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BEHAVIOR AND MOVEMENTS OF BODIES HAVING AN ADAPTED OBLONG FORM IN AN ENERGETIC EVTD^2 ENTIRELY QUANTUM SPACE-TIME

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Abstract: *This paper, in EVTD^2 theory, is an extension of publication [1], whose principal consequences are used in a tentative to define the ideal adapted form of an object. The proposed one, inside the EVTD^2 theory hypothesis, allows considering it as naturally moving close to the light speed c. This linear movement initiation is, here, done by the vacuum energy and, more precisely, by the actions of Electromagnetic Primary (Mother) Wave (EMW) longitudinal propagation vectors. More, its proportionality ratio width/height is very close to Golden number, who is famous as a very good criterion for an ideal energy sensor.*
Key words: *EVTD^2 Theory, vacuum energy, fully quantum space-time, Golden number.*

1. INTRODUCTION

It is about trying to answer to the enigma: which are the physical phenomena participating to the "motor" acting on celestial bodies as well as on electrons, among others, in their known particular movement?

The present study follows those developed in the paper [1] relative to the natural movements of different bodies or groups of bodies. Some refinements and precisions will be here in-depth and more detailed, especially concerning the most adequate body's form. It was already proven as an excellent diffuse energy sensor (i.e. in the EVTD^2 entities theory, the energy generated by the action of EMW on a specific space-time substratum): this already allowed that its form ratio (width/length) was, in final, very close to Golden number = 1,618034. This observation from the previous paper [1] is in very good correlation with the other Golden number characteristics – it represents the ideal ratio for an object form. Thus the study [1] facilitates understanding, among other things, the two movements of the planet Earth: in orbit around the Sun (relatively to this study) and rotating on itself (the next paper published in the very issue of this journal). Characteristics of natural movements are a reflection of the actions of the EMW which, by its three components ***E, H*** and ***longitudinal propagation*** *p* by "pushed - tires", acting on natural objects of suitable form, allowing their movements and maintaining it over time. Here the correlations will appear between the form for the specified particular object of this study and forms of some galaxies such as the Galaxy Sombrero Fig. 1, for example.

With respect to the stars, the movements, trajectories (mainly, orbiting other celestial bodies) and their own rotations around one of their axes, have been observed and are now known. In the case of electrons, similar to previous movements them attributed are derived from the conclusions of current scientific knowledge: gyrations of the electron around the atomic nucleus and its rotation on itself sometimes equated to its spin state.

Now, it seems that, *other tools of understanding would be necessary* for developing a representative image of major characteristics for the "motor" of these natural movements! I.e. what are the primary phenomena that initiate these movements and how they are generated, surely similarly, in the vastness of the universe, just as in the subatomic smallness of condensed matter? For what concerns some movements of stars in the Cosmos, astrophysicists have estimated that our planet Earth, contained respectively in the solar system and the Milky Way Galaxy (spiral galaxy), could be globally animated of speeds in space of 369 ± 10 Km/s, according to semester. At known speed of the Earth who is trained in the dynamics of the solar system, own Milky Way Galaxy translation and rotation speeds (*220 Km/s*) are further added. Gravity can only poorly explain such movements, especially the bodies' rotations on themselves, and therefore, other concepts for understanding the existence of such speeds in sidereal vacuum, as well as in the subatomic dimensions are necessary.

Since a few years we have EVTD^2 entities theory [2-7]. Basically, this theory takes into account the energy of the vacuum which would be, ultimately, the result of the vibrating actions of EMW on some (not defined so far) element of space-time that we called "*substratum*". It would be an element, strongly important to our current means of investigations, intermediate between nothingness and condensed matter. This "*substratum*", if it will be better defined someday as something real and isotropic (substrate of space-time), allows to understand the emergence of this vacuum energy.

Mechanically, *energy is defined*: as *the potential to perform work*. It is, therefore, that all of space-time, partially occupied or non-occupied by the condensed matter, would be an (extremely fine) 3D texture wherefrom *a certain type of work could actually emerge under certain conditions*.

