



Research Article

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A Device Simulating Cold Nuclear Fusion, Based on the Theory of New Axioms and Laws

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Abstract

This article proposes a Device simulating Nuclear Fusion as is found inside the Sun. It is known that nuclear fusion takes place in the Sun, where two deuterium atoms form one lithium atom in an exothermic reaction with the release of a huge amount of heat. In this report is used the Theory of the new Axioms and Laws invented by the same author. It expands the possibilities of the well - known Classic Field Theory which is adapted to describe a field with constant velocity. The Theory of new Axioms and Laws describes another kind of field with accelerating or decelerating velocity in 2D (transverse movement) or in 3D (longitudinal movement). According to new Theory is developed and proposed a model of the Sun in the solar system. According Law2 a longitudinal decelerating vortex coming from Space to the volume resonator of sphere of Sun generates transverse accelerating vortex inside the Sun. It contains a low-frequency component in the form of a spiral. In addition, it contains a very high-frequency component in the form of high-frequency pulses amplitude modulated on the low-frequency spiral.

According Law2 in the process of acceleration of the described accelerating vortex from inside to outside in the volume resonator of the Sun, these high-frequency pulsations are emitted in the form of high-frequency accelerating rays in all directions in the surrounding space. According to Law6 of Theory of the new Axioms and Laws, the accelerating open vortex sucks free vortices from the environment and sticks them to itself, accelerating its movement even more and more. These accelerating rays themselves are cold, but they suck elements from plasma of Sun, including deuterium and synthesize lithium with the release of a huge amount of energy. The proposed Device imitates first the generation of an accelerating beam and then simulates the suction of free deuterium atoms from the surrounding space and the synthesis of lithium at normal ambient temperature.

Very Briefly Description the Sun-Earth System Based on New Axioms and Laws

Retrospection

It is well known that the Classic Field Theory is based on one Axiom [1]. It is adapted to describe a field with constant velocity. This field is an Electromagnetic field. This report is used the Theory of the new Axioms Anan Electromagnetic by the same author [2,3,4,5,6]. It expands the possibilities of Classic Field Theory which is adapted to describe only an Electromagnetic field or the field with constant velocity. The new Theory contains 2 new Axioms and the 8 new Laws [7,8,9]. It analyzes another kind of field with accelerating or decelerating velocity. It can describe both micro space structures, macro space structures and Gravity field and Free energy as well.

The Classic Axiom

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

It states that: $\text{div rot } \mathbf{E} = 0$, or $\Delta (\Delta \times \mathbf{E}) = 0$ (1)

Previous studies expanded the Classic Field Theory to a more general Theory of Extended Field named Theory of new Axioms and Laws. The author changes the Classic Axiom. The new Axiom state that the movement of a vector \mathbf{E} in an open loop ($\text{div rot } \mathbf{E} \neq 0$) or in an open vortex ($\text{div Vor } \mathbf{E} \neq 0$) is unevenly (or velocity is variable).

New Axiom1: The motion of vector \mathbf{E} with monotone-decreasing or monotone-increasing velocity becomes along an open vortex:

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

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

Result: There have been 4 types of vortices: a cross vortex in 2D (E2D) that can be accelerated (E2D +) or decelerated (E2D -) and a longitudinal vortex in 3D (H3D) that can also be accelerated (H3D +) or decelerated (H3D -) [2,3]. We are accustomed to the wrong image of an open spiral with a constant velocity and a constant distance between the coils. But it is “unreal” spiral. Because if it is a spiral, it must be opened and eccentric.

Result: The open spiral is an eccentric vortex

If the loop there is not opened, then it is not a spiral, but it is a closed loop. The reason is in the acceleration

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

Result: Two objects in this system are not symmetrical but they are mutually complementing, or they are mutually orthogonal

This means that if first generates transverse vortex as potential energy and consumes longitudinal vortex as kinetic energy (Figure

1f), the second –consumes transverse vortex as potential energy and generates longitudinal vortex as kinetic energy (Figure 1d) [3,4,5]

Result: Straight and inverse systems exist simultaneously.

Example for Sun and planets: In Figure1 are described system of third resonator inside Sun (corresponding to Earth) (Figure 1b) and third planet Earth (Figure 1a). They are complementing pairs, or they are mutual orthogonal.

Law1 (for planet Earth): An open decelerating cross vortex (E 2D-) from outside to inward generates an open accelerating longitudinal vortex (H 3D+) from center to outward. This action (H 3D +) takes place from the center of decelerating cross vortex (E2D-) through a particular cross-longitudinal transformation $\Delta 1$:-

$$\Delta 1 -$$

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

The Law1 corresponds only to inside Gravity center (Figure 1a).

