864). This basic Axiom describes a field with movement along a closed loop and with constant speed. It is an ideal foundation for describing an Electromagnetic Field, but it is not suitable for other more complex fields with variable speed and different accelerations.

The author has proposed a more general Theory of Extended Field which consists of 2 Axioms and 8 Laws. New Axiom1 describes a structure of field with movement along open loop or open vortex with variable speed. New Axiom2 describes two mutual orthogonal structures of fields which work in resonance. This new Theory leads to the following results: movement in a closed loop is replaced with movement in an open loop or vortex; evenly movement is replaced with unevenly movement (decelerated or accelerated) ; during its movement decelerating vortex emits primary free cross vortices, while accelerating vortices suck in of this same primary free cross vortices; movement in 2D is transformed into the movement in 3D; a transverse vortex in 2D generates a longitudinal vortex in 3D through a special transformation and vice versa - a longitudinal vortex in 3D through another special transformation generates the cross vortex in 2D.

Now the author proposes to use a longitudinal accelerating vortex for cold fusion. With a force proportional to the positive acceleration, it will suck in both vortices and atoms - in this case the isotope of hydrogen (deuterium). The accelerator vortex sucks in and sticks two of all the deuterium, which will form helium in an exothermic reaction with the release of a lot of heat.

A longitudinal acceleration vortex can be generated by applying Law 2. A decelerating transverse vortex in plane 2D (moving outside-inward) generates at its center a longitudinal accelerating vortex in 3D perpendicular to the 2D plane. This perpendicular accelerating vortex at the center pulls the transverse decelerating vortex up (against the Gravitational Force) or has quality of Anti-Gravity Force.

Keywords: Open vortices; Accelerating and decelerating vortices; Funnel of longitudinal vortices; Non parametric processes; Gravity waves

1. Introduction

1.1. A scientific news Sensation by news. bg. 28. 05. 2008

"Physicists from Osaka University have demonstrated a cold fusion reaction. Scientists claim that they have managed to "make" two deuterium nuclei turn into a helium nucleus at room temperature, reports the electronic publication New Energy Times. A large amount of energy is released during the nuclear fusion reaction. Until now, however, physicists could not carry out this reaction under the conditions of low temperature and pressure. Japanese physicists, led by Prof.

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Yoshiaki Arata, claim to have found a way to trigger the reaction without extreme conditions. The researchers brought the deuterium atoms close enough for the reaction to occur using an absorbent substance. The deuterium is fed into a "cell" containing a mixture of palladium and zirconium oxide. According to Arata, this mixture absorbs a large amount of deuterium, as a result of which the individual atoms are brought together without the use of ultra-high pressure and temperature. The scientists claim that the proof of the reaction is the increase in the temperature in the cell after the release of deuterium. When Arata added the gas to the mixture of palladium and zirconia, the temperature rose to 70 degrees. According to the professor, nuclear and chemical reactions are taking place in the cell at that moment. After the gas supply was shut off, the interior temperature remained high for 50 hours…. "

Source: HiComm. bg

1.2. A Clarification

A substance is usually used, for example, a mixture of palladium and zirconium oxide, called an absorber. It strongly absorbs a certain amount of deuterium atoms. Some of these atoms stick without using high pressure and temperature - they stick in the cold. They must form helium nuclei, during which a huge amount of energy is released in the form of heat. This approach of **Prof Yoshiaki Arata** from Osaka University is still hypothetical and because it is not clear whether the result is obtained from a nuclear reaction or rather - from a chemical reaction.

1.3. An Adaptation on base of the Theory of new Axiom and Laws [9,14].

The author proposes **to imitate** the situation of the Sun itself.

It can do it using the Theory of new Axioms and Laws invented from the same author. According to the Theory of new Axioms and Laws, the Sun is generated by an open vortices (Axiom1). And in more detail- a decelerating longitudinal tube or Funnel (from above - perpendicular downwards) in 3D creates an accelerating transverse vortex (from the inside – out) in 2D (Law 2). In the periphery on the Sun the positive acceleration of the transverse vortex becomes large enough. According the attraction of this accelerating vortex in the periphery on the Sun (where the acceleration becomes large enough) some of the deuterium nuclei from the plasma are sucked in and stick in (Law 6). During this exothermic reaction, helium nuclei are obtained and a lot of heat is released.

According of that the Sun is generated by an accelerated (inside -out) open vortex it turns out that (Law1) on the one hand its center is cold and its the periphery becomes hot. And on the other hand (Law1) - the central core will rotate at a lower rate (angular speed) than the periphery of the Sun (who rotates at higher angular rate). This conclusion is inverse to the conclusion of the NASA SOHO (Solar and Heliospheric Observatory) mission (ESA's website for SOHO, 2003). Their conclusion is that the core of the Sun rotates at a faster rate than the outer zone.

The main reason for this reaction is a positive acceleration inside Sun. There is no such positive acceleration on Earth. The Earth is generated by decelelerating vortices. That is why is that the Earth is generated orthogonally to the Sun. The reason is that the Sun and the Earth are mutual orthogonal bodies (Axiom 2). And in more detail -the Sun send accelerating transverse vortex to Earth which, due to the great distance to planet Earth, becomes a decelerating vortex.

This decelerating vortex generates outside - inward a toroid as the body of Earth. It becomes as decelerating vortex emits from itself to the center decelerating primary vortices (Law 5). And besides in the center of toroid of Earth an accelerating vortex is shot perpendicularly upwards (Law1).

2. An explanation according new Axioms and Laws

2.1. A Classic Axiom

It is known that the Classic Field Theory is based by Maxwell's Laws (1864) and on a single Classic Axiom (Figure 1a) [1].

It states that: div rot E = 0. …………… 1.

The previous studies attempt to expand the Classic Field Theory to a more general Theory of Extended Field.

The author change this Classic Axiom. The new Axiom will state that the movement of a vector E in an open loop (div rot E ≠ 0) or in an open vortex (div Vor E ≠ 0) is unevenly (velocity is variable) (Figure 1b,c,e).

