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Review Article

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Gravity Force by the Gravitation Funnels, Consisting of Accelerating or Decelerating Longitudinal Vortices

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Abstract

Longitudinal open vortices with positive or negative acceleration are described in the Theory of New Axioms and Laws by the same author. This new Theory contains 2 Axioms and 8 Laws. It describes longitudinal open vortices with a direction from a denser to a rarer medium (and in inverse direction) which can be accelerating or decelerating. For decelerating longitudinal vortices the reason is the negative acceleration of the velocity along the length of the vortex. The decelerating longitudinal vortices emit Primary decelerating transverse vortices called decelerated quanta from themselves outwards. The decelerated quanta have negative acceleration and amplitudes perpendicular to the velocity vector of the longitudinal vortex . They emit heat to environment or warm it . Because emitting of quanta ,two decelerating longitudinal vortices repel each other. When several decelerating longitudinal vortices with different negative accelerations in longitudinal (velocity) and transverse (amplitudes of quanta) parts are located close to each other, they are packed. They form a decelerating Funnel .

It is made because the fastest vortex inserts into the center, the slower one wounds around the outside and the slowest one wrapped around the outside. This is Gravitational Funnel that repels the Space around in the direction from the center to the periphery. It forms nonlinear accretion disks around itself in planes perpendicular to the its axis. The result is distortion the Space around itself. The end effect is the opening of Space and the generation of matter. For accelerating longitudinal vortices the reason is the positive acceleration of the velocity along the length of the vortex. The accelerating longitudinal vortices suck in Primary accelerating transverse vortices called accelerated quanta , from environment to themselves The accelerating quanta have positive acceleration and amplitudes perpendicular to the velocity vector of the longitudinal vortex .They consume heat from environment or cool it. Because of sucking ,two accelerating longitudinal vortices attract each other. When several accelerating longitudinal vortices with different positive accelerations in longitudinal (velocity) and transverse (amplitudes of accelerating quanta) parts are located close to each other, they are packed. They form an accelerating Funnel .It is made because the fastest vortex inserts into the center, the slower one wounds around the outside and the slowest one wrapped around the outside. This is Gravitational Funnel that attracts the Space around in the direction from the periphery to the center. It forms nonlinear accretion disks around itself in planes perpendicular to the its axis. The result is distortion the Space around it .The end effect is the stretching of velocity and generating of Time. The conclusion is that the reason of Gravity around Gravitational Funnels is acceleration, not distortion of Space. The Gravity is only one of many others result from acceleration.

1. Law1 and Law2

a) Law1 for volume 3D: The open *decelerating transverse vortex* (E_{2D} -) generates inward an open accelerating longitudinal vortex (or Funnel) (H_{3D} +) upward . This action transforms transverse decelerating vortex (E_{2D} -) to longitudinal accelerating vortex(H_{3D} +) through a particular transverse-

longitudinal transformation (Δ1-):

Δ1-
Vor (E2D -) => Vor (H3D +) .

In this way, the *electron* in the electron-proton pair is generated [1-3].

b) Law2 for volume 3D: The open *decelerating longitudinal vortex*(or Funnel) (H_{2D} -) downward generates an open accelerating transverse vortex (E_{3D} +) outward . This action transforms longitudinal decelerating vortex (H_{3D} -) to transverse accelerating vortex (E_{3D} +) (as Reverse wave) through a particular longitudinal-transverse transformation (Δ1+):

Δ1+
Vor (H3D -) => Vor (E2D +) .

In this way, the proton in the electron-proton pair is generated [1-3].

2. Law5 for Decelerating Vortex, the Corresponding Funnel and Decelerating Accretion Disk.

a) Law5 for Volume 3D: The 3D *decelerating* vortex is described by a multitude of 4 nonparametric equations in which: longitudinal velocity (V) *decreases* in (n) portions ($1/f^n$) times; the amplitude (W) ,the angular velocity (ω) and the number (N) of transverse vortices increase in (n) portions (f^n) times:

$V- VO/ V = -1$, $W-Wo /W = 1$, $\omega - \omega 0 / \omega = 1$, $N - No / N = 1$.

where linear velocity V_0 is the starting value of v_n, amplitude of transverse vortex W_0 is the starting value of w_n, angular velocity ω_0 is starting value of ω_n, number N_0 is starting value of nn, [nn] is the closest integer : v_n,w_n are periodic roots with period n; vn ,w_n are mutual orthogonal that fulfill the orthogonal requirement : $v_n.w_n = V_0.W_0$; v_n, ω_n are mutual orthogonal that fulfill the orthogonal requirement : $v_n.\omega_n = V_0.\omega_0$; $n = 0 \div \infty$; the roots vn , wn and ωn and nn are expressed as: $vn = (1/f^n).V_0$, $w_n = f_n.W_0$, $\omega^n = f^n.\omega_0$, [nn]=$f^n.N_0$; (f) is Golden proportion that fulfills the requirement: **f-(1/ f) =1**, (Figure1a) [4-6].