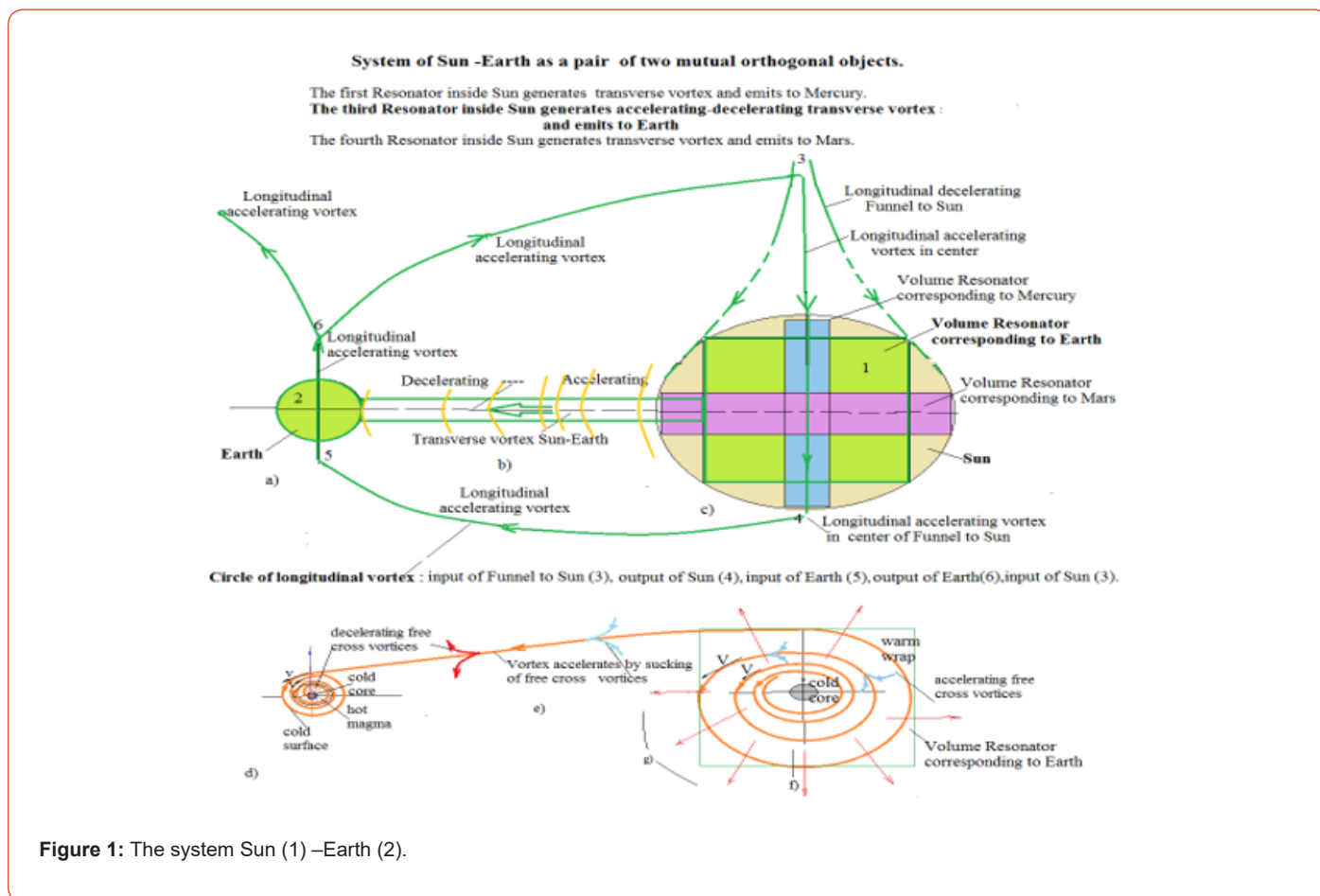


Figure 1: The system Sun (1)–Earth (2).

Result (The model of planet Earth): It describes the model of internal planet as the decelerating transverse vortex from outside to inward (Figure 1a) in the chain of Sun- internal planet (Figure 1b - Figure 1a) The Earth appears in Space as an expanded toroid” expanded transverse vortex “that pulsates in Time in two modes of - in and out. The expanded toroid consists decelerating transverse vortex (E 2D-) from outside to inward with **big radius** and it generates an accelerating longitudinal vortex (H 3D +) upward with **small length** (Figure 1a).

Law2 (for Sun): The open decelerating longitudinal vortex (H3D -) from outside to downward generates an open accelerating transverse vortex (E 2D +) from Gravity center to outward. This action takes place through a particular longitudinal-cross transformation $\Delta 2-$:

$$\Delta 2 -$$

$$\text{Vor}(\mathbf{H}_{3D-}) \Rightarrow \text{Vor}(\mathbf{E}_{2D+}) \quad (4)$$

Results (The model of outermost resonator in Sun): For example, the fourth volume resonator corresponds to planet Mars. It has less vector in height and big vector in width (in radius).