2.2. A New Axiom 1

Axiom1:The motion of vector E with monotone-decreasing or monotone-increasing velocity becomes along an open vortices: 2.

$$\text{div (VotE)} \neq 0 \text{ for vector E in 2D or div (VotH)} \neq 0 \text{ for vector H in 3D.}$$

$$\text{div (Vor E)} > 0 \text{ or div (Vor E)} < 0 \text{ in 2D, div (Vor H)} > 0 \text{ or div (Vor H)} < 0 \text{ for 3D.}$$

The main result of Axiom 1 is that there have been 4 types of vortices: a cross vortex in 2D (E_{2D}) that can be accelerated (E_{2D} +) or decelerated (E_{2D} -) and a longitudinal vortex in 3D (H_{3D}) that can also be accelerated (H_{3D} +) or decelerated (H_{3D} -) [2,3].

We are accustomed to the wrong image of a spiral with a constant distance between the turns (Figure1a). But it is "unreal" spiral. Because if it is a spiral, it must be opened and eccentric. If there is no opened, then it is not a spiral, but it is a closed loop The reason is in the acceleration (Figure1b).
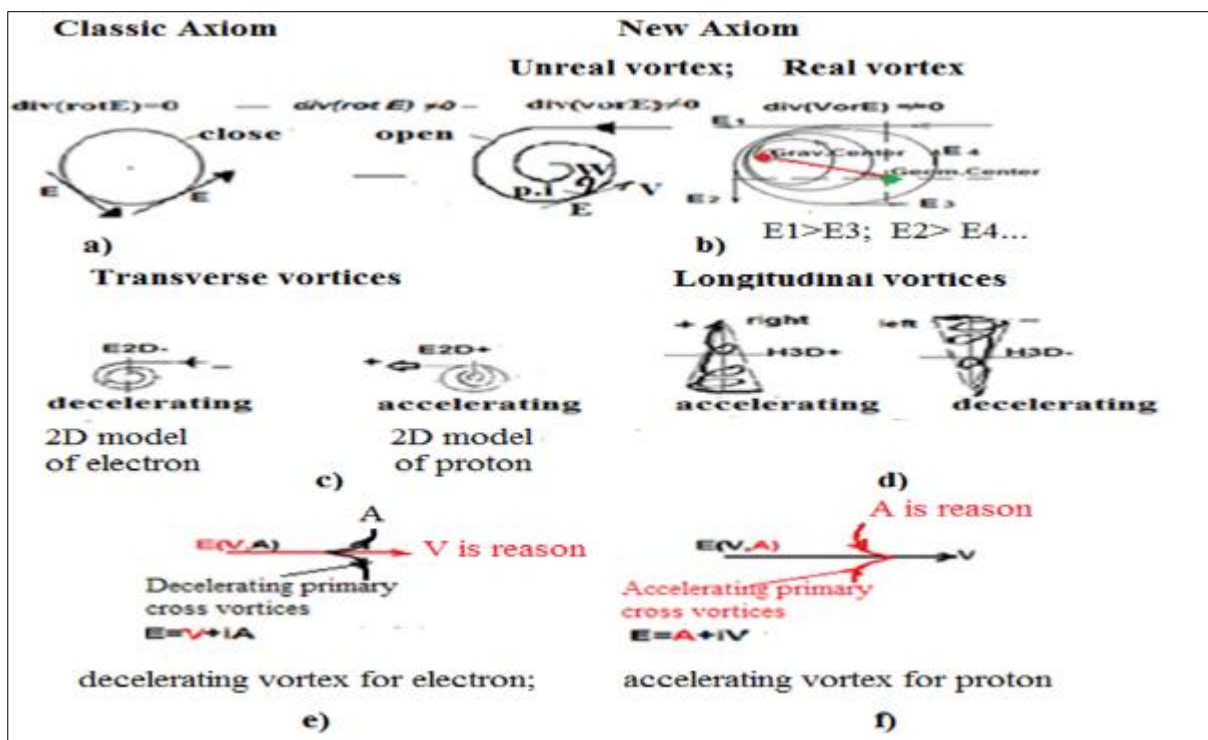

Figure1a) Classic Axiom as closed loop;Figure1b) New Axiom as opened loop (vortex) ; Figure 1c) Transverse vortices (decelerating and accelerating) ; Figure1d) Longitudinal vortices (accelerating and decelerating) ; Figure1e) Decelerating main vortex and decelerating primary vortices (to out) ; Figure1f) Accelerating main vortex and accelerating primary vortices (to in).

Figure 1 The Classical Axiom is replaced by a New Axiom 1

Result: The open monotonically varying vortex is eccentric.

For example, in " real" decelerating vortex E1> E3 and the Geometric Center will aim to move to the larger vector E1 (up). In the same vortex E3> E4 and at the same time the Geometric Center will aim to move to the larger vector E3 (to the left). Therefore, the Geometric Center will move to a second quadrant or to the Gravity Center (Figure 1b) [3].

Result: There are two simultaneous movements in every point of open vortex

At every (i) point p (i) of a decelerating cross vortex E there are two simultaneous movements: velocity vector (-V) and amplitude of the cross vortex (-W). The two simultaneous movements (V and W) also exist at all points of the vortex. The cross vortex (E_{2D} -) is transformed into a longitudinal vortex (H_{3D}+). This is accomplished through a specific operator (Δ1) for cross-longitudinal transformation (Figure 1c).

2.3. New Axiom 2

Axiom 2: Two vortices of one complementary pair in one direction in 2D: E =+ A + iV; E =+V + iA, or two vortices of complementary pair in opposite direction in 2D: E = - A - iV; E = -V – iA, exist simultaneously in the same time in 3D.

2.3.1. Result: Two vortices (objects) in one system are not symmetrical but they are mutual orthogonal.

This means that if first generates transverse vortex as potential energy and consumes longitudinal vortex as kinetic energy (Figure2b) , the second –consumes transverse vortex as potential energy and generates longitudinal vortex as kinetic energy (Figure2a) [3,4,5]

2.3.2. Result: Straight and inverse systems exist simultaneously

Example for elementary particles -in Figure 2 are described system proton (Figure2b) electron (Figure2a) and system antiproton (Figure2d) and positron (Figure2c) which exist simultaneously.

