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CHARACTERISTICS AND PRIMARY OPERATING OF AN ENERGETIC SPACE-TIME (QUANTIC, VIBRATORY AND ELECTROMAGNETIC), SUPPORT OF THE CONDENSED MATTER, INDUCE THE FOUNDATIONS OF A NEW PHYSICS BASED ON QUANTIC ENTITIES EVTD²

Michel CONTE, Ileana ROȘCA

Abstract: In this paper are proposed suite and additions to the assumptions of [1-2], in quantum gravity EVTD² [3-10], relatively to the quantum gravity potential energy, specifically studying the circumstances around the zero resulting potentials. With regard to the attractive and repulsive effects of electric charges of opposite and same signs, the notions of black holes and white holes respectively positioned at the level of the resulting potential zero of these pairs of loads are rappelled. Moreover, in quantic EVTD² theory, a demonstration, by Doppler-Fizeau effect, tends to develop as that the Golden number (1.618033...) would be the referenced expression, (without the 10^{-35} m), of an identifying Cosmos dimension correlated to the Earth with the Planck length ($1.616252 \cdot 10^{-35}$ m). This would represent, on one hand, the EMW wavelengths original of the Cosmos and, on the other hand, its modulation in the terrestrial environment moved in the Universe to the absolute speed of approximately 369 Km/s [11].

Key words: Quantic potential, Quantic compacting, Quantic Gravity EVTD², Quantic Substratum, EVTD² entities theory.

1. INTRODUCTION

As proposed and many times recalled [13-18], in EVTD² entities theory the structure of the energetic space-time would be very finely tri-quantic and more, animated by an primary coherent electromagnetic wave (EMW). It formats and structure thus the quantum distributions of space in small deformable cubes: EVTD² entities. All this would be, for the entire universe, a relatively uniform coherent background till any condensed matter body just add, in a defined area, a special energy concentration ($E=mc^2$) [19]. But in the case where a physical object exists, this material (a singularity in this case) is itself structured in EVTD² entities (cubic volume of approximately $0.5 \cdot 10^{-105}$ m³). This has the effect of disrupting the intrinsic uniformity of space-time by introducing specific fields and curvatures of the EVTD² entities, which more

or less modify the stable characteristics of this space-time. This coherent background is composed from something (because otherwise nothingness does not physics) is what is currently appointed by the unspecified term of diffuse energy.

With regard to the new physics EVTD²: in this Coherent background would exist a *substrate* of something that has been called here *Substratum* [10, 13-17] and, which would give this diffuse energy by its vibratory animation of EMW. Even the demonstration $E = mc^2$, based on EVTD², verifies [19] without postulate that mass is an energy realization and a concentration of this equivalence: ***the energy (in mechanics) is a potentiality to do mechanical work.*** The *Substratum* can be correlated to current notions of *dark energy* and *dark matter* as being an identical and common substrate but with quite different densities and subject respectively to positive and negative

pressures [10, 19] in space. These opposite signs pressures allow to explain the foundations of gravity but also the why of the Universe expansion.

The primary electromagnetic wave (EMW) therefore induces *a basic electromagnetic composition to any Coherent Background of vacuum as well as of the condensed matter itself*. More, the vacuum of condensed matter in space, of Universe dimensions till in the atomic nucleus, is preponderant: it indeed represents about 95% of the overall volume. This wave propagation is longitudinal, which structure the joined EVTD² in cubic volumes that are "pushed" and "pulled" during tiny laps of time, of the order Planck's half-time ($\sim 2.695 \cdot 10^{-44}$ s).

The quanta energy levels took into account for the study of quantic gravity in EVTD², are calibrated from Planck quantum h . This was initiated by considering the "black body" emission of bodies in space-time due to their intrinsic temperature [20-22], which structure quantic gravitational fields in quanta h . With regard to the electrostatic attraction and repulsion, as the results be suitable, it was necessary not to consider anymore the h quantum, but a higher energetic value: in this case the electron volt (eV) [23]. This allows to find the hierarchy of the electrostatic forces reported to the magnitude order of gravitational force.