2. STUDY OF AN IDEAL FORM OF A BODY ANIMATED AT THE SPEED *c*

The Earth is a planet of oblong shape, namely, it is not perfectly spherical introducing, inter alia, bulges in some parts of its surface. High terrestrial mountains as well as the non-uniformity (continents and oceans of different depths) lead to some profiles and different densities of surface, in which the action of EMW will surely apply differently.

To begin the study, in relation to the above findings, we will focus to a particular oblong form quite similar to what everyone has ever seen. This is the image that is often proposed to be a UFO or even the image of the Sombrero Galaxy which is reported in fig. 1.

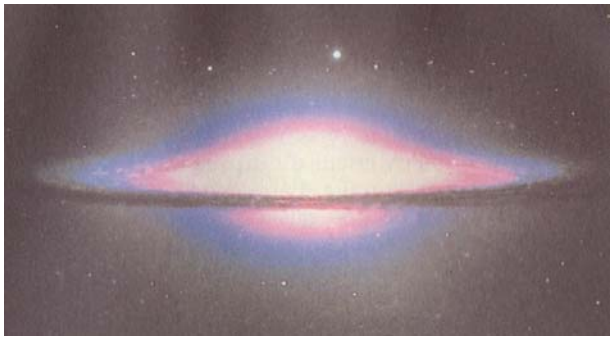


Fig. 1. The image of Sombrero Galaxy obtained by astrophysicists.

For the simplicity of the study, we will consider a very small body which has a relatively small number of EVTD^{2}entities, to include an appropriate section of its volume. We found above that the translation of a body by the universal action of EMW could not be carried out if this body has not a certain number of asymmetries and symmetries. Therefore, the chosen form presents in his profile some disparities for the study. The median length of this elongated form contains an even number of entities EVTD^2 plus a fraction of entity dimension: the choice was of 8.1 lengths of EVTD^{2}entities (Fig. 2). In addition the vertical profile of the left side of the dome, representing the top portion of this form, presents a very light asymmetrical bulge over the same profile on the right side of this dome.

Contrarily, for the bottom dome, the profiles are reversed and it is the right part which, then, presents a slight bulge on. Points on the schemas are not strictly necessary to the object, they are there to better include the accurate

joints of domes above and below with the median "cord" of the representative section.

This object, in an initial position relative to the topology of the mesh of the entities EVTD^2, can be considered, for example, as shown in figure 2. The same study approach will be pursued for the possible movement, by taking account the result of the piecemeal actions of EMW in all section of this study object. Then, it could result, for a lap of time Δt (i.e. during an EMW alternating), that movement may be generated in the positive direction of x. Intermediate positions, characteristic of the object displacement relative to the mesh of the EVTD^2 entities, are presented successively in Fig. 2, b till the representation of figure 2, j.

To check this, just do a report of EMW alternating pushed and pulls in any section of the object of study, during various spatial circumstances from the different positions of transfer in the adopted direction (to the positive x). It is to be noted that in the context of EVTD^2 entities Physics, just as for current physics, the maximum object displacement during an EMW alternation may not exceed the length of the cube entity edge; otherwise its speed would be greater than the speed c of light. In fact, in the theory of EVTD^2 entities, c is a succession of shocks - impulsions of the electromagnetic wave (EW) [9] alternatively in instantaneous speed and in time to wait for the next alternation which provides, therefore, again a progression of an entire entity in the same sense. As a prolongation of this study [9], in the paper [10] an explanation, correlated with the EVTD^2 entities theory, of the light speed limitation for any material body was proposed.

Light travels, sequentially, two entities EVTD^2 during an EMW period, giving an average speed of about 300000 Km/s, not continuous: thus, we can say that this speed is quantified. For the convenience of different circumstances analysis, for the possibilities of object transfer horizontal lines (or strings) in the object will be numbered 1 to 5 from the top to the bottom of this section (Fig. 2).