Example for Sun and planets: In Figure2 are described system of third resonator inside Sun (corresponding to Earth) (Figure2b) and third planet Earth (Figure2a) and system of second resonator inside Sun (corresponding to Venus) (Figure2d) and second planet Venus (Figure2c).

Result: The system of third resonator inside Sun (corresponding to Earth) and third planet Earth exists simultaneously with the system of second resonator inside Sun (corresponding to Venus) and second planet Venus.

The planet system demonstrates existing of these two mutual inverse links of the these mutual orthogonal objects. The planet system explains Axiom2 more clearly than the system of elementary particles.

2.4. Law 1

Law 1: The open cross vortex (E $_{2D}$) generates (inward or outward) an open longitudinal vortex (H $_{3D}$) in its Gravity center through a cross-longitudinal transformation Δ1:

Δ1

$$\text{Vor (E } _{2D}) => -- \text{Vor (H } _{3D}) , ...3.$$

where Vor (means an unevenly vortex) replaces rot (means a closed loop). The cross vortex in 2D (E $_{2D}$) continues its development in 3D as a longitudinal vortex (H $_{3D}$) (Figure2a) , [4,5,6].

Definitions

- A decelerating transverse (cross) vortex (E $_{2D}$-) is a cross open vortex (E $_{2D}$) for which div (Vor E $_{2D}$) < 0. A decelerating longitudinal vortex (H $_{3D}$-) is a longitudinal open vortex (H $_{3D}$) for which div (Vor H $_{3D}$) < 0. Figure 2b shows a decelerating longitudinal vortex (H $_{3D}$-) inward.
- -An accelerating transverse vortex (E $_{2D}$+) is a cross open vortex (E $_{2D}$) for which div (Vor E$_{2D}$) > 0. An accelerating longitudinal vortex (H$_{3D}$+) is a longitudinal open vortex (H $_{3D}$) for which div (Vor H $_{3D}$) > 0.

Law1 a): An open decelerating cross vortex (E $_{2D}$-) inward generates an open accelerating longitudinal vortex (H $_{3D}$+) outward. This action (H $_{3D}$+) takes place from the center of decelerating cross vortex (E$_{2D}$-) through a particular cross-longitudinal transformation Δ1-:

Δ1-

$$\text{Vor (E } _{2D}-) => \text{Vor (H } _{3D} +) .... 3a.$$

The Law1 corresponds only to inside Gravity center (Figure 2a).

Results (The model of periphery (free) electron):It describes in 2D the model of electron as the decelerating inward vortex (dec (e-)) (Figure2e) in periphery of the chain of proton-electron (Figure 2b - Figure 2a). Every electron (dec (e-)) of this type is " expanded transverse vortex " that pulsates in time in 3D in two modes of - in and out. Surely this type of electron rotates at outside orbits (orbitals). The free electrons have similar structure as well.

This type of electron (dec (e-)) is in periphery of a proton-electron system. It has decelerating transverse vortex (E $_{2D}$-) inward with big radius. In 3D electron generates an accelerating longitudinal vortex (H $_{3D}$ +) upward with less amplitude (Figure 2e).

Result (The model of periphery planet):It describes in 2D the model of planet as the decelerating inward vortex (dec (e-)) (Figure2e) in the chain of Sun-planet (Figure 2b - Figure 2a). Every planet (dec (e-)) of this type is " expanded transverse vortex " that pulsates in time in 3D in two modes of - in and out. Surely this type of planet rotates at outside orbits (orbitals).

Result (The model of planet Earth): In periphery of a Sun system is a planet Earth. It has decelerating transverse vortex (E $_{2D}$-) inward with big radius. In 3D planet generates an accelerating longitudinal vortex (H $_{3D}$ +) upward with less amplitude (Figure 2e).

Law 1b): An open accelerating cross vortex (E $_{2D}$ +) inward generates an open decelerating longitudinal vortex (H $_{3D}$-) outward. This action (H $_{3D}$-) takes place from the Gravity center of accelerating cross vortex (E $_{2D}$ +) through a particular cross-longitudinal transformation Δ1+:

Δ1+

$$\text{Vor (E }_{2D}\text{ +) => Vor (H }_{3D}\text{-). .... 3b.}$$

Results (An electron in inner orbits):The type of electron (acc (e-)): when the electron is inside a proton-electron system (connected in the atom) has accelerating transverse vortex (E $_{2D}$+) inward with less radius. In 3D electron generates a decelerating longitudinal vortex (H $_{3D}$-) upward with longer amplitude (Figure 2f). Therefore,because of accelerating inward transverse vortex this type of electron rotates in inner orbits [4].
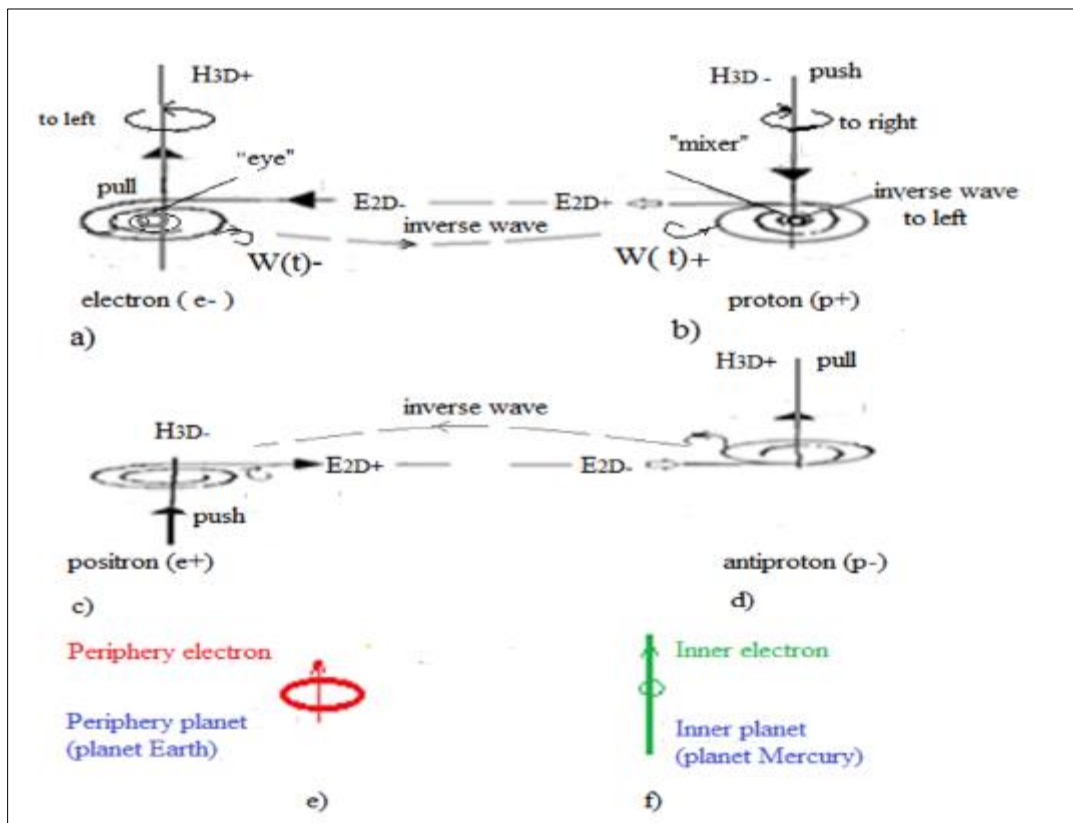

Figure2a) model of electron;Figure2b) model of proton;Figure2c) model of positron; Figure2d) model of antiproton;Figure2e) model of periphery electron and planet;Figure2f) model of inner electron and planet.

Figure 2 Two Transformation Laws (Law1Law2) Options in two complementary complex objects: (e-;p+) and (e+;p-)

Results (A planet in inner orbits):The type of planet (acc (e-)) is inside a Sun-planet system has accelerating transverse vortex (E $_{2D}$+) inward with less radius. In 3D the planet generates a decelerating longitudinal vortex (H $_{3D}$-) upward with longer amplitude (Figure 2f).

Result (The model of planet Mercury): Because of accelerating inward transverse vortex the planet Mercury rotates in inner orbits. It has longer longitudinal vortex and very little transverse vortex as radius [4].

2.5. Law 2

Law 2: The open longitudinal vortex (H $_{3D}$) (inward or outward) generates an open cross vortex (E $_{2D}$) in its Gravity center through a longitudinal-cross transformation Δ2- [4,5,6]:

Δ2

$$Vor (H _{3D}) => -- Vor (E _{2D}) \ldots\ldots\ldots\ldots 4.$$

Law2 a): The open decelerating longitudinal vortex (H$_{3D}$ -) downward generates an open accelerating cross vortex (E $_{2D}$ +) outward. This action takes place in the center of accelerating cross vortex (E $_{2D}$ +) through a particular longitudinal-cross transformation Δ2-:. Δ2-

$$Vor (H _{3D} -) => Vor (E _{2D} +). \ldots\ldots\ldots\ldots 4a.$$

Results (The model of periphery proton): This Consequence (4a) describes in 3D the model of proton in 2D. This means that the decelerating longitudinal vortex in 3D generates accelerating cross vortex in 2D (Figure2b) in the chain of periphery proton- periphery electron. Therefore the decelerating longitudinal vortex with less vector (in height) in 3D generates accelerating cross vortex with big radius (in width) in 2D (Figure2b) in the chain of periphery electron-periphery proton (Figure 2b - Figure 2a).

Results (The model of outer resonator in Sun): According the description of periphery and outer proton,the outer resonator will have less vector in height and big vector in width (in radius).

Result (The model of resonator of Earth as periphery planet): The third resonator corresponding to the third planet Earth will has less size in height and bigger size in width.

What's more - it turns out that the width and height of the resonator on Earth are almost the same. In 3D, this third resonator has the appearance of a cube with maximum volume. For comparison - the resonator of Mercury has the appearance of an upright parallelepiped, and the resonator of Mars has the appearance of a lying parallelepiped (matchbox type). Both resonators have almost the same volume they have but very different energies in quality,

Result (The third resonator corresponding the third planet Earth has maximum volume): The fact that the third resonator inside the Sun, corresponding to the third planet Earth, has the maximum volume compared to the other resonator. This determines the privileged position of the Earth compared to the other planets.

Result (The privileged position of planet Earth): The maximum volume of resonator inside the Sun determines the privileged position of the Earth compared to the other planets. This means that the Earth receives from the Sun the maximum potential energy in the form of transverse vortices and maximum kinetic energy in the form of a longitudinal bundle of vortices

Law 2b):The open accelerating longitudinal vortex (H$_{3D}$+) downward generates an open decelerating cross vortex (E$_{2D}$-) outward in its center through a special longitudinal-cross transformation Δ2+: Δ2+

$$Vor (H _{3D}+) => Vor (E _{2D}-). \ldots\ldots . 4b.$$

Results (The model of central proton): The decelerating longitudinal vortex with longer vector (in height) in 3D generates accelerating cross vortex with less radius (in width) in 2D (Figure2b) in the chain of electron-proton (Figure 2b - Figure 2a).

Result (The model of inner resonator in Sun): The inner resonator will have less vector in width (in radius) and big vector in height.

Result (The model of inner resonator of Mercury): The first (the innermost) resonator corresponding to the first (innermost) planet Mercury has a big size in height and less size in width. For comparison -the resonator of Mercury similar to an upright parallelepiped, and the resonator of Mars has the appearance of a lying parallelepiped (matchbox type). Both resonators have almost the same volume but they have very different energies in quality.