Results (The model of innermost resonator in Sun): For example, the first volume resonator corresponds to planet Mercury. It has less vector in height and bigger vector in width (in radius).

Results (The model of middle resonator in Sun): The third volume resonator corresponds to Earth. It has a bigger vector in height and less vector in width (in radius). The height and width are almost equal. That is why is that the third volume resonator looks like a cube.

Result (The model of resonator of Earth): The third resonator corresponding to the third planet Earth has shape like **cube**: equal size in 3D - height, width and thickness.

The third resonator, corresponding to the Earth, has the appearance of a **cube inscribed in a sphere** of the Sun. The solution to this problem shows that this **cube has 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, but they have very different energies in quality,

Result (The max. Volume of third resonator means max, Energy for Earth): 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 fact means maximum potential and kinetic energy for planet Earth. Therefore, it 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 perpendicular **longitudinal Funnel** of vortices.

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

$$I V(t)2= V0 (V0 - V(t)),$$

$$I W(t)2 = W0(W0 +W(t)),$$

$$I w(t)2 = w0 (w0+ w(t))$$

$$I N2 = N0 (N0+ N) \quad (5)$$

where the roots v_n , w_n and ω_n and n_n are expressed as: $v_n = (1/\Psi^n) \cdot V_0$, $\omega_n = \Psi^n \cdot W_0$; $w_n = \Psi^n \cdot W_0$, $[n_n] = \Psi^n \cdot N_0$; linear velocity V_0 is the starting value of V_n , amplitude of cross vortex W_0 is the starting value of ω_n , angular velocity W_0 is starting value of W_n , number N_0 is starting value of n_n , $[n_n]$ is the closest integer; Ψ is a proportional that fulfills the requirement: $\Psi - 1 / \Psi = 1$; v_n, w_n are periodic roots with period n; v_n, w_n are mutual orthogonal that fulfill the requirement for orthogonality: $v_n \cdot w_n = V_0 \cdot W_0$, $v_n \cdot \omega_n = V_0 \cdot W_0$; $n = 0 \div \infty$; the roots v_n , w_n and ω_n and n_n are expressed as: $v_n = (1/\Psi^n) \cdot V_0$, $\omega_n = \Psi^n \cdot W_0$; $w_n = \Psi^n \cdot W_0$, $[n_n] = \Psi^n \cdot N_0$ [4,5,6].

Result (A decelerating vortex emits primary transverse vortices): A decelerating vortex (E2D-) with a velocity vector (V) emits to the environment decelerating vortices with increasing amplitude (W) (because of positive sign +in second equation of system 5).

-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, i.e. if the decelerating vortex emits outward primary cross vortices with increasing amplitude (W) (Figure 2a).

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 ($v_n = (1/\Psi^n) \cdot V_0$, $\omega_n = \Psi^n \cdot W_0$) into the amplitude of the cross vortex (W) (Figure 2a).

Results: (Left rotating accelerating wheels in Space): According Law1 Rule and the Right Hand the primary decelerating transverse vortices emit from their centers primary accelerating longitudinal vortices, which directions are to leave. The result is that the whole wheel rotates to the left. Therefore, at every ni point the primary transverse and longitudinal vortices form left rotating wheel perpendicular to the longitudinal velocity (V). The left rotating (counterclockwise (-) is when observer watches wheel against the movement (Figure 3a).

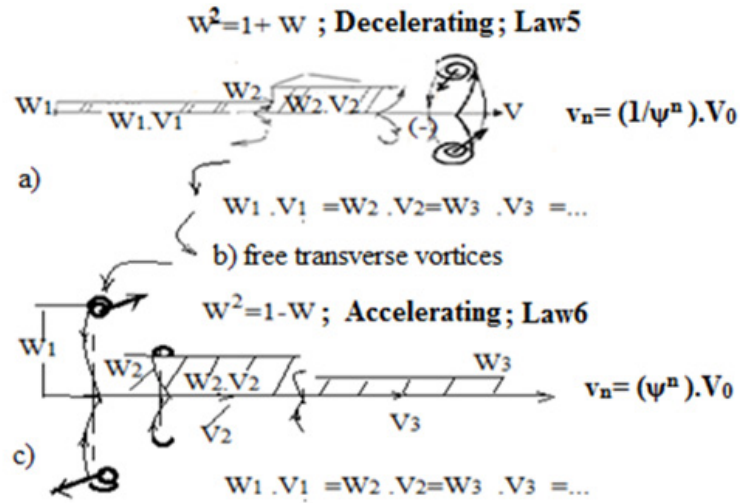


Figure 2: Decelerating vortex (Law5), accelerating vortex (Law6).