Thus, the general resulting count will be easily exposed and the overall resultant force will indicate if the translation may still continue or not for part or will stop at this stage, by emergence of a resultant force contrary to the previous animation.

Therefore, *for a movement towards the positive x, the general resulting force must be pointing to the right of the figure and, it will be referred to as "pushed"*. In the case of *a zero general resulting force,* the "motor" action for displacement becomes then absent, and the body can continue to progress only by inertia if no contrary force, to this movement, is not settled shortly after.

Finally, last case is about the appearance of a general resultant force, contrary to the previous movement and, which will be referred to as "pull", developing at a given time, depending on the circumstances. This will be sufficient to stop the ongoing displacement. An extra precision is to admit, for a partially filled with condensed matter EVTD^2 (as in the simplified diagram), that it does not change the pushed or pulled action in progress because in the EVTD^2 entities theory every point in entity receives instantly what all others undergo. EVTD^2 forms marry the forms of the body as all internal points must be identical.

So, even if the number of points in an entity (in the simplified diagram) is low the current *action in it is somehow quantified* and it will be equivalent to the same action in another EVTD^2 which is completely filled with condensed matter.

We can now start making detailed counting of the five linear resultant forces on each of the five lines in the section of this oblong object. Then we shall indicate the general resulting for each of the consecutive configurations of the object relative to the EVTD^2 mesh.

These indications will be in each of the tables 1 to 10 relating to each of the ten schemes. In tables 1-10 different resulting linear forces are represented by: P for push; T for pull; N for zero.

Of course we will first examine, the starting configuration, presented in Fig. 2, a. Its associated Table 1 indicates a global resultant force as *one push to right.*

The beginning of moving the object to the right is therefore initiated to the position shown in figure 2, b, which presents a change in

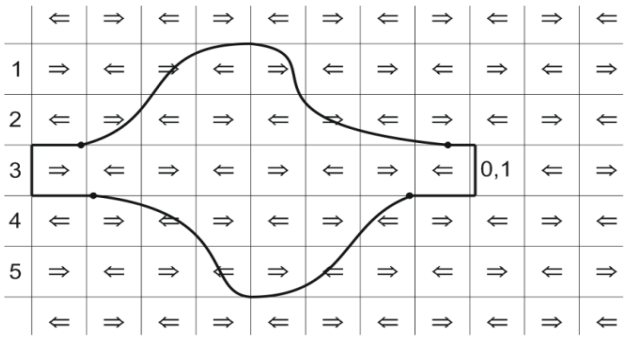
previous circumstances. Indeed the distributions remain (as defined in table 1) till to the immediate vicinity of the position represented in figure 2, b. We will therefore analyze the distributions and the resultant force relative to this new position occupied by the object.

Table 1.

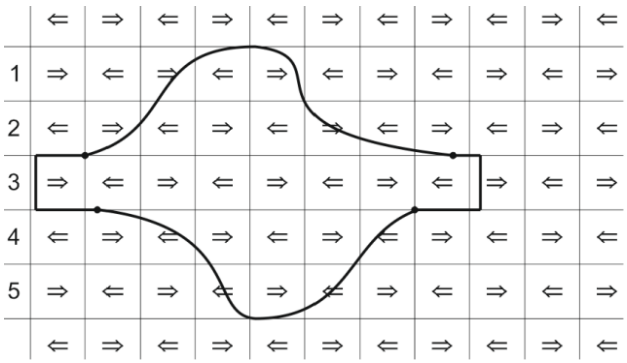
Forces in the case of figure 2, a.

Lines	1	2	3	4	5
Linear forces	P	N	P	N	T
Global resulting force	ONE PUSH				

Table 2, related to circumstances represented in Fig. 2, b shows finally that there are *two pushes as global resultant force*. Thus, the displacement to right can continue till, at least, the end of same configuration that will change at the next possible stage, shown in figure 2, c.



