ISSN: 2639-0108

Review Article

Advances in Theoretical & Computational Physics

Method for Hyper Speed by Lower Pressure Cocoon of decelerating Funnel based on Open Vortex Theory

Valentina Markova*

Bulgarian Academy of Sciences

***Corresponding Author**
Valentina Markova, Bulgarian Academy of Sciences, Bulgaria.

Submitted: 2026, Apr 28; **Accepted:** 2026, Jun 10; **Published:** 2026, Jun 23

Citation: Markova, V. (2026). Method for Hyper Speed by Lower Pressure Cocoon of decelerating Funnel based on Open Vortex Theory. *Adv Theo Comp Phy, 9*(2), 01-06.

Abstract

In Classical Electrodynamics, transverse closed vortices are described. They explain perfectly the Electromagnetic field as a smooth and evenly field. The Electromagnetic field is described by Maxwell's Laws (1864) and an single Axiom that makes Maxwell's Laws valid. This field has a Constant Velocity both as a tangent to the orbit and as a perpendicular direction of propagation.

But beside closed vortices there are open vortices -transverse and longitudinal. In open vortices the Velocity is not a Constant, and the acceleration can be a positive or a negative. They have acceleration, both along the tangent and in the perpendicular direction of propagation. Thus, accelerating or decelerating transverse vortices are obtained, as well as accelerating or decelerating longitudinal vortices. They are described by an Open Vortex Theory , written by the same author. The Open Vortex Theory includes 2 Axioms and 8 Laws. This report use only 1 Axiom and 1 Law.

In this report, the author pay more attention to the structure and properties of decelerating longitudinal open vortices with negative acceleration. The properties of longitudinal vortices are unique. Each of vortices have a different acceleration and this causes them to pack into Funnels. This article discusses especially the unique properties of the decelerating Funnel with decreasing longitudinal velocity and negative acceleration for each of vortices.

The central vortex in this Funnel is maximal decelerated. It has such big negative longitudinal acceleration, that longitudinal velocity reaches a speed almost zero. According a Law of Open Vortex Theory the decelerating longitudinal vortex emit outward of itself the Primary decelerating transverse vortices. When this strongly decelerating transverse vortex is wound in periphery of ring it emits the Primary transverse decelerating vortices from the periphery inward. Thus the Primary transverse vortices open up Space inward -from periphery to the center.

But every increasingly outer vortex is decelerated ever less and it has bigger longitudinal speed and so on. Therefore the periphery vortex is decelerated the least and has maximal longitudinal velocity. The peripheral vortices that move faster and faster suck each other in and form something like a shell in periphery.

The Pressure inside decreases directly proportional to the expansion of Space and it creates a lower Pressure in the center of the decelerating Funnel. It forms something similar to a Cocoon where friction tends to minimum -the periphery is dence shell but in the center has lower Pressure.

The cocoon constructes around any moving in decelerating Funnel body in air, water, etc. It reduces friction in a perpendicular plane (in 2D) by pushing the moving body to the central z- axis. At the same time, it pushes the body forward along z-axis (in 3D) because the speed behind the body is much higher and in front of it drops. Thus, the movement of the body in Space is both due to the distortion of the Space around it and due to the fuel. In addition, due to the distortion of Space, this body becomes invisible.

1. Introduction according Open Vortex Theory

1.1. A Classic Axiom

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

It claims that the divergence along the rotor of vector E in closed circle in any smooth vector field is always equal to zero: div rot E= 0 or $\nabla(\nabla\times E)=0$. The reason is that the velocity V of tangent vector E equals a constant: V(E) =const. (Figure1a). It ideal explanes Electromagnetic field as a smooth and evenly field and it makes Maxwell's Laws valid [1].

1.2. The new Axiom1

1.2a. Essense

The author change this Classic Axiom and adapts it to **uneven or not-smooth field** that movement is with not constant velocity: V(E) ≠ const. (Figure1b)[3].

Axiom1 states that the divergence along the rotor of tangent vector E in open circle(or open vortex) in any uneven or not smooth field is always not equal to zero: div rot E ≠ 0 or $\nabla(\nabla\times E) \neq 0$. The reason is that the velocity (V) of vector E is variable: V(E) ≠ const.

Therefore Axiom1 describes the uneven movement of vector E (in plane 2D) and the central vector H (in volume 3D) in not-smooth field as the movement with variable velocity [4].