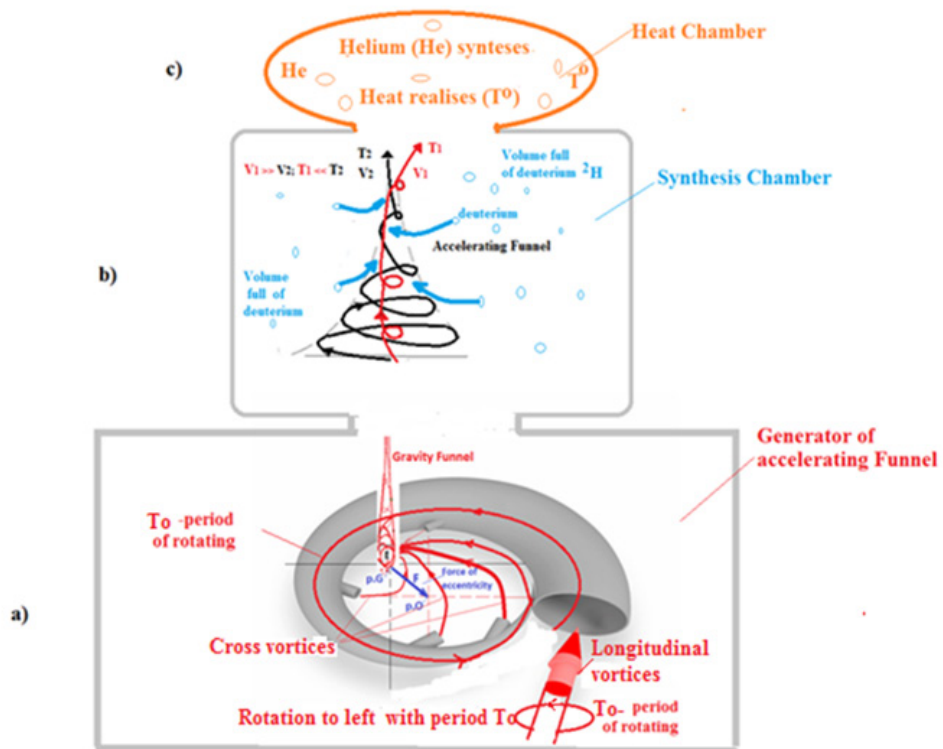


Figure 3: Device imitates Nuclear Fusion in normal temperature.
Figure 3a) Generator of accelerating longitudinal Funnel, it generates Antigravity force as well;
Figure 3b) Chamber where accelerating vortices suck in atoms of deuterium(²H);
Figure 3c) Chamber where is synthesized helium (He) and it releases heat.

Result (Right rotating decelerating spiral in Time): The increasing the angular velocity (w) and the number of cross vortices (N) are in every next point (n_i) and every next wheel. Therefore, every next wheel is in a hurry than the previous wheel. When the observer looks against the direction of moving, he will percept in Time the whole spiral as rotating to right spiral.

Result (The decelerating Funnel is thickening, expanding and right rotating): Because of increasing of the amplitude (W) the angular velocity (w) it forms decelerating, thickening and expanding right rotating Funnel in Time for which: $W_{max}; w_{max}; N_{max}$. Two or more decelerating longitudinal vortices repel each other. The reason is due to the emission of cross vortices from center to outside.

Result (The decelerating transverse and longitudinal vortices repel each other): The reason is due to the emission of decelerating transverse vortices from center to outward.

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

$$\begin{aligned} I V(t)^2 &= V_0 (V_0 + V(t)), \\ I W(t)^2 &= W_0 (W_0 - W(t)), \\ I w(t)^2 &= w_0 (w_0 - w(t)) \\ I N^2 &= N_0 (N_0 - N_n), \quad (6) \end{aligned}$$

where the roots v_n , w_n and ω_n and n_n are expressed as: $v_n = (\psi^n) \cdot V_0$, $\omega_n = (1/\psi^n) \cdot W_0$, $w_n = (1/\psi^n) \cdot w_0$, $n_n = (1/\psi^n) \cdot N_0$; linear velocity V_0 is the starting value of V_n , amplitude of cross vortex W_0 is the starting value of ω_n , angular velocity w_0 is starting value of w_n , number N_0 is starting value of n_n ; ψ is a Golden proportion that fulfills the requirement: $\psi - 1/\psi = 1$; v_n, w_n, n_n are periodic roots with period n ; v_n, w_n are mutual orthogonal that fulfill the requirement for orthogonality: $v_n \cdot w_n = V_0 \cdot w_0$, $v_n \cdot \omega_n = V_0 \cdot W_0$; $n = 0 \div \infty$; the roots v_n , w_n and ω_n and n_n are expressed as: $v_n = (\psi^n) \cdot V_0$, $\omega_n = (1/\psi^n) \cdot W_0$, $w_n = (1/\psi^n) \cdot w_0$, $n_n = (1/\psi^n) \cdot N_0$ [4,5,6];

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

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

Therefore, when velocity (V) increases, the amplitude (W) decreases so that at each step (n_i) (according to Law 4) the product ($V_i \cdot W_i$) is a constant. For an accelerating longitudinal vortex, the amplitude (W) decreases only if it is directed from the outside to inside, i.e. if the accelerating vortex sucks in cross vortices with decreasing amplitude (W) (Figure 2b).