(a)



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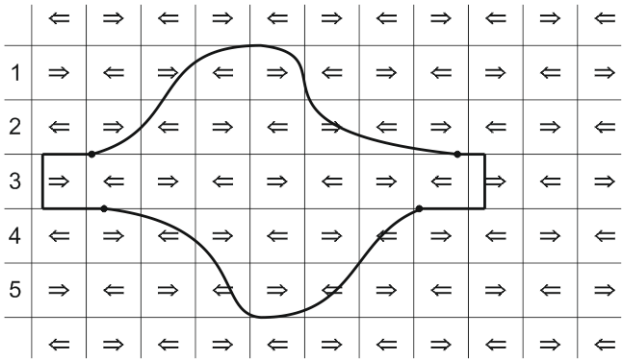

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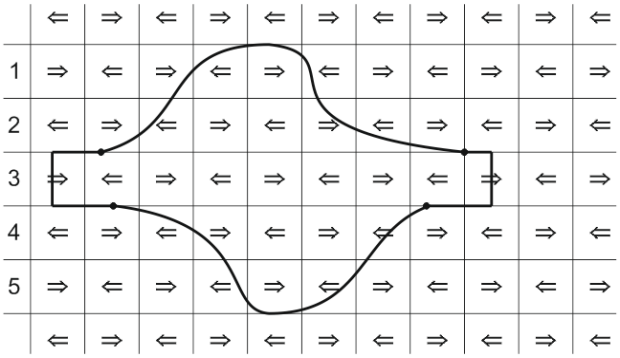

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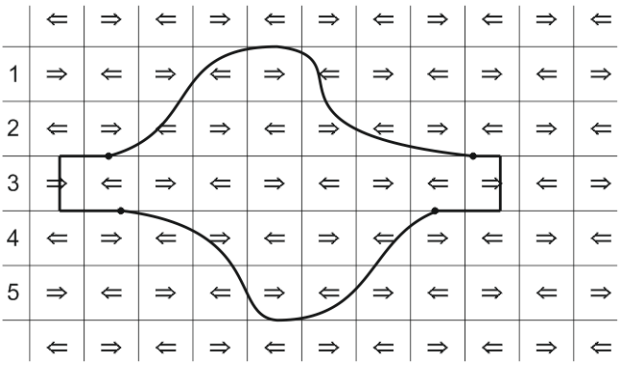
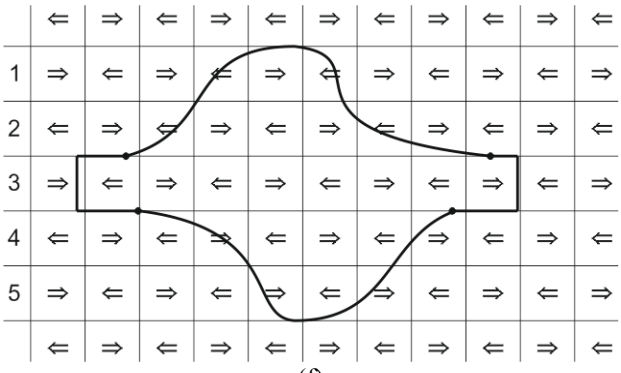
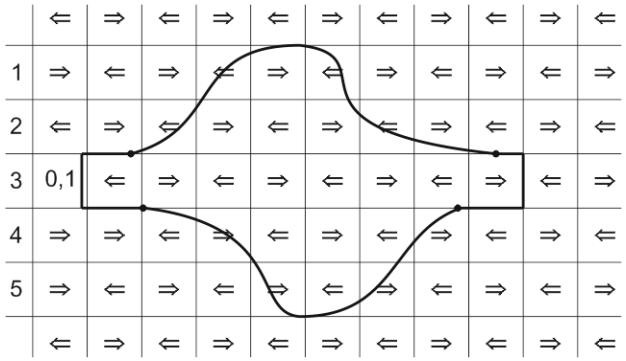