Result: div (Vor E)>0 or div (Vor E)<0 in 2D. div (Vor H)>0 or div (VorH)<0 in 3D.

In not-smooth or uneven field velocity V of vector E is monotone-decreasing or monotone-increasing velocity of the open circle [5].

Result: The movement can be monotone - accelerating or monotone- decelerating.

This new Axiom1 describes in 3D new dynamic fields.

Result: This new uneven field describes Gravity field including field of Free Energy. This the uneven, not-smooth field is very different than even, smooth Electromagnetic field including field of light waves. The reason is that it describes Open transverse and longitudinal vortices with monotone variable velocity [6].

If we mark E as tangent vector that orbits in 2D and draws a transfer Open vortex and H as a vector in 3D at its center then we result the following:

Result: There are 4 types of Open vortices: a *transverse* 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} -).

With this set of 4 elements we can get 16 (2^4) combinations of complex objects, some of which may be mutually orthogonal. The complex objects can be mutual orthogonal in Time and in Space.

For example: a pair of mutually orthogonal complex objects - a longitudinally decelerating vortex generating a transversely accelerating vortex (model of proton) and a transversely decelerating vortex generating a longitudinally accelerating vortex (model of electron), etc.

Result: There are 16 complex objects (2^4) some of which are mutual orthogonal in Time and in Space.

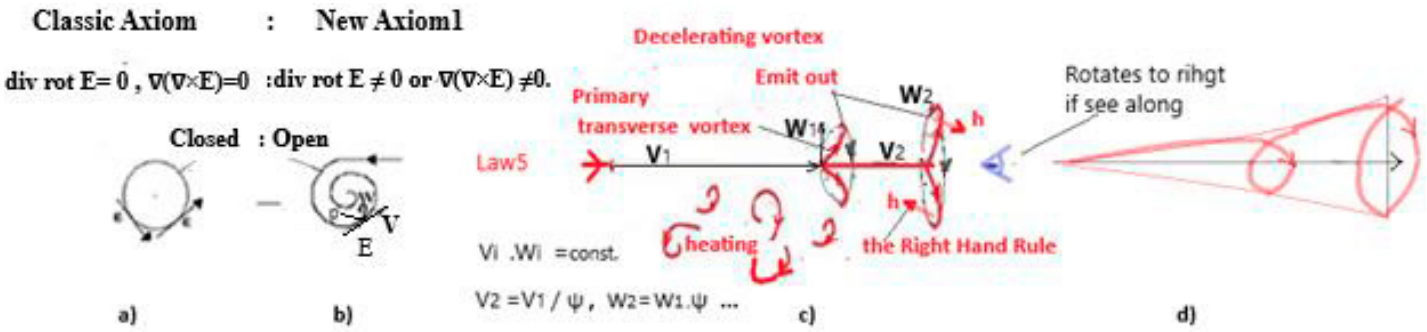

Figure 1: The Open Vortex Theory (or Theory of new Axioms and Laws)

a) Classic Axiom as Closed Loop; b) New Axiom1 as Opened Loop or vortex; c) Longitudinal decelerating vortex emits decelerating Primary Vortices to out (Law5); d) Decelerating spiral rotates to right, if it is observed along movement.

1.2b. Simultaneous Movement

According Axiom1 two simultaneous movements (V,W) exist at all points of the open vortex, where V(E) ≠ const. Very characteristic of this type of uneven motion is that at every (i) point p(i) of an open vortex (V) there are two simultaneous movements: velocity vector (V) and amplitude of the transverse vortex (W)(Figure1b) [4].

Result: In every(i) point (p) of open vortex there are two simultaneous movements: tangent vector velocity (V) and a perpendicular transverse curl movement as amplitude (W) of Primary vortex in 2D. They are mutual orthogonal in Time and in Space.

Result Vector (V) and amplitude (W) are mutual orthogonal in Time and in Space.

For each current point (i) the **Power of decelerating vortex** is calculated as the product of the magnitude of **vector** the decreasing

current velocity ($-V_i$) by the **amplitude** of the increasing current transverse vortex ($+W_i$). Or it multiplies vector to amplitude: $P_i=(V_i)$. (W_i)=const.; $P_{const.} = V_1.W_1 = V_2.W_2 = V_3.W_3 = \dots$, (Figure1c) [5].

Result: The current Power that is equal the product of velocity(V_i) by amplitude of transverse vortex (W_i) is constant.