2.6. Law 5

Law 5 in 3D: The deceleration 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:

I V (t) ^{2}= V_0 $_($Vo – V (t)) , 5.
I W (t) ^{2} $^=$ W_0 (Wo +W (t)) ,
I w (t) ^{2} = w_0 $_($wo+ w (t))
I N^2 = N_0 (No+ N) ,
where the roots v_n, w_n and ω_n and n_n are expressed as: v_n= $(1/\psi^n)$$^.$ V_0, ω_n =ψ^n. W_0; w_n= ψ^n. W_0, [n_n]=ψ^n. N_0; linear velocity V_0 is the starting value of V_n, amplitude of cross vortex W_0 is the starting value of ω_n, angular velocity w_0 is starting value of w_n, number N_0 is starting value of n_n, [n_n] is the closest integer; ψ is a proportional that fulfills the requirement: ψ-1/ ψ =1): v_n,w_n are periodic roots with period n; v_n,w_n are mutual orthogonal that fulfill the requirement for orthogonality: v_n. w_n = V_0. w_0, v_n. ω_n = V_0. W_0; n = 0 ÷ ∞; the roots v_n, w_n and ω_n and n_n are expressed as: v_n= $(1/\psi^n)$$^.$ V_0, ω_n =ψ^n. W_0; w_n= ψ^n. W_0, [n_n]=ψ^n. 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, [n_n] is the closest integer; ψ is a Golden proportional that fulfills the requirement: ψ-1/ ψ =1 [4,5,6].

Result (A decelerating vortex *emits* primary cross vortices): A decelerating vortex (E_{2D}-) with a velocity vector (V) emits to the environment decelerating vortices with increasing amplitude (W) (because of positive sign +in second equation of system5 (5a)

 The amplitude (W) increases in perpendicular direction to the velocity vector (V). In decelerating longitudinal vortex, the amplitude (W) increases only if it is directed from the inside to the outside, ie. if the decelerating vortex emits outward cross vortices with increasing amplitude (W) (Figure 3b).

Result (The Law5 describes nonparametric process by the Golden proportion ψ^n): At a decelerating vortex vector velocity (V) is transformed according to internal law as Law 5 (v_n= $(1/\psi^n)$$^.$ V_0, ω_n =ψ^n. W_0) into the amplitude of the cross vortex (W) (Figure 3b).

Results: *(*Left rotating accelerating wheels):The emitting of decelerating cross vortices to environment in perpendicular direction forms so called " quanta " and this process is called "quantum".

- -According to the Law 1 and Rule of the Right Hand, the decelerating cross vortex (E) generates at the center to outside (to left) a longitudinal vortex (H). So at every n_i point forms left rotating wheel perpendicular to the velocity (V). Therefore, the decelerating longitudinal vortex in 3D forms left rotating spiral (left-counterclockwise when observer watches against the movement). Decelerating longitudinal vortices rotate counterclockwise (-) ,watched against the movement (Figure 3b).
- -Because of increasing of the amplitude (W) the angular velocity (w) and the number of cross vortices (N) it forms decelerating, thickening and expanding left rotating Funnel in which: W_{max}; w_{max}; N_{max}.

Result (Right rotating decelerating spiral):The increasing the angular velocity (w) and the number of cross vortices (N) are in every next wheel. When the observer look against the direction of moving, he will percept the whole spiral as rotating to right spiral.

-Two or more decelerating longitudinal vortices repel each other. The reason is due to the emission of cross vortices from center to outside (Figure 4c).
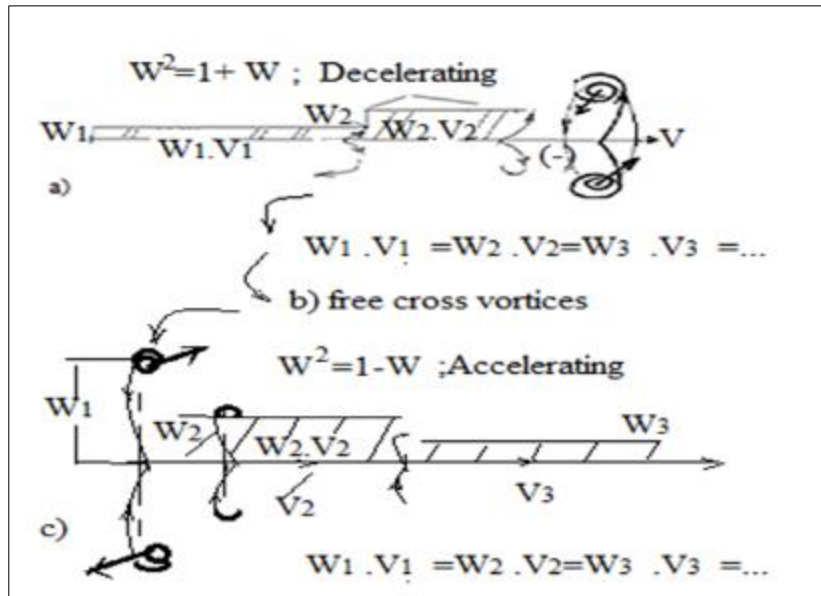
Figure3a) Decelerating vortex when velocity V decreases and amplitude W increases so that $W_i. V_i$ =const. ;Figure 3b) Free cross vortices;Figure3c) Accelerating vortex when velocity V increases and amplitude W decreases so that $W_i. V_i$ =const. ;

Figure 3 Decelerating vortex (Law5) ,accelerating vortex (Law6)

2.7. Law 6

Law 6 for 3D: The acceleration vortex (accelerating Funnel in center) 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 $V(t)^2 = V_0 (V_0 + V(t))$, 6.
I $W(t)^2 = W_0 (W_0 - W(t))$,
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: $v_n = (\psi^n). V_0$, $\omega_n = (1/\psi^n). W_0$, $w_n = (1/\psi^n). W_0$, $n_n = (1/\psi^n). N_0$; 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 are periodic roots with period n; v_n, w_n are mutual orthogonal that fulfill the requirement for orthogonality: $v_n. w_n = V_0. w_0$, $v_n. \omega_n = V_0. W_0$; n = 0 ÷ ∞; the roots v_n, w_n and ω_n and n_n are expressed as: $v_n = (\psi^n). V_0$, $\omega_n = (1/\psi^n). W_0$, $w_n = (1/\psi^n). W_0$, $n_n = (1/\psi^n). N_0$ [4,5,6];

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: $w^{n-2} = W_0. (w^n - w^{n-1})$.