Result (The Law6 describes a nonparametric process by Golden proportion ($1/\psi^n$): At an accelerating vortex vector velocity (V) (first equation of system 6) is transformed according to internal

Law6 into the amplitude of the cross vortex (W) (second equation of system 6). In accelerating vortex the increasing in speed (V) ($\psi^n \cdot V_0$) is transformed into an decreasing in the amplitude (W) ($1/\psi^n \cdot W_0$) of cross vortices (Figure 2b). 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). The decreasing in speed (V) ($1/\psi^n \cdot V_0$) is transformed into an increasing in the amplitude (W) ($\psi^n \cdot W_0$) of cross vortices (Figure 2a).

Results (The accelerating vortex sucks in free primary cross vortices): According negative sign ($-$) in second equation in system (6) the decreasing and accelerating amplitude is sucked by the increasing and accelerating vortex. When an accelerating vortex passes through the free primary cross vortices, it will suck in them. As a result, the accelerating vortex will increase its positive acceleration. It will increase the mass and Power as well. The reason is that it will add amplitude, mass and energy.

Result (Accelerating vortex form right rotating wheels in Space): According to 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.

Result (Accelerating vortex form left rotating spiral in Time): Because of that every next wheel lagging behind the previous in Time is formed a left rotating spiral. Therefore, the wheel of accelerating vortex will twist to the right (clockwise $+$), but the spiral will rotate to left (counterclockwise $-$) (viewed against the movement) (Figure 2b).

Result (The accelerating Funnel forms stretching, narrowing and left spiral in Time): 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:

$W_{min}, w_{min}, N_{min}$. The last wheel has almost zero radius and angular velocity or it is almost stationary (Figure 2b) (Figure 1).

Result (Two or several accelerating longitudinal vortices attract each other): Due to the suction of cross vortices two or several accelerating longitudinal vortices attract each other.

Result (The accelerating vortices form accelerating Funnel in Space and in Time): The vortices insert one in another and form an accelerating Funnel. In the 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 (sucking) the amplitude of transverse vortices with positive acceleration as well (Figure 2b).

Description of System Sun- Earth

The proposed Sun-Earth system was created on the basis of the two new Axioms and the eight new Laws [7,8,9]. 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.

A. On the one hand, it can be seen that the Earth is generated in the corresponding third volumetric resonator inside the sphere of Sun. From Sun is emitted the accelerating Funnel as massive spiral of vortices with low frequency (LF). This Funnel plays the role of the real **amplitude component** emitted from the Sun. As a result of the acceleration and centrifugal forces, this Funnel (Figure 1b) is launched from Sun towards the Earth (Figure 1c - Figure 1a). At first part this Funnel is accelerating, but because of friction, in second part it turns to decelerate and becomes decelerating [10,11].

B. Additional information is given by the picture of the Sun-Earth system, drawn in Figure 1d, Figure 1e, Figure 1f. An analogy can immediately be made with the proton-electron system. The more precise description is that the Earth and Mars look like outer electrons. For comparison - Mercury has a typical structure and characteristics of an inner electron [9].

C. On the other hand, it can be seen that simultaneously with the low frequency (LF) spirals in type of a Funnel, all volumetric resonators in the Sun emit from the inside-out and high frequency (HF) impulses, These HF impulses are directed to all directions of surrounding space (Figure 1g). These accelerating vortices play the role of the high-speed component from the total energy of the Sun [9,14].

D. According to Law6 every accelerating vortex in accelerating primary vortices. The primary vortices can drag and stick the freely moving atoms -for example atoms of deuterium.

Conclusion: The accelerating HF impulses, generated by the Sun and emitted (Figure 1g) to the surrounding space can play the role of an **absorber** in the act of cold nuclear fusion.

Summary

According to Law2, the Sun is generated by a longitudinal decelerating Funnel from up toward in Gravity center (in 3D) and emits an accelerating transverse vortex with an inside-out direction (in 2D) (Figure 1c). There are many details and subtleties in this transformation.

- A. For example, because the longitudinal Funnel is decelerating, it **rotates to right** in Time. (viewed against the motion). Thus, this decelerating Funnel (in 3D) creates decelerating transverse layers (in 2D). These layers delay each other more and more or they displace decelerated each other in increasing distance. Thus, they form **in inverse direction** (to left) an accelerating transverse wave (in plane 2D) in core named Back wave. Therefore, the decelerating transverse rotates to the right in the core but generates an accelerating vortex that **rotates to left**. It forms a reverse Back wave (Figure 1f).
- B. 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. The reason is that the 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 accelerating Funnel (in output from the Sun) as well as the input decelerating Funnel (in input to Earth) **are invisible to an outer observer**.