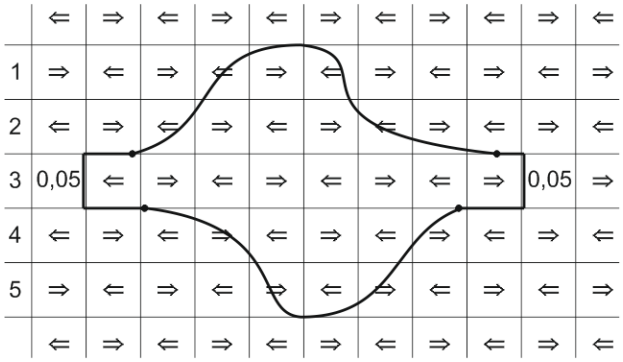
(e)



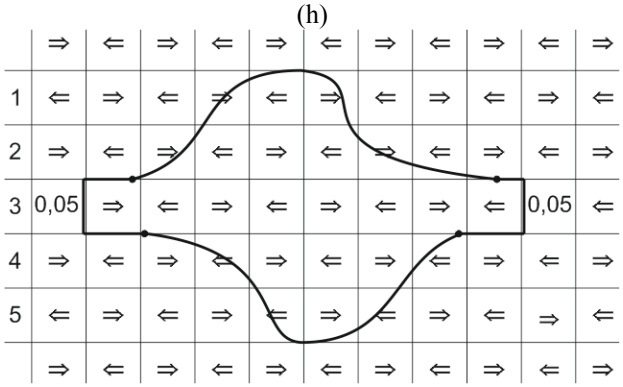
(f)



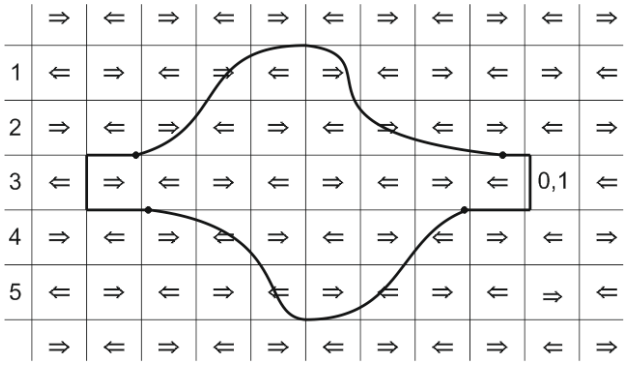
(g)



(h)



(i)



(j)

Fig. 2: An object of particular oblong shape in space-time *EVTD*^{2}: from (a) till (j) different configurations of object transfer with an EVTD^2 entity length during approximately one EMW alternating.

Table 3, related to circumstances represented in Fig. 2, c shows finally that there are, as in the previous case, *two pushes as global resultant force*.

Thus, the displacement to right can continue till, at least, to the end of same configuration that will change at the next possible stage, shown in figure 2, d.

Table 2.

Forces in the case of figure 2, b.

Lines	1	2	3	4	5
Linear forces	P	P	P	N	T
Global resulting force	TWO PUSHES				

Table 3.

Forces in the case of figure 2, c.

Lines	1	2	3	4	5
Linear forces	N	P	P	P	T
Global resulting force	TWO PUSHES				

Table 4, related to circumstances represented in Fig. 2, d shows that there are, in this case, *three pushes as global resultant force*. Thus, the displacement to right can continue till, at least, to the end of same configuration that will change at the next possible stage, shown in figure 2, e.

Table 4.

Forces in the case of figure 2, d.

Lines	1	2	3	4	5
Linear forces	N	P	P	P	N
Global resulting force	THREE PUSHES				

Table 5, related to circumstances represented in Fig. 2, e shows that there are, in this case, *two pushes as global resultant force*. Thus, the displacement to right can continue till, at least, to the end of same configuration that will change at the next possible stage, shown in figure 2, f.