2. BASIC TRI-QUANTIC SPACE-TIME CHARACTERISTICS RESULTING FROM ITS EVTD² STRUCTURING

So from the basics of quantum space-time EVTD² structuring, mentioned in the introduction, it is necessary to think about the physical phenomena which are generated, depending on various circumstances So from the basics of the design of quantum space-time EVTD², mentioned in the introduction, it is necessary to think about the physical phenomena which are generated, depending on various circumstances (in gravity, for the electrostatic forces etc.). Indeed, by its intrinsic characteristics and thus organizing a directing primary operation, according to the nature of

the considered situations it must design which allow the explanations attempts of phenomena and results duly observed.

Logically we must try as best as possible, to correlate the findings which were made by physics, particularly in regard with electrically neutral mass gravity and electrostatic forces between charged masses, for example. We already studied these two cases in the EVTD² entities theory [20-23] but the phenomenological behavior of the three major cases (gravity, attraction of opposite signs charges and, same sign charges repulsion) request to be more refined. Indeed, the electrostatic repulsion didn't had adequately explanation in this context compared to the two other types of forces which are, *primarily, the approaches* for the neutral masses and those of opposite electrical charges.

With regard to the great difference between the gravity and electrostatic forces, this was explained, especially, by the great differences between the energetic quanta levels implied in the two physical conjunctures, according to the quantic theory EVTD² [20-23]. As it follows of compaction or of divisions of these more or less intense energy levels (respectively the two attractions and repulsion), it results in the appearance of distinctly different intensity of forces. *The critical remaining problem is the understanding of the initiators phenomena of electrostatic repulsion between loads of the same sign* in this space-time. So what are the leading characteristics of this EVTD² space-time initiating at best these various and sometimes conflicting forces as the case? And this for significantly diversified circumstances in direct relation with the physical characteristics of each of these concerned material objects. Indeed in the case of *the attractive forces (gravity and electrostatic) on the one hand the concerned body are either of the same nature (electrically neutral) while they are, secondly, of opposite electrical charges. More, in the repulsive case, they both are similar in nature (as in the different case of the gravity) but here it's electric nature which is superposed on the carrier masses. So and so if results in an observed repulsion between*

these bodies. Understanding of all this seems quite simple at first glance!

It therefore seems that the logic wants us to accept and propose that in such EVTD² space-time there is a behavior and an operating generalized and primary that fits well enough to the various species that cause these three forces cases of duly observed by physics and recently studied in EVTD². In this case, it seems acceptable to propose a definition and also a global and primary characteristic of this quantum space-time. *These arise from the permanent vibration agitation of the EVTD² of this quantum space by the primary electromagnetic wave (EMW). The Substratum as well as the energetic concentrations (condensed matter bodies) are, imperatively, unless otherwise, set in motion by the vibrating animation as to get a structure and densities in substratum as uniform as possible.*

The tendency and initial and primary rule, for these material bodies, presumed in such a time-space, *would be that they could not be grouped together if their mutual connections add additional to that disparity to the one they generate individually.* An image that has already been used for this, is a bucket containing sand and various sizes of gravel mixed. This bucket in agitation will show finally a structure in various uniform and separate layers of sand and of different sizes of gravels. But there are many impediments to this structural and energetic uniformity: these include bond forces in condensed matter which then accounted for a simple energetic singularity as a physical concretization of energy ($E=mc^2$) [19]. According this approach it thus appears that *the primary and major characteristic of vibration work of OME would be to create actions having as consequences repulsive forces among condensed matter permanently.* Indeed in their environments, where exist their intrinsic fields (gravitational, electrostatic, etc.) **the distance between these masses should normally increase.** But then the physics is not automatically complete *as there may be circumstances opposing to these effect, which contrarily and finally could initiate, approaches (attraction) between neutral mass and opposite electric charges.*

That would be the presumption of *existence of mini black holes, at the level of the zero resulting potentials.* They would organize, with *the compaction work of substrate by the EMW vibration, positive pressures and phenomena, so saying, of attraction, but who are rather reciprocal approaches* [20-23] to the zero resulting potential on the centers of gravity axis inter masses. It is therefore *that composition, in Substratum, of EVTD² space can be, by no means, uniform in its various densities if there is the presence of one or more material bodies (electrically neutral or charged) and thus also their gravitational fields and correspondent electric surrounding.* More, these two types of fields must be equated to energy distributions which overlap with the own energy of the Coherent background himself.