It is well known that an equation is nonparametric when it do not depend on external parameters and it depend only on the internal ratio, called Golden proportion (f) [7].

Result:Decelerating vortex describes by 4 *nonparametric* equations depend only of (f).
For decelerating vortex the Golden proportion (f) is the ratio between amplitude of the transverse vortex(W) (as result) to the longitudinal vector (V) (as reason)) [7].

Definition: For decelerating vortex the Golden proportion (f) is proportional to the ratio (w_n /v_n) : $(f^2)^n = (w_n /v_n)$.

Result: The decelerating vortex *transforms* maximal vector velocity (v1) from starting point (n1) to a transverse wheel with maximal vortex radius (wn) in final point (nth), where the transverse wheel is perpendicular to vector velocity. Thus the current angular velocity (ωi) and current amplirude of rotating wheel (wi) become maximal in (nth)step (Figure1a)

Result: An decelerating vortex *emits* the Primary decelerating vortices (called decelerating quanta) from itself to the outside or to the environment .

Result: Two decelerating longitudinal vortices in close proximity *repel* each other.
Therefore a few decelerating vortices that form decelerating Funnel also repel each other .

Result: A few decelerating vortices *form decelerating Funnel.*
The decelerating Funnel opens up Space around itself ,generates and arranges matter .

b) Packing of Decelerating Funnel
The decelerating Funnel is packed like accelerating Funnel : Because the fastest longitudinal vortex is inserted in the center of Funnel ,this means that the fastest longitudinal vortex has *the least negative acceleration* or minimal repelling .The slower longitudinal vortex is wound outside of Funnel.This means that slower longitudinal vortex has a *greater negative acceleration* or bigger repelling.The slowest longitudinal vortex is twisted outside in the periphery of Funnel. This means that the slowest longitudinal vortex vortex has the *greatest negative acceleration* or maximal repelling (Figure1a).

-When the decelerating Funnel enters from a rarefied to a denser medium, then it *first* rotates this medium in (M) number of circles that are equal to the number (M) of spirals in Funnel. *Secondly*, due to the finite value of the viscosity, each subsequent circle (M_{i+1}) lags behind the previous one(M_i) .Thus the subsequent circle (M_{i+2}) lags behind the previous one(M_{i+1}) .When the points (M_{i+n}),..,(M_{i+2}), (M_{i+1}), (M_i)..are connected, a Reverse wave isobtained (Figure1b) .

Thirdly, because the lag between every 2 adjacent lamellae increases more and more :
$D(M_{i+1} - M_i) > D(M_{i+1} - M_{i+2}) > D(M_{i+2} - M_{i+3})$.... , then the Reverse wave will be accelerating
Result: The reason Reverse wave to become *accelerating* (in Time) is the *increasing* the lag (in Space) between every adjacent increasingly outer lamellae when longitudinal Funnel enters from rarer to denser medium .It is very unique transformation from Space (a lag in S) to Time (an acceleration in T) [6].

Result:In the Reverse wave,the *distance* (in Space-S) in opposite direction is transformed into *acceleration* (in Time T).

Example: This is the case with our Sun: The longitudinal Funnel generating the Sun , passes through the boundary of 2 media enters - from rarer to denser medium. Thus this Funnel becomes decelerating. According Law2 of Theory the decelerating Funnel

generates an accelerating Reverse wave. The Reverse wave is accelerated in 2D and unfolds in the opposite direction as an accelerating transverse vortex. The Reverse wave is obtained from the increasing differences (due to low viscosity) in the distance between each adjacent lamella in the opposite direction. The increasing differences (in lag) in Space are transformed into an increasing (in acceleration) of velocities of the Reverse wave in time (T). The **reason for positive acceleration of Reverse wave** is :When the first lamella rotates and arrives in time (T_1) , the second outer lamella lag*s behind* (due to low viscosity) and arrives in time (T_2) at a distance: $\mathbf{D_1=T_2-T_1}$,the third *lags behind* (due to even lower viscosity and adhesion) at a greater distance: $\mathbf{D_2= T_3-T_2}$,the fourth *lags behind* (due to even lower adhesion and viscosity)(T_3)at an even greater distance:$D_3 = T_4-T_3$, where $\mathbf{D_1<D_2<D_3<...}$ **.This increasing lag (D_i) in the opposite direction is *reason* for** accelerating Reverse wave [6] (Figure1b).