Table 5.

Forces in the case of figure 2, e.

Lines	1	2	3	4	5
Linear forces	N	N	P	P	N
Global resulting force	TWO PUSHES				

Table 6, related to circumstances represented in Fig. 2, f shows finally that there is *one push as global resultant force*. Thus, the

displacement to right can continue till, at least, to the end of same configuration that will change at the next possible stage, shown in figure 2, g.

Table 6.

Forces in the case of figure 2, f.

Lines	1	2	3	4	5
Linear forces	T	N	P	P	N
Global resulting force	ONE PUSH				

Table 7, related to circumstances represented in Fig. 2, g shows finally that there also is *one push as global resultant force*.

Thus, the displacement to right can continue till, at least, to the end of same configuration that will change at the next possible stage, shown in figure 2, h.

Table 7.

Forces in the case of figure 2, g.

Lines	1	2	3	4	5
Linear forces	T	N	P	N	P
Global resulting force	ONE PUSH				

Table 8, related to circumstances represented in Fig. 2, h shows finally that there is, in this case, equivalence between push and pull and this drives to the conclusion that *the global resultant force is zero.*

Thus, *the displacement to right is no more activated by a motor force*. More, during this first alternation, the body travelled almost a length of the $EVTD^2$ edge (at 0.05 closely).

Therefore, *the state of the $EVTD^2$ meshing in opposite alternations is imminent*.

Table 8.

Forces in the case of figure 2, h.

Lines	1	2	3	4	5
Linear forces	T	N	N	N	P
Global resulting force	ZERO				

The configuration of the object, in Figure 2, i, remains in the same spatial location but as expected, the alternating of EMW are reversed. Table 9, related to circumstances represented in Fig. 2, i shows finally that there is, instantly, in a symmetrical mode, *a global resultant force is kept zero* despite the complete change of alternating.

This is perfectly understandable since the symmetry, *in this case full reverse* of push and pull, of a zero resultant force is not other than a zero resultant force.

Table 9.

Forces in the case of figure 2, i.

Lines	1	2	3	4	5
Linear forces	P	N	N	N	T
Global resulting force	ZERO				

Therefore, a small transfer of at least 0.05 edge length $EVTD^2$ to the right, by inertial motion, ***can be done since there is no contrary force*** since the beginning of the diagrammed position in Fig. 2, i.

If this tiny supplementary transfer occurs quickly enough at the beginning of the new alternation, the object in a situation identical to the one of figure 2, a (Fig. 2, j) that can be found, only he moved with an $EVTD^2$ edge length.

So, the circumstances previously described will be able to renew itself exactly to the same, what is mentioned in table 10.

A new increment of global displacement, identical to the previous evolution, which will still be more close to an $EVTD^2$, will be able to be, in total, during this second alternation.

Immediately after this will be: so on, following the tempo of the alternations of EMW, on frequency of Planck!

Table 10.

Forces in the case of figure 2, j.

Lines	1	2	3	4	5
Linear forces	P	N	P	N	T
Global resulting force	ONE PUSH				

It is therefore, that in a period of EMW, in principle the progression of the object motion to the right was two lengths of $EVTD^2$ entity: i.e. *this form of object can theoretically to move at the speed of light c*. Admittedly, this is far from being trivial, even though this is a currently hypothetical consideration in the context of the new physics of $EVTD^2$, which asked in this case to be confirmed.

So there is of great interest for humanity to test this theory and also this type of primordial consequences, which offer opportunities *to provide objects capable of going very fast speeds, using at will the energy of the vacuum*.

In conclusion of this approach, it appears therefore that the shape of the studied object would present excellent characteristics, shown previously, on its ability to ideally capture the energy of EMW in $EVTD^2$ entities, which is currently called the vacuum energy.