For comparison: The Classical physics where is described smooth field , both motions are uniform .They are represented by 2 vectors that are qualitatively **equal** motions or by **2 homogeneous** motions. The joint action of 2 vectors is obtained by **geometric summation (V+W)** of vectors and is equal also a **vector.**

The Open Vortex Theory that describes not-smooth field , where both motions are completely different. They are represented by 1 vector and 1 amplitude .The reason is that they are qualitatively **heterogeneous** motions or they are **2 inhomogeneous** motions. The velocity (V) is represented by a vector but the transverse vortex (as a transverse curl) is objectified by amplitude of transverse curl (W). The joint action of 2 different motions vectors is obtained **by multiplication** (V.W) and is equal to the constant current Power.

The latter results are reflected by several different Laws in Open Vortex Theory, which we will not describe in detail in this article.

1.3. Law 5 in 3D

Law 5 claims that the decelerating vortex in 3D is described by 4 nonparametric equations in which: longitudinal velocity (V) decreases in (n) portions (ψ^n) times; the angular velocity (ω) , the amplitude (W) and the number (N) of Primary transverse vortices in every next wheel increase in (n) portions (ψ^n) times:

$$\mathbf{V\text{-}1/\ V = -V0\ ,\ W\text{-}1/W=+W_0,\ \omega\text{-}1/\omega=+\omega_0\ ,\ N\text{-}1/N=+N_0\ ,}$$

where v_n, w_n and ω_n and n_n are the periodic roots with period n and expressed as: $v_n = (1/\psi_n).V_0$, $wn = \psi_n.W_0$, $\omega_n = \psi_n.\omega_0$, $[n_n]=\psi_n.N_0$; linear velocity V0 is the starting value of Vn, 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 of Primary transverse vortices in starting wheel is starting value of N_n, $[N_n]$ is the closest integer; **ψ is Golden proportional** that fulfills the requirement: **$\psi\text{-}1/\ \psi = 1$;** v_n, w_n and v_n,.ω_n are mutual orthogonal that fulfill the requirement for orthogonality: $v_n.w_n = V_0.W_0$, $v_n.\omega_n = V_0.\omega_0$; $n = 0 \div \infty$, [4,7].

Result: A decelerating vortex <u>emits</u> many Primary transverse decelerating vortices as decelerating Quanta (-Quanta).

A decelerating vortex with a decelerating velocity vector (-V) emits to the environment multiple decelerating Primary vortices with increasing amplitude (+W), because of positive sign **(+) in second equation** .The amplitude (+W) increases in perpendicular direction to the velocity vector (-V). In decelerating longitudinal vortex (-V), the amplitude (+W) increases only if it is directed from the inside to the outside (Figure 1c) [7].

Result: The Law5 describes nonparametric process by a single internal parameter which is the Golden proportion ψ .

The decreasing vector velocity (-V) is transformed to increasing transverse vortex of amplitude (+W) according **internal parameter ψ:** $v_n = (1/\psi^n).V_0$, $\omega_n = \psi^n.W_0$).

2. Construction of Decelerating Funnel

2.1. Property

From the described characteristics of the decelerating open vortices, a remarkable property arises. This property is that they tend to group into a package or Funnel. The packaging occurs depending on the magnitude of their negative accelerations (-a).

2.2. Composition of Decelerating Funnel

The central vortex in this Funnel is the most decelerating or negative acceleration is maximal ($-a_{max}$). It decelerated with such a large negative acceleration ($-a_{max}$) that the longitudinal velocity slows down and reaches a minimum speed (V_{min}) or even almost zero. Thus this central decelerating vortex has a maximum negative longitudinal acceleration ($-a_{max}$) and a minimum longitudinal velocity (V_{min}). The maximal negative acceleration ($-a_{max}$) forces the central decelerating vortex to emit maximal number of Primary transverse vortices (N_{max}) in every current wheel and to turn with maximum speed angular velocity (ω_{max}).

Result: The central decelerating vortex has maximal negative acceleration ($-a_{max}$), maximal number (N_{max}) of Primary transverse vortices in current wheel and maximal angular(ω_{max}). velocity: $-a_{max}$, V_{max}, W_{max}, ω_{max}, N_{max}.

The main reason for this behavior is that decelerating movement (with negative acceleration) emits from itself-outward Primary Transverse decelerating vortices according Law5 .In this way the central vortex increases its current (i) radius (R_n to R_{max}) of each subsequent current (i) loop (N_n to N_{max}), (i=0-n).