Therefore when velocity (V) increases, the amplitude (W) decreases so that at each step (n_i) (according to Consequence of Law 4) the product (V_i). (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, ie. if the accelerating vortex sucks in cross vortices with decreasing amplitude (W) (Figure 4c)

Result (The Law6 describes a nonparametric process by Golden proportion ($1/\psi^n$):At an accelerating vortex vector velocity (V) (first equation of 7a) is transformed according to internal Law6 into the amplitude of the cross vortex (W) (second equation of 7a) (Figure 3a). For comparison- in the previous point we saw that at a decelerating vortex vector velocity (V) is transformed according to internal Law5 into the amplitude of the cross vortex (W.) More precisely- the increasing in speed (V) ($\psi^n. V_0$) is transformed into an decrease in the amplitude (W) ($1/\psi^n. W_0$) of cross vortices (Figure 3a).

Results (The accelerating vortex *suck in* free primary cross vortices): When an outer accelerating vortex passes through this passive dipoles composed of free cross vortices, according Law5 it will suck in them. As a result the accelerating vortex will increase its positive acceleration, mass and Power because it will add the mass and energy of the passive dipoles. Said more detailed- an accelerating vortex ($E_{2D}+$) with a velocity vector (V) sucks in accelerating vortices with decreasing amplitude (W) in perpendicular direction (because of sign - in second equation of system 6a). The sucking of accelerating cross vortices from environment in perpendicular direction forms so called " quanta " and this process is called "quantum".

Result (Accelerating vortex form decelerating right rotating wheels): According to the Law1 the accelerated cross vortex ($E_{2D}+$) generates (sucking) inward to its Gravity center a longitudinal vortex (H_{3D-}) from the outside to inside. At each point (i) a right rotating wheel is formed. But in time the spiral in 3D is formed as a left rotating spiral in Funnel. Therefore, the wheel of accelerating vortex will twist to the right (clockwise (+) , viewed against the movement (Figure 3c).

Result (The accelerating vortices form stretching narrowing and left rotating spiral): Because of the amplitude (W) ,angular velocity (w) and the number of cross vortices (N) decreases it forms accelerating, stretching, narrowing, left rotating spirals in which: W_{min}, w_{min}, N_{min} (Figure 3b).

Result (The accelerating vortices form Funnel) The reason is that two or several accelerating longitudinal vortices, due to the suction of cross vortices, attract each other,insert one in another and form an accelerating Funnel. In center inserts the fastest vortex,outside rotates vortex with less velocity and at periphery rotates vortex with the smallest speed. The reason for attraction is increasing the velocity with positive acceleration and decreasing the amplitude of transverse vortices with positive acceleration as well (Figure4a).

3. Very briefly about the Sun-Earth system based on new Axioms and Laws [14]

3.1. Description

The proposed Sun-Earth system was created on the basis of the two new Axioms and the eight new Laws 2. It should also be emphasized that the processes are very generally and roughly described. In reality the relationships are considerably more complex, but for the purposes of this article the proposed description is sufficient.

-On the one hand, it can be seen that the Earth is generated in the corresponding third volumetric resonator. It emits the more massive vortices with a certain frequency and heavier energy, arranged in a sort of Funnel. This Funnel plays the role of the real component of the total energy of the Sun. As a result of the acceleration and centrifugal forces, this Funnel (Figure4b) is launched accelerative-delayed from Sun towards the Earth (Figure4c - Figure 4a) [14].
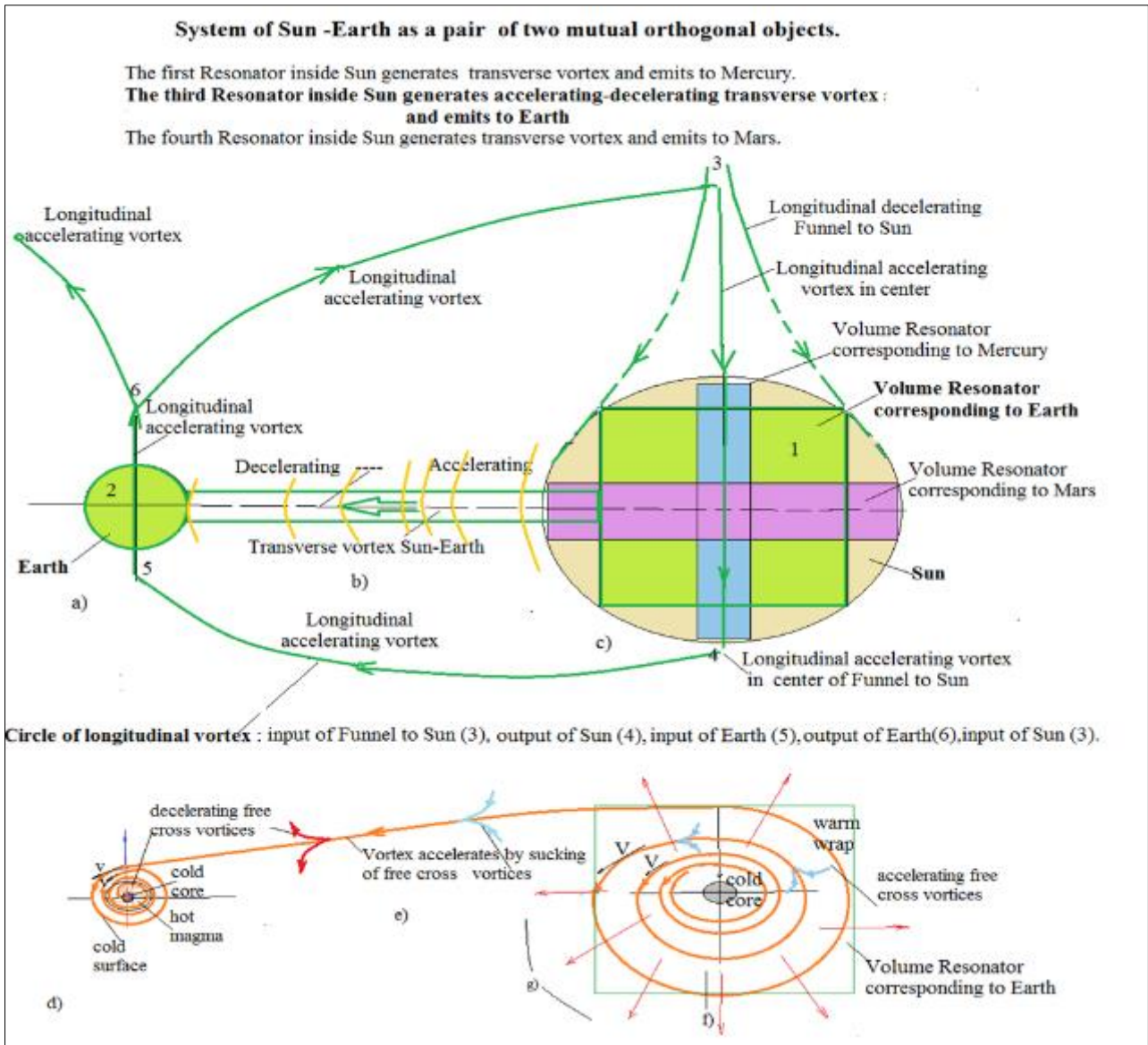
Figure4a) Model of Earth as toroid;Figure4b) Model of link between Sun and Earth;Figure4c) Model of Sun as ball with resonators inside;Figure4d) Model of Earth as decelerating transverse vortex from out to in; Figure 4e) Model of accelerating –decelerating Funnel between Sun and Earth; Figure 4f) Model of Sun as accelerating transverse vortex from inn to out.