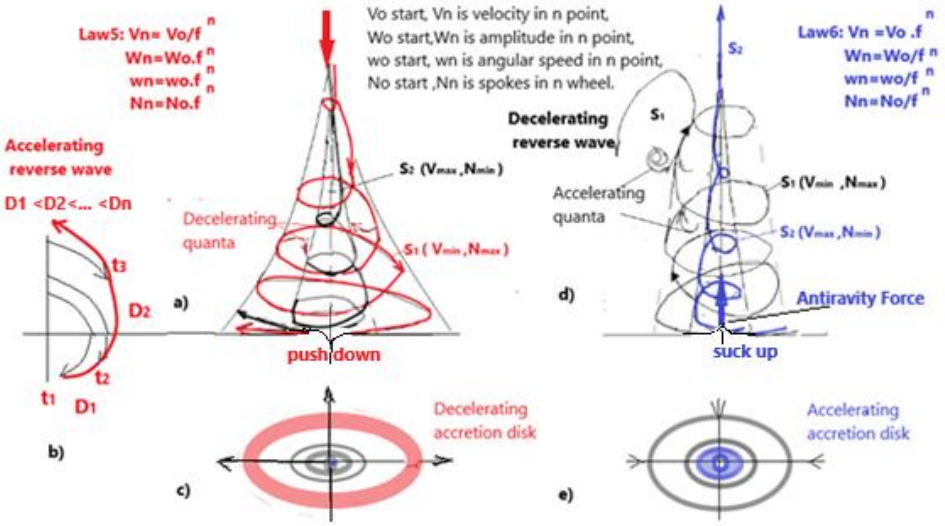

Figure1: Figure1 a) Decelerating Funnel; Figure1 b) Decelerating Accretion Disk; Figure1c) Accelerating Funnel; Figure 1c) Accelerating Accretion Disk

c) Decelerating Accretion Disk.
Obviously, the longitudinal structure of the current velocities (accelerations) of the decelerating Funnel is perpendicular to the transverse structures of the current transverse amplitudes (radii) of the transverse loops. Therefore, we can cross and cut the decelerating Funnel transversely and obtain a series of transverse circles inscribed in each other called *accretion disk*.

Definition: The *decelerating accretion disks* are perpendicular *section* of the longitudinal Funnel.

The accretion disk contains circles inscribed in each other arranged nonlinearly. Since the decelerating accretion disk repels *nonlinearly* in the direction from the center to the outside, the circles are also *rarefied* in the direction from the center to the periphery.

Result: In the deceleration accretion disk, the circles are *non-linearly* arranged and are rarefied in the periphery and condensed in the center.
This result is perceived as a *distortion of Space*.

Result: The *distortion of the Space* around the entire decelerating Funnel is a result of nonlinear accretion disk and negative acceleration of the constituent longitudinal vortices.
If we depict it in 3D (*including to z*) the deceleration accretion disk will look like a *bowl concave in the center* (*z*).

Result: A *bowl concave* in the center is 3D appearance of decelerating accretion disk.

3. Law6 for Accelerating Vortex, Accelerating Funnel and Accelerating Accretion Disk.

a) Law6 for volume 3D : The *accelerating* vortex in 3D is described by a multitude of 4 nonparametric equations in which: longitudinal velocity (V) *increases* in (n) portions ($.f^n$) times, the amplitude (W) ,the angular velocity (ω) , and the number (N) of loops of transverse vortices *decrease* to zero in (n) portions ($1/f^n$) times:

$$\mathbf{V - V_0 / V = +1,} \quad \mathbf{W-W_0 / W = -1 ,}$$
$$\mathbf{\omega - \omega_0 / \omega = -1 ,} \quad \mathbf{N - N_0 / N = -1 ,}$$

where the linear velocity V_0 is the starting value of V_n, amplitude of transverse vortex W_0 is the starting value of w_n, angular velocity w ω_0 is starting value of ω_n, number N_0 is starting value of n_n,the roots v_n, w_n and ω_n, n_n are expressed a$_s$:$v_n = (f_n).V_0$, $w_n=(1/ f^n).W_0$, $\omega n = (1/f^n).\omega_0$, $n_n = (1/f^n).N_0$; (f) is a Golden proportion fulfilled the requirement: $\mathbf{f-(1/ f) = 1}$.