Thus the central decelerating vortex opens the Volume of Funnel from the inside out and from start toward its final. This causes an opening of Space both transverse ,along its current radius and longitudinal, along z-axis.

Result: The central decelerating vortex causes an opening of Space both along its current radius (R_i) and along z-axis or it form something like a <u>cocoon</u> in center.

But every increasingly outer vortex becomes faster. It is decelerated ever less (a_i) and thus it has bigger current longitudinal speed (V_i), smaller amplitude(W_i) in current points, smaller current angular speed (ω_i) and fewer number of turns (N_i) (i=0-n).

Result: Every increasingly outer vortex becomes faster with less negative acceleration (a_i) **bigger longitudinal speed** ($+V_i$), **smaller amplitude** ($-W_i$), **angular speed** ($-\omega_i$) **and number of Primary vortices** ($-N_i$) **: $-a_i$, $+V_i$, $-W_i$, $-\omega_i$,$-N_i$.**

The periphery vortex is the fastest. It is decelerated the least and

has minimal longitudinal negative acceleration ($-a_{min}$), maximal longitudinal velocity (V_{max}), minimal amplitude of Primary transverse vortices (W_{min}), and also has a minimal number of turns (N_{min}) with a minimal angular velocity (ω_{min}).

Result: The periphery vortex is fastest with minimum negative acceleration ($-a_{min}$), maximal longitudinal speed (V_{max}), minimum amplitude (W_{min}), minimum angular speed (ω_{min}) and number of Primary vortices (N_{min}):-a_{min}, V_{max}, W_{min}, ω_{min}, N_{min}.

Actually the periphery vortex has only longitudinal velocity (V_{max}) but has almost zero rotation (ω=0) and zero Primary vortices (N =0). Because the periphery vortex is fastest, it does not radiate towards the neighboring one but makes a **relative suction** by the outer vortex to itself. The fact is that the outermost vortices become faster and faster. This is what causes a kind of hard **wrapping or shell** to form around the cocoon.

Result: The outermost decelerating vortices form similar to a shell around the cocoon.

2.3. Properties

In the center the Pressure of longitudinal vortex is minimal **($P_{l,min}$)** but the Pressure in the transverse direction is maximal **($P_{tr,max}$)** along current radius (R_i) in plane 2D. In every outer vortex the longitudinal speed along the z- axis begins to increase (+V), and the transverse speed of radius along the center begins to decrease (-ω). On the periphery the longitudinal speed is maximum and speed of radius along center is minimum.

Thus the central vortex **opens Space** or cocoon in the center along the radius and along the z- axis. At the same time the peripheral vortices, increasing their speed, **relatively suck** each other in and form a dense package as **shell** around the open cocoon.

The basic package of Funnel has a large number of longitudinal vortices inserted into each other. In a head-on collision of this tube (package), the central vortex experiences the strongest and most direct Pressure, which stops it as much as possible. In a sharp stop, the longitudinal vortex emits ones again the powerful Secondary transverse decelerating vortices along the radius according Law5. This is the main reason for the Cocoon to open even more in the center. But the peripheral vortices slide around the central vortex and experience a weaker frontal Pressure. The decreased longitudinal Pressure transforms into increased transverse Pressure. This is the reason in frontal collision the Funnel to open secondary and additionally and to expand the form of a Cocoon.

Result: Decelerating Funnel forms central Cocoon enveloped by a dense shell.

For example: Such unique decelerating Funnel is the Funnel that enters from Space into a denser environment and generates body of Sun. I should note that this decelerating Funnel is **exactly orthogonal** to the accelerating Funnel that is generated from the center of the Earth up into Space [5].

Result: This decelerating Funnel can be mutual orthogonal to a special accelerating Funnel and can form a system with it. Something even more amazing is that the two orthogonal Funnels work in sync and in **resonance,** exchanging Energy and Matter [6].