- C. According to Law6 (system6) the structure of the accelerating longitudinal Funnel is the following: In center of Funnel moves longitudinal vortex with maximum linear velocity, zero angular velocity and minimum number of turns. An adjacent vortex (on the outside) rotates with less linear velocity, more angular velocity and with more number turns. In periphery rotates vortex with minimal linear velocity, maximal angular velocity and maximum number turns. It turns out that in center the vortex is a maximum accelerating, but every outer adjacent vortex becomes slower and slower (Figure 1c) [5,6]. Therefore, the accelerating vortex passes through the plasma (3-4) without friction (Figure 2b). The reason is that it sucks to itself (inward) the free vortices. The act of sucking **cools the core** [2,3]. Thus, in center of the Sun passes perpendicular accelerating longitudinal vortex and it cools the core.

Result: Through the core of Sun passes the longitudinal Funnel (in 3D), perpendicular to transverse vortex (in 2D) and the most accelerating vortex has inserted in center of Funnel which cools the core of Sun.

- A. According to Law 6, during acceleration, free transverse vortices are sucked in and thus the vortex accelerates more and more (Figure 1c). 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 (in plane 2D) is generated by the last spiral of the decelerating longitudinal Funnel (in volume 3D) because the outermost spiral has maximum angular velocity (Figure 1f) [2,3].
- B. 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 1c) [4,5]. According to Law 6, the transverse accelerating vortex in the center has a small linear velocity, and to periphery becomes maximum (Figure 1f) [6].

Result: The generating vortex starts from center to periphery and the periphery of Sun rotates much faster than the core.

Towards the periphery, the linear velocity increases every point by (ψ^n) times (ψ is constant Golden proportion equals to 1,62) [2,3,4]. And finally, the rotation speed reaches very large values. Each resonator inside the Sun spins inside itself a precisely defined transverse vortex with a precisely defined LF frequency and speed. Finally. It takes off accelerated and centrifugally from each resonator almost perpendicularly from it (Figure 1e). The direction of this Funnel is precisely defined to one planet. The velocity of this exit Funnel is maximum equal to light speed and the energy is lower-frequency, heavier and denser [9,12].

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

Each resonator inside the Sun generates light beams as HF impulses. Finally, they take off accelerated from all resonators in Sun almost perpendicularly from it to environment in all directions (Figure 1g) [12]. 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 HF beams from Sun are accelerated and reach maximum linear velocity and kinetic energy, they do not emit heat to the environment.

According to Law 5, the source of heat is only the decelerating vortices [2,3]. But in the Sun, there are no decelerating vortices. Actually, in the Sun there are only accelerating transverse vortices [14]. Therefore, there is no reason why the internal generation of the Sun causes the radiating heat. The only way the Sun emits heat is through nuclear fusion, which actually emits a large amount of heat. Therefore, the heat is released only from the exothermic nuclear reaction between two deuteriums (^2H) resulting in helium (He).

Result: In Sun heat is released only from the exothermic nuclear reaction between two deuteriums (^2H) resulting in helium (He). The reason for heat is the nuclear reaction between two deuteriums (^2H) resulting in helium (He). Heat is also released from the numerous transverse decelerating loops and decelerating protuberances.

Result: The reason for nuclear reaction is positive acceleration of HF accelerating impulses emitted by Sun. Thus, it sucks and sticks the deuterium atoms (^2H) and produces helium (He). The phenomenon of emitted accelerating Funnel and accelerating beams from the Sun has not yet been fully studied and explained.

Proposal for invention

Concept: If we can simulate generation of an accelerating vortex (Law6) with sufficiently high acceleration and if we pass it through a medium saturated with deuterium (^2H) we will synthesize helium (He) with the release of great energy.

The reason is that many of the atoms of the deuterium are attracted to the accelerating longitudinal vortex with a force proportional to the acceleration. They are dragged and stuck together as part of them fuse and form helium. The synthesis process itself releases energy. The process is carried out at normal temperature and does not need additional heating, but the process only needs significant acceleration. This accelerating HF impulses even cool the medium (Law 6) (Figure 2b) [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 Theory.

How an accelerating vortex is generated according to the new Axioms and Laws is shown in a previous works by the same author [10,11,12]. According Law1 a decelerating vortex (in 2D) from outward to inward generates an accelerating vortex (in 3D) in Gravity center, which perpendicular to the plane (2D) of decelerating vortex. The reason is decelerating vortex from out to inward (in 2D), but result is accelerating vortex from center to upward (in 3D). By the way this accelerating vortex plays role of generator of Antigravity Force (Law1) (Figure1a, d).