The v_n and w_n are periodic roots with period (n), v_n, w_n are mutual orthogonal that fulfill the orthogonal requirement : $v_n.w_n = V_0.w_0$; v_n, ω_n are mutual orthogonal that fulfill the orthogonal requirement : $v_n.\omega_n = V_0.\omega_0$; $n = 0 \div \infty$; the roots vn , wn and ωn and nn are expressed as: $v_n = (f_n).V_0$, $w_n = (1/f^n).W_0$, $\omega_n = (1/f^n)\omega_0$, $n_n = (1/f_n).N_0$.

The first positive root of the first equation is: $v_1 = f.V_0 = 1{,}62.V_0$ .The first positive root of the second equation is: $w_1 = (1/f)W_0 = 0{,}62.W_0$. The periodic roots of the first equation are obtained from the expression: $v_n = V_0.(v^{n-1}+v^{n-2})$. The periodic roots of the second equation are obtained from the expression: $w^{n-2} = W_0.(w^n-w^{n-1})$,(Figure 2a) [1-3].An nonparametric equation do not depend on external parameters and it depend only on Golden ratio (f) [7].

Definition: For accelerating vortex the Golden proportion (f) is proportional to the ratio (vn/wn): $(f^2)^n = v_n/w_n$).

Result: The accelerating vortex *transforms* maximal vector velocity (v_1) from starting point (n_1) to a transverse wheel with minimal (almost zero) radius (w_n) in final point (n^{th}), where the transverse wheel is perpendicular to vector velocity. Thus the angular velocity(ω_n) and radius of rotating wheel (w^n) become minimal (almost zero) in (n_{th}) step (Figure 1d)

Result: An accelerating longitudinal vortex *sucks* in the Primary accelerating vorting (accelerating quanta) from the environment towards itself.
Accelerating qunta have positive acceleration an this cause sucktion. Because suction, two accelerating vortices in close proximity the vector velocity sucks accelerating quanta and accelerating longitudinal vortices attract each other.

Result: Two accelerating longitudinal vortices in close proximity *attract* each other.
Therefore a few accelerating vortices also attract each othe

Result: Many accelerating vortices are *packed* in accelerating Funnel.
The accelerating Funnel stretches vector velocity at the end and generates Time (T).

b) Packing of Accelerating Funnel
The accelerating Funnel is packed in the following way: The fastest longitudinal vortex is inserted in the center of Funnel. This means that the fastest longitudinal vortex has the *greatest positive acceleration* or maximal sucktion .The slower longitudinal vortex is wound outside of Funnel. This means that slower longitudinal vortex has *a less positive acceleration* or less suction .The slowest longitudinal vortex is twisted outside in the periphery of Funnel. This means that the slowest longitudinal vortex has the *least positive acceleration or* minimal sucktion (Figure1d).

Result: In final step (n_{th}) the fastest vortex ,inserted in center of accelerating Funnel stretches the vector velocity (v_n) to infinity (∞) and thus it generates Time (T).

While decelerating Funnel transforms **Velocity of Time (T)** to perpendicular **Amplitude of Space(S)**, the accelerating Funnel transforms **Amplitude of Space (S)** to perpendicular **Velocity of Time (T).**

c) Accelerating Accretion Disk.
Obviously, the longitudinal structure of the current velocities(accelerations)of the accelerating Funnel is perpendicular to the transverse structures of the current transverse amplitudes (radii) of the transverse accelerating vortices (loops). Therefore we can cross an *accelerating Funnel* transversely and obtain a series of transverse circles inscribed in each other.

Definition: The *acceleration accretion disks* are perpendicular section of the longitudinal Funnel.
The accretion disk contains circles (inscribed in each other) arranged nonlinearly. Since the accelerating accretion disk **attracts** nonlinearly in the direction from the outside (environment) to the center, the circles are **thicken** in the direction to the center .