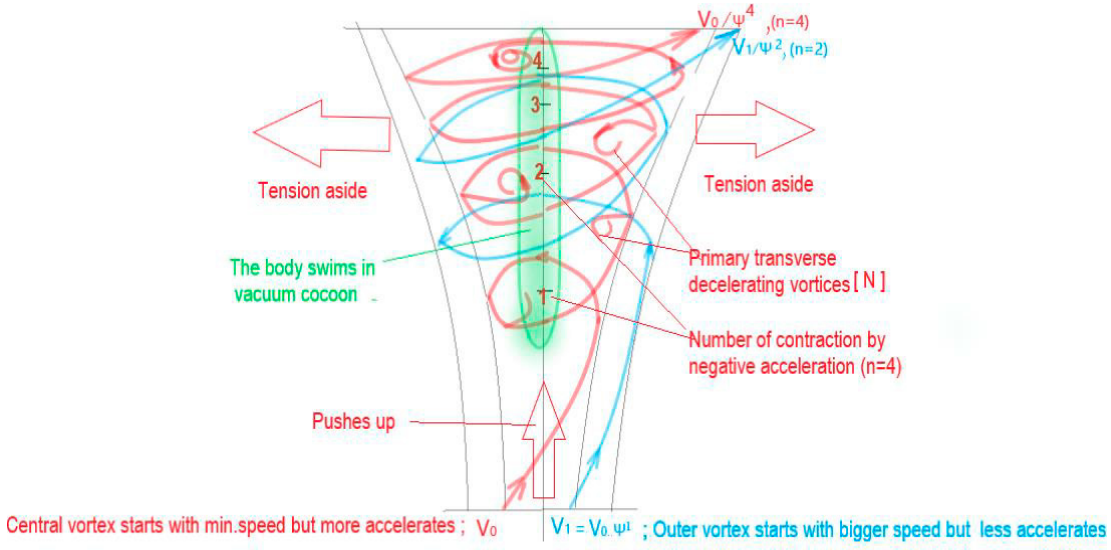

Figure 2: Decelerating Funnel opens Space (cocoon) inside which anybody moves without friction

2.4. Calculation of Decelerating Funnel

The every (j) vortex decelerates in every current (i) point ,where ,i=0-n, number (j) of vortices are from 0 to L: j=0-L.

The central (j=0) vortex has start parameters: V_0, W_0, ω_0, N_0. The magnitudes in every current (i) points are: $v_i = (1/\psi_i).V_0$, $w_i = \psi i.W_0$, $\omega_i = \psi_i.\omega_0$, $[N_i] = \psi_i.N_0$, (i=0-n), $[N_i]$ is the nearest integer.

The first (j=1) next outer vortex has start parameters: $V_1=V_0.\psi_1$,$W_1=W_0/\ \psi_1$, $\omega_1=\ \omega_0/\ \psi_1$, $N_1\ =N_0\ /\psi_1$. The magnitudes in every current (i) points are: $v_i=(1/\psi_i).V_1$, $w_i=\psi_i.W_1$, $\omega_i=\psi_i.\omega_1$, $[N_i]=\psi_i.N_1$, (i=0-n), $[N_i]$ is the nearest integer.

The second (j=2) next outer vortex has start parameters: $V_2=V_1.\psi_1$, $W_2=W_1/\ \psi_1$, $\omega_2=\ \omega_1/\psi_1$, $[N_2]\ =N_1/\psi_1$, $[N_i]$ is the nearest integer.

The magnitudes in every current (i) points are: $vi=(1/\psi_i).V_2$, $w_i=\psi_i.W_2$, $\omega_i=\psi_i.\omega_2$, $[N_i]=\psi_i.N_2$, (i=0-n), $[N_i]$ is the nearest integer.
The third (j=3) next outer vortex has start parameters: $V_3=V_2.\psi_1$, $W_3=W_2/\ \psi_1$, $\omega_3=\ \omega_2/\ \psi_1$, $[N_3]\ =N_2\ /\psi_1$. The magnitudes in every current (i) points are: $v_i=(1/\psi_i).V_3$, $w_i=\psi_i.W_3$, $\omega_i=\psi_i.\omega_3$, $[N_i]=\psi_i.N_3$, (i=0-n), $[N_i]$ is the nearest integer.

And so on….

The periphery (j=L) vortex has start parameters: $V_L=V_{L-1}.\psi_1$, $W_L=W_{L-1}/\ \psi_1$, $\omega_L=\ \omega_L\text{-}1/\ \psi_1$, $N_L\ =N_{L-1}\ /\psi_1$. The magnitudes in every current (i) points are: $vi=(1/\psi_i).V_L$, $w_i=\psi_i.W_L$, $\omega_i=\psi_i.\omega_L$, $[N_i]=\psi_i.N_L$, (i=0-n).

Result: The common formula for calculation is: vi= (1/ψi).Vj, wi= ψi.Wj, ωi =ψi.ωL, [Ni]=ψi.NL, where (i=0-n ,j=0-L), [Ni] is the nearest integer.