A Device imitating Cold Nuclear Fusion

This Device has to contain 3 parts: Generator of accelerating Funnel (Law1), Synthesis Chamber (Law6) and Heat Chamber figure 3.

Description of Figures:

i. **Figure 3a** shows how an accelerating longitudinal vortex is generated. According to the Theory of the new Axioms and Laws, this is the same way that Anti-gravity force is produced. The main object is a **snail with nozzles** mounted on the inside at a decreasing distance (multiplied by $1/\psi^n$) and with increasing diameter (multiplied by ψ^n). Their calculation in every step (n) is in based on parameter (ψ) equals to Golden proportion. A Golden proportion (ψ) fulfills the requirement: $\psi - 1/\psi = 1$. The dimensions are calculated and shown in previous works by the same author [4,5,6].

At the snail's entrance is **fed rotating to the right** (in the direction of movement) vortex. It must have a quarter period of rotation calculated to be equal to a quarter of the period of rotation inside the snail. The initial phase must start from 0 degrees (0°), and it moves up to 90 degrees (90°) - that's why it is. quarter period. Due to friction inside the snail, the vortex begins to lag behind and move with negative acceleration. According to Law 5, during decelerating motion the decelerating primary vortices are emitted at every (n_i) points with a decreasing distance ($1/\psi^n$) between them. At the same time, they emit at every (n_i) point an increasing speed ($V_0 \cdot \psi^n$) and an increasing amplitude ($W_0 \cdot \psi^n$), where V_0 and W_0 is starting velocity and amplitude.

Therefore, these decelerating vortices gather at the point called Gravity Center (p.G). It is displaced from the Geometric Center (p.O), and it carries out the phenomena of full resonance: resonance in place, time and amplitude. At this point the primary transverse **amplitudes are superimposed** on each other according to the z-coordinate (in order in generating along z-axis). According to Law1, each transverse decelerating vortex wound in a plane (in 2D) and generates an accelerating longitudinal vortex, perpendicular (in 3D) to this plane. Thus, these primary decelerating transverse vortices generate primary accelerating longitudinal vortices. The primary accelerating longitudinal vortices as perpendicular **vectors are multiplied** (not sum as primary decelerating transverse

vortices). The primary accelerating longitudinal vortices are multiplied among themselves in the order of the generated by z-axis. As a result, an accelerating Funnel of accelerating vortices inserted into each other is obtained. The arrangement in the accelerating Funnel is such that the fastest vortex (with maximum longitudinal speed, maximum angular speed and minimum number and radius of loops) is inserted in the center. After it the slower one is wound on the outside. And finally, the slowest vortex (with minimum longitudinal speed, minimum angular speed and maximum number and of loops) is wound on the periphery.

ii. **Figure 3b** describes the absorption Chamber called Synthesis Chamber. This Chamber must be full of atoms of the hydrogen isotope deuterium (^2H). According to Law 6, the accelerating vortex sucks in the primary accelerating vortices towards itself, accelerating the main motion more and more. The primary accelerating vortices **suck and stick** the atoms of deuterium that are around. Naturally, due to the maximum positive acceleration, the central longitudinal vortex from the accelerator Funnel will suck in the most deuterium atoms to itself. Due to the minimum positive acceleration the peripheral longitudinal vortex will suck in the fewest deuterium atoms. In order for fusion to take place, a precisely defined **high threshold** of positive acceleration is necessary. Therefore, perhaps only the central vortices in the accelerating Funnel will succeed in reaching this threshold. They can suck in deuterium (^2H) atoms at a **sufficient speed** and synthesize helium (He). It is necessary to suck and absorb 2 atoms of deuterium(^2H) to obtain 1 atom helium (He).

iii. **Figure 3c** shows the Heat Chamber. It contains the result of the synthesis. The reason for synthesis is that some (not all) of the absorbed atoms of deuterium in the previous Synthesis Chamber synthesize in this Heat Chamber a new atom with a new internal structure, named helium (He). It is well known that helium has two electrons and two protons mainly. In the process of helium fusion, the structure changes and sizes decrease. When the electron is in a more outer orbit, it has the shape of an inflated sphere with a large radius of the transverse section and a very short perpendicular vector. But when the electron enters a more inner orbit, it acquires the shape of a spindle with a small radius in the transverse section and a long perpendicular vector. This action is equal to the jump of electron from outer orbit to inner orbit which is accompanied by emission of heat. The atom decreases its radius and emits the excess potential energy in the form of heat.

Results and Conclusion:

Result: The shape of the electron shrinks from a toroid shape with a larger cross-sectional radius and very short perpendicular vector to a spindle shape with a smaller cross-sectional radius and very long perpendicular vector.