Result: In the acceleration accretion disk, the circles are *thicken* in the direction from periphery to the center.
This result is perceived as a *distortion of* Space around accelerating

Result: The nonlinear arrangement of the circles in the accelerating accretion disk causes a distortion of the Space around the entire accelerating Funnel.
If we depict it in 3D (including to z), the accretion disks of accelerating Funnel will look likes to **bowl *convex*** to the (z) in the center .

Result: The accelerating accretion disk in 3D (plus z) has the appearance of a bowl convex in the center.

4. Conclusions

a) The Reason for Gravitational Repulsion or Attraction is the Current Negative or Positive *Accelation* (!) but not the *Distortion* of Space.
The Modern Theory of Gravity claims that the cause of Gravitational repulsion or attraction is in a nonlinear **Distortion of Space**.The Theory of new Axioms and Laws proves that the cause of Gravitational repulsion or attraction is consists in the current negative or positive accelerations of the longitudinal velocity (V) and current negative or positive accelerations of the transverse amplitude (W) (according Law5 ,Law6).

Therefore the reason for Gravitational Force is the current acceleration but not the Distortion of Space .The Distortion of Space **is only 1 of the results** caused by acceleration.

b) Each longitudinal Vortex in the Decelerating or Accelerating Funnel moves at Different Times (T_i).
Each spiral in Funnel moves along its length (S_i) **in Time in** (n) steps .It moves with a nonlinear velocity . In case of *decelerating* vortex velocity in (n_{th}) step is: (V_0/f^n), in case of accelerating vortex velocity in (n_{th}) step is: ($V_0.f^n$), where (V_0) is maximal

velocity in starting of spirals. Regardless of whether the Funnel is decelerating or accelerating, when in Funnel have (M) number spirals they are arranged **in Space** in the following way: The central vortex has a maximum velocity(V_{max}) .The central vortex arrives first at time ($T_0 = T_{min}$) of the entire package of Funnel. After it, the outer vortex arrives late ,at time ($T_1 = T_0 . f^1$), and the more outer vortex arrives later, at time($T_2 = T_0 . f^2$), etc. and finally, the most peripheral vortex appears last ,at time ($T_M = T_{max} = T_0 .f^M$) (Figure1a,d) .

Therefore central spiral is fastest and arrives first with ($T_0 = T_{min}$), then the outer spiral is slow and arrives after (T_1), the more external vortex is slower and arrives (T_2) and so on the final spiral is slowest and arrives last (T^N).

c) In Decelerating Funnel Each Transverse Vortices in 2D (x,y) ***open the Space*** in direction to exit of Funnel. In accelerating Funnel each longitudinal vortex in 3D (along z- axis) ***generates Time.***

For *decelerating* Funnel along loops in 2D (x,y),the current radius (R_i) of loops increases. Thus the length of loops become longer .The angular speed of vortex (ω_i) along circle of transverse loop increases so much that it tends to infinity(∞) ,(Law5). In this way it **opens the Space** (Figure 1a). For accelerating Funnel along loops in 2D (x,y) , the current radius (R_i) of loops decreases. The length of loops become shorter .The current angular speed (ω^i) along loops decreases so much that it tends to zero (0),(Law6). In this way Space is collapsed and it **generates the Time** (Figure 1d).

d) Accelerating and Decelerating Funnel form *Time-Space* with S = const.

The center of *accelerating* Funnel is convex up by sucking along the z-axis. Thus the front of the accelerating Funnel is not flat but it is arrow-shaped to up. In the center vortex is the first (T_{min}), the fastest (V_{max}), the longest (H_{max}) and with minimal number of loops (N_{min}) . Therefore the central spiral passes by a constant path : $\mathbf{S_{const}} = T_{min}.V_{max}$. At periphery vortex is the last (T_{max}), the slowest (V min) , the shortest (H_{min}) with maximal number of loops (N_{max}). Therefore the peripheral spiral also passes a constant path $\mathbf{S_{const} = T_{max} .V_{min}}$**.** The reason is that this is one and the same spring has one and the same length (Sconst). The result is that the accelerating Funnel **forms very unique Time-Space with constant length of spirals S = const.**

The similar is the dynamic also the *decelerating* Funnel.There is some difference. Since in the accelerating Funnel front convex up (by sucking up) in decelerating Funnel the front is concave down (by pushing down).

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