The shown construction (Figure 2) is not finished and must be completed with already known methods. It is better such Device to be covered with an additional detail.

2.5. Addition

This decelerating Funnel must be closed in front in the forehead, in order to separate a lower Pressure cocoon in which the body is located. For this purpose, the front part must have a more special shape of a **special nose (fairing).** This special nose allows the decision of so called Coanda effect. In modern aircraft and rockets, the shape of the nose (fairing) is designed to direct the airflow and control the formation of gas vortices around the body, reducing turbulent friction [8]. Thus, the body's own engine together with entire bubble-cocoon moves them forward without Friction (Not Figure).

2.6. Features

2.6a. The Primary Decelerating Transverse Vortices Are Short

According Law5 the decelerating vortex in final of the Funnel becomes sharply retarded and it throws out Primary transverse decelerating vortices from the periphery to center (in 2D plane) along its current radius (R_i). The peculiarity is that the Primary transverse decelerating vortices **do not reach the center** of the z-axis but swirl at a certain distance before this center. The result is that the Primary transverse decelerating vortices **take heat of the periphery** of the Funnel and introduce it into a strip the internal Space of the Funnel. Thus the Primary transverse decelerating vortices **cool periphery**. But they heat only this certain strip of Space around periphery and before the z- axis. The reason is that the Primary transverse decelerating vortices do not reach the very center of the z- axis but curl quite a distance before it (Not Figure).

2.6b. Inside of Cocoon the Pressure is Lower

We saw that the Primary decelerating vortices do not reach the center. They curl inward before the z- axis. In addition, due to the sharp expansion of the Space inside the Funnel, **the Pressure drops** and some kind of vacuum is formed. This strip in center along z-axis with vacuum plays the role of a **heat insulator**. The result is that the core of the Funnel as narrow **strip along z-axis becomes cool**. The good thing is that this is exactly where the body that moves with the Funnel is located. Therefore, the body that moves in center **also stay cool**.

3. Advantage

According Law5 the Primary decelerating transverse vortices are directed from periphery shell to center .They carry warm from shell to center. Thus **the shell itself becomes cool**.

Because Primary transverse vortices are shorted ,they do not reach z-axis and around z-axis is formed Space (Volume) without vortices. At the same time the internal Space of Funnel sharp increases. This forms **vacuum that is isolator**. Therefore the Space around the very central z- axis of the cocoon becomes cool and the moving **body stay also cool**.

This construction of a decelerating Funnel around the body **distorts Space -Time**. Therefore the body becomes **invisible** [6]. The device has **higher maneuverability** because the Funnel has **lower inertia**. The reason is that the decelerating Funnel consists of the vortices. The vortices have relatively lower inertia and it is lower than the air bubble around the torpedo, for example [8,9].

The described method for movement of body inside the decelerating Funnel is suitable both for movement **in an air environment and** in a water environment [2].

References

1. Landau, L. D., & Lifshitz, E. M. (1980). *The classical theory of fields* (4th ed., Vol. 2). Butterworth-Heinemann.
2. von Kármán, T. (2022). *Aerodynamics, gas dynamics, and hydrodynamics* (Russian ed., translated from English). Regular and Chaotic Dynamics Publishing House. ISBN: 5-93972-094-3.
3. Markova, V. (2003, 2005). *The other axioms* (Monographs, Books 1–2). Nautilus.
4. Markova, V. (2015). New axioms and structures. *Fundamental Journal of Modern Physics, 8*(1), 15–24.
5. Markova, V. (2017, December 11–12). A generator using a tube of longitudinal accelerating open vortices nested one inside the other for positive feedback. In *Proceedings of the 3rd International Conference on High Energy Physics*, Rome, Italy.
6. Markova, V. (2022). Properties of the new time-space with a constant path (Sconst.). *Acta Scientific Applied Physics, 2*(5), 7–17.
7. Markova, V. (2025). Causal description of natural system

according theory of new axioms and laws. *Advances in Theoretical & Computational Physics, 8*(4).

8. Nesteruk, I. (Ed.). (2014). Supercavitation: *Advances and perspectives. Springer.*
9. Park, S.-H., Nguyen, V.-T., & Park, W.-G. (2024). Numerical investigation on supercavitation hydrodynamics of high-speed water entry projectiles under effect of different head shapes. *Ocean Engineering.*