The electron jumps from the outer position of the electron shell to an inner position. In the outer position the electron has the shape of a bulging toroid with a short perpendicular vector which is a typical form of a particle. In the inner position the electron has the shape of a contracted toroid with long perpendicular vector which

is a form of a wave.

Result: The essence of the electron transforms from a particle to a wave.

The atom is contracted both - of electrons in electron shell and of the protons in core.

Result: The shape of the proton shrinks from a sphere shape with a larger cross-sectional radius and very short perpendicular vector to a spindle shape with a smaller cross-sectional radius and very long perpendicular vector.

In fact, the reason for the compaction of the helium atom (He) is the contraction and deformation of the two protons in its nucleus. The proton jumps from the outer layer of the nucleus to an inner layer. In the outer layer proton has shape as a bulging sphere with short perpendicular vector which is typical form of a particle. In the inner layer proton has shape as a contracted spindle with long perpendicular vector which is a form of a wave.

Result: The essence of the proton transforms from a particle to a wave.

When the proton spindle shrinks, the radius of the proton is reduced. This causes the jumping of the proton from an outer to an inner layer, Thus the shrunken proton attracts its corresponding electron, which is under its personal management [6,7]. This act causes it to pull its corresponding electron from an outer orbit to an inner orbit.

Result: The protons in its nucleus pull their respective electrons inwards towards themselves (because they sharply reduce their radii)

Synthesis of helium is done through densification of its structure. The reason is that the distances between the electrons and core decrease by transformation of the shape of the electrons. When the electron is in a more outer orbit, it has the shape of an inflated sphere with a large radius of the transverse section and a very short perpendicular vector. But when the electron enters a more inner orbit, it acquires the shape of a spindle with a small radius in the transverse section and a long perpendicular vector. This means that the distance between core and electron shell decreases.

Result: The distances between the electrons and nucleus is reduced (because of the decrease of the size of the electrons and protons).

In act of contraction, the decelerating transverse vortices (that is coiled inside electrons) suddenly contract the coiled vortex towards the Gravity center. At the same time, they shoot a longitudinal vortex perpendicular to the central section (Law1) [6,7].

Result: In electron the decelerating transverse vortices in toroid suddenly contract towards the Gravity center and the longitudinal vortices are shot upward.

In this transformation, the excess transverse vortices (excess potential energy) are radiated as heat, and longitudinal vortices are also radiated in type of light.

Result: In proton the accelerating transverse vortices in the sphere suddenly contract towards the Gravity center and the longitudinal vortices are shot.

We already know that the transverse vortices are equal to potential energy and longitudinal vortices are equal to kinetic energy [4,5].

Result: In electrons and protons, the excess transverse vortices are equal to excess potential energy is radiated as heat and excess longitudinal vortices is equal to excess kinetic energy is radiated as light.

However, the described synthesis could not be carried out if a sufficiently large positive acceleration was not reached and if the deuterium in the chamber was in a small concentration.

Conclusion

A necessary condition for nuclear fusion is the presence of a necessary positive acceleration in the longitudinal vortex. A sufficient condition is that the chamber is filled with a sufficiently large amount of deuterium, which will be sucked in and glued by this positive acceleration.

Epilog

- A. For the fusion reaction to take place, the two fusing nuclei must come so close to each other (at a distance of $\sim 10^{-15}$ m) that the nuclear forces between the nucleons begin to act. This convergence is opposed by the forces of electrostatic repulsion between the positively charged nuclei. To overcome these forces, an external source of energy is needed.
- B. The easiest way to do this is to heat up the atoms, which has the side effect of removing the electrons from their orbits. As a result, "bare" cores remain. In most experiments, the nuclei and electrons are in a form known as plasma. The temperature required to provide enough energy to overcome the repulsion between the nuclei is a function of the total charge.
- C. In the present article, to overcome the electrostatic flashback forces, a sufficiently large positive acceleration is opposed. The Electrostatic forces are based on the uniform motion of the vector E in a closed circle (according to Classical Axiom of Maxwell for the Electromagnetic field). But the positive acceleration sharply deforms this closed circle as it becomes an open circle. Thus, the closed circles turn into an open vortex (Axiom1). The positive accelerating vortex sucks in from outward to itself (Law6). Disrupting the structure of the closed circle, its center moves from the Geometric point (p.O) to its

Gravitational point (p.G). For each vortex, the center of Gravity moves to a different place or a different distance.

- D. This means that each vortex is open in a different way - one in more vector of distance from geometric center (FO_{max}), another in less vector of distance from center (FO_{min}). This means that one coiled vortex can be tucked into another more open vortex and form a package.

Because of the Force of Sucking the Force of Electrostatic repulsion are broken. Consequently, breaking the structure of the closed vortices leads to the breaking of the forces of repulsion.

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Conflict of interest

No conflict of interest.

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