Figure 4 The system Sun (1) –Earth (2)

- -Additional information is given by the picture of the Sun-Earth system, drawn in Figure 4d,Figure4e,Figure4f. An analogy can immediately be made with the proton-electron system (Figure2b--Figure2a). The more precisely described is that the Earth and Mars look like outer electrons. For comparison - Mercury has a typical structure and characteristics of an inner electron[9].
- -On the other hand, it can be seen that simultaneously with the above, all volumetric resonators in the Sun's plasma emit from the inside-out accelerating single and lighter vortices with significantly more accelerated energy to its surrounding space (Figure 4g). These single accelerating vortices play the role of an imaginary component of the total energy of the Sun-) [9,14].

Conclusion: The ultimate goal is to show that the accelerating lighter vortices generated and emitted by the Sun (Figure 4g) to the surrounding space can play the role of an absorber in the act of cold nuclear fusion.

3.2. Consequences

According to Law2, the Sun is generated by a longitudinal decelerating Funnel and emits an accelerating transverse vortex with an inside-out direction (Figure 4c). There are many details and subtleties in this transformation, but for now we will not deal with it. For example, the generating longitudinal Funnel rotates to the right, viewed against the

motion and it creates a right transverse wave in core. But transverse rotating to right the core generates a left transverse vortex in the form of a reverse wave (Figure 4f).

It is logical that the longitudinal vortex and the longitudinal funnel are invisible to light. The reason is that the light waves are not reflected by the threads of the longitudinal vortices and an outside observer cannot perceive them. And more precisely - light waves propagate as transverse vortices and when they cross the thread of the longitudinal vortex they form diffraction by bypassing it and continuing their journey with the same speed and direction [3,4,5]. Therefore, the output connection from the Sun to the Earth as well as the input Funnel to the Sun are invisible to an observer.

Result: Because of diffraction between light wave and longitudinal thread the output connection from the Sun to the Earth as well as the input Funnel to the Sun from Space are invisible to a observer.

The structure of the longitudinal Funnel is the following: In center of Funnel moves longitudinal vortex with maximum linear velocity and zero angular velocity. And outside rotates an adjacent vortex with less linear velocity and maximum angular velocity. It turns out that the central vortex is an accelerating vortex but every outer adjacent vortex becomes more and more slow (Figure 4c) -) [5,6].

According to Law6 accelerating vortex passes through the plasma (3-4) without friction (Figure 4c). The reason is that it suck to itself free vortices [2,3].

Thus in center of the Sun passes perpendicular accelerating longitudinal vortex and it cools the core

Result:The accelerating longitudinal vortex is inserted in the center of longitudinal Funnel (in 3D) ,that is perpendicular to transverse vortex (in 2D). Because it is accelerated, it cools the core of Sun.

According to Law 6, during the acceleration, free transverse vortices are sucked in and thus the vortex accelerates more and more (Figure 4c). The driving force comes from the initial speed of the main transverse vortex, and the free vortices sticking together turn the initial velocity into positive acceleration. The initial velocity of the transverse vortex is generated by the last wheel of the decelerating longitudinal Funnel because it has maximum angular velocity (Figure 4f) -) [2,3].

According to Law5 the last wheel of decelerating longitudinal vortex moves with a zero linear velocity and a maximum angular velocity as the last wheel of longitudinal vortex has a maximum radius (Figure 4c) [4,5]. According to Law 6, the transverse accelerating vortex in the center has a small linear velocity, and to periphery becomes maximum (Figure 4f) [6].

Result:Because generating vortex starts from center to periphery the rotation speed of the central core of Sun is much smaller than periphery part.