3. EVIDENCE OF THE GOLD NUMBER IN THE SHAPE OF THIS OBJECT

If one calculates the ratio between the length-width and height of the studied object, i.e. here the 8.1 $EVTD^2$ of the length-width and 5 height $EVTD^2$ that have been identified, we end up with the value of 1,6200 which is very close to the value of the Golden ratio equal to 1,618034…

If the 5 rows (or strings) of $EVTD^2$ as the height of the object is retained, to more accurately correlate the ratio length / height to the value of the Golden ratio, it should have been reason previously with an equivalent length of the object to: 8.09017 $EVTD^2$.

Initial intuition that allowed to chose the two dimensions of the quasi ideal object concerning its capacities as very good energy captor, proved to be a very good approximation in taking into account the optimal shape. Therefore, the study that allowed the specific symmetries and non-symmetries refinement and repartitions of this object's shape, proved to be consequent and was done through many trials.

4. CONCLUSION

It may appear from this fact that the Gold number of antiquity is not primarily a feature relating to the architectural beauty, which nevertheless is the best-known way to its memorization by humanity.

But this specific study claims to show that it is, to say the least, very important in respect more or less exact in the proportionality between two dimensions, for the structures of a number of elements forming part of the arrangement of all the universal Nature.

In the study [11], also published in this issue, was suggested that the Golden number could be too the representation (in numeric significance, without decimals digits) of EMW wavelength in the cosmic vacuum. While, the Planck length would be the wavelength of this very EMW, a little modified by the terrestrial environment.

It is then obvious that for natural structures, approximating more or less well this Gold proportionality (some stars or galaxies in the Cosmos, for example), they can be animated at various speeds; *mainly by the energy of the* $EVTD^2$ that is the energy of the vacuum.

Here the form, which has been determined for this object with the ability to be animated to speed of light *c*, accredits the power of the vacuum energy on a form ideally contoured, relatively similar to the shape of the Sombrero Galaxy.

It comes, by analogy, that the Earth, even if it has a shape much less optimized that those of the studied object, could move in the space (Sun system and Milky Way Galaxy) with speed much inferior to the light speed. Thus, the natural objects movement (celestial bodies and electrons, for example) could be explained by the $EVTD^2$ entities theory: here the gravitation helps only to explain the Earth trajectory curvature, which initially would be linear.

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Rotaţia naturală în jurul unei axe interne pentru un corp magnetic de formă oblongă adaptată, în timpul deplasării liniare, într-un spaţiu-timp cu vectori alternativi EVTD^2

Rezumat: Prezenta lucrare, în cadrul teoriei entităţilor EVTD^2, este o extensie a publicaţiei [1] care iniţiază mişcarea de rotaţie în spaţiu, de-a lungul unui traseu natural liniar (ca de exemplu, cel al Pamantului în jurul unei axe interne şi pe orbită), a obiectelor magnetice cu forma usor asimetrică şi ideal adaptate. Cele două tipuri de rotaţii sunt studiate simultan, ţinând seama de schimbările conjuncturale de-a lungul parcursului: ceea ce poate reprezenta atât mişcarea Pământului cât şi mişcarea electronului. Raportul de proporţionalitate al formei laţime/înalţime este foarte apropiat de Numărul de aur, ceea ce adaugă, celui din urmă, calitatea de foarte bun captor de energie, mai ales în interiorul ipotezei existenţei entităţilor energetice EVTD^2 ca şi constituienţi ai spaţiului – timp.

Comportements et mouvements des corps de frome oblongue, adaptée dans un espace-temps énergétique EVTD^2 entièrement quantique

Ce travail, en théorie EVTD^2, est un prolongement à la publication [1] dont les principales conséquences sont utilisées dans ces essais de définition d'une forme d'objet idéalement adaptée. Celle proposée, dans les hypothèses des entités EVTD^2, permet de préconiser pour un tel objet sa mise en mouvement naturel proche de la vitesse de la lumière c. De plus son rapport de proportionnalité largeur / hauteur est très voisin du nombre d'Or qui est réputé être un très bon critère pour un capteur idéal d'énergie.

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