Towards the periphery, the linear velocity increases every point by (ψ^n) times [2,3,4]. And finally the rotation speed reaches large values. Each of resonator inside the Sun spins inside itself a precisely defined transverse vortex with a precisely defined frequency and speed. Finally, it takes off accelerated and centrifugally from each resonator almost perpendicularly from it (Figure 4e). The velocity of this exit Funnel is maximum equal to light speed. The energy of this exit Funnel is with lower- frequency,heavier and denser. It plays a role of real part from total energy of Sun-) [9,14].

Result: In accelerating -decelerating Funnel shooting from Sun to Earth the linear velocity is commensurate to light speed.

Each of resonator inside the Sun generates light beams Finally, they takes off accelerated from all resonators in Sun almost perpendicularly from it to environment (Figure 4g). The velocity of this beams is much more than light speed. The energy of these beams is with higher - frequency and lighter. This energy plays a role of imagine part from total energy of Sun [14].

Result: In accelerating beams shooting from Sun to environment the linear velocity reach a size more than light speed.

What's up with the Sun? The longitudinal acceleration beams, which reaches enormous speed and energy, does not emit heat [9].

Even vice versa - sucking matter and energy from the surrounding space, the accelerating beams from Sun cools its space around. They cool the medium through which it passes including space between Sun and Earth (Law6-) [2,3].

Result: Because the beams from Sun are accelerated and reach maximum linear velocity and kinetic energy they do not emit heat to environment.

According to Law 5, the source of heat is only the decelerating vortices [2,3].

But in the Sun there are not decelerating vortices. Actually in Sun there are only accelerating transverse vortices [14].

Therefore, there is no reason why the internal generation of the Sun to cause the radiating heat. The only way the Sun emits heat is through nuclear fusion, which actually emits a large amount of heat.

Result: In Sun heat is released only from the exothermic nuclear reaction between two deuteriums resulting in helium.

Therefore the heat is released only from the exothermic nuclear reaction between two deuteriums resulting in helium. Heat is also released from the numerous transverse loops and protrusions. Generally speaking the decelerating vortices carry heat, the accelerating vortex carries cool.

Result: The positive acceleration of accelerating vortex of Sun sucks and sticks the deuterium atoms and after helium is produced, heat is released.

The phenomenon of emitted accelerating Funnel and accelerating beams from the Sun has not yet been fully studied and explained.

4. Proposal for invention

The proposed cold synthesis method means that we can simulate generation of an accelerating vortex (Law6) and if we pass it through a medium saturated with deuterium (^{2}H) we will synthesize helium (He) with the release of energy.

The reason is that many of the atoms of the deuterium (^{2}H) are attracted to the longitudinal vortex with a force proportional to the acceleration. They are dragged and stick together as part of them fuse and form helium (He). The synthesis process itself releases energy. The process is carried out at normal temperature and does not need additional heating. The process only needs a significant acceleration that even cools the medium (Law 6) (Figure 3b) [3,4,5,6].

The problem is in generating an accelerating vortex. In practice we can generate a longitudinal accelerating vortex imitating the result of Law 1 on base of new Axioms and Laws.

How an accelerating vortex is generated according to the new Axioms and Laws is shown in a previous works by the same author. According Law1 a decelerating vortex (in 2D) from outward to inward generates an accelerating vortex (in 3D) in center,perpendicular to the plane (2D) of decelerating vortex. The reason is decelerating vortex from out to inn (in 2D) , but result is accelerating vortex from center to up (in 3D). By the way this accelerating vortex plays role of generator of antigravity force (Figure4a,d) [10,11,12].

5. Conclusion

From the above description, it is clear that the cause of the nuclear fusion in the Sun is the acceleration of longitudinal high-frequency vortices, and the result is an exothermic reaction. Based on this conclusion, it is proposed a method for generating accelerating longitudinal vortices, which would suck deuterium (^{2}H) from a chamber filled with it. If the acceleration of the longitudinal vortices is high enough and the concentration of deuterium atoms is suffusion big, then from every 2 absorbed deuterium (^{2}H) atoms 1 helium (He) atom will be synthesized, with the release of a large amount of heat. The reason for the emission of excess energy (as heat) in the new atom helium is that the distances between the two electrons and the nucleus are shortened and that the radii of the electrons and protons themselves shrink. Based on this method, an experimental device can also be created

References

[1] Landau 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, New axioms and structures, Fund. Jour. of Modern Pysics,vol. 8, iss. 1,p. 15-24,2015.

[5] Markova V, Selected as Book Chapter "Expanded Field Theory. New Axioms, Laws and Consequences", Adv. Theo. Comp. Phy, 2019,Vol. 2, Iss. 1, p. 1 - 10

[6] Markova V, New Axioms and Laws, Adv. Theo. Comp. Phy, 2020, ISSN: 2639-0108, Vol. 3, Iss. 4, p. 254-258, www. opastonline. com

[7] Markova V. System Electron – Proton, Journal Of Theoretical And Computational Physics 2022, Vol. 1, Iss. 1, p. 01-10,ISSN: 2832-2746.

[8] Markova V. Antigravity device, modeled on basis of new axioms and laws, 6th International Conference on Aerospace and Aerodynamics, Barcelona, Spain, August 02-03,2018.

[9] Markova V. Antigravity device, modeled on basis of new axioms and laws, Cosmos Publishers, International Journal of Robotics and Automation Engineering,: IJARE-104, 2018, Iss 1,Vol. 01,p. 1-11.

[10] Markova V,Modeling of Antigravity Force on the base of Expanded Field Theory, American Journal of Engineering Research (AJER) 2020,e-ISSN: 2320-0847, p-ISSN: 2320-0936,Vol. 9, Iss. 6, p. 151-159, Research Paper Open, www. ajer. org

[11] Markova V. Gravity Field (LF) in inner planets of Sun system described by theory of new axioms and laws, Journal of Theoretical And Computational Physics, ISSN: 2832-2746, 2022, poaj. org. Vol. 1,Iss. 2, p. 01-12.

[12] Markova V. A New Gravitational Model of the Solar System According the Theory of New Axioms and Laws, ASAP,Applied Physics, March 10, 2023; Vol. 3 Iss. 4: p. 09-24.