On the other hand, with regard to the effect of repulsion between loads of same sign, *it would be the existence of mini white holes along the charges' centers axis that would generate the appearance of negative pressures (as it should be according to the general rule).* This would therefore train what is called repulsion, *i.e. more precisely the reciprocal spacing of these charged masses from this mini white hole.* The image that is usually given to a white hole is that it would be like a gushing fountain. What *is firstly materialized here, as an energy gap of the electric fields equipotential and, to finally also spread the similarly signs charges themselves,* since they are intimately connected to the equipotential. So, the case of the electrostatic repulsion is in agreement with the above defined concept, as being what should be the common behavior of any energy concentration in a space-time of entities EVTD². But, analyzing this situation more closely, there are, therefore, two material masses that are charged of similarly sign: there is competition between the approach by gravity of these masses and the electrostatic repulsion of electric charges. But as the power of the electrical repulsion (quanta in eV) is much stronger than gravitational attraction (quanta in h) it is the repulsion which prevails and induces the duly observed effect of spacer.

3. THE GOLD NUMBER 1.618034: THE REFERENCED EXPRESSION OF AN IDENTIFYING DIMENSION OF COSMOS CORRELATED FOR THE EARTH WITH THE PLANCK LENGTH

In what concerns the gold number, 1.6180339..., it is to be noted that a certain grandeur in physics is very close, except for orders of magnitude, it's the representative number of the Planck length (l_p), i.e. $l_p=1,616252 \cdot 10^{-35}$ m. By abstraction of the factor (10^{-35} m), for the l_p , one notes that these two very important concepts in their respective representative numbers are almost the same numeric expression. Is there a possible correlation between these two numeric expressions very similar to factor (10^{-35} m) near? And if yes, all this is relative to what? The account framework has some chance of being relative to Physics because is question of the physical grandeur of l_p , which is, itself, quite particular.

Indeed, the l_p is generally described as length from which the gravity would start to have quantum effects. Accordingly, the l_p would be, in the current state of physics, the minimum length that can be measured in a meaningful way. More in Super string theory l_p is defined as the minimum diameter of a string. The Physics of everything, of EVTD² entities type, seems the most suitable to enable a better connection, the less intellectual, between these two numerical expressions that are apparently very remote from another on their values and responsibilities.

It seems not possible to try to correlate the l_p with a proportionality: it is not a ratio of two lengths. So the easiest might be to equate the gold number, himself, with a very significant length but that would be extremely small intrinsic value with many zero decimal: why not 10^{-35} m? Presumably that is what would have prevented any suitable memorization of such magnitude, it was therefore necessary to adopt a "clever representation" that makes much easier to pass memory. It can therefore continue this track which is drawn in a kind of assimilation of the golden ratio to a comparable to Planck length but very slightly different. The

Golden number (1.6180339...) could then be equated to the referenced expression of an identity dimension of the Cosmos which for Earth is correlated with the length of Planck l_p in vacuum [11].

Moreover, in the new physics of EVTD² entities can clarify, once more, that the Planck length was taken as wavelength of primary OME that is received and spreads such modified to the surface of the Earth in terrestrial Substratum which it is intimately connected, i.e. in the vacuum of matter. So, it would be known that, in the context of the theory of EVTD² entities, the Earth as well as its Substratum layer (which is closely related) travel constantly at a certain speed in space-time of the Cosmos. It is the "absolute" speed, as was estimated by astrophysicists, 369 ± 10 Km/s, following the semester, the Earth would move in space-time of the Universe. On the other hand, always in EVTD², space-time is formatted as cubic entities and joined specially two in the three directions. Thus, it is a universal and quantum space-time which, in absence of condensed matter, somewhat perturbative in this case (curvatures), is homogenously organized and perfectly stable over time.

All electromagnetic waves (EW) including EMW spread, especially in the unique Substratum at the same speed c (speed of light), in the conjuncture of the Earth surface where this speed was only, at the moment, measured in vacuum. Thus the representation of all this, as part of EVTD² entities theory, the space-time is as follows: it is a Universal Coherent Fond consisting of a vast 3D matrix formatted in all small cubic jointed entities forming frames ultra-refined and stabilized. In such a Fond the "packets" of different concentrations in energy levels, sizes and forms that are ultimately *the masses of the corpuscles and bodies, move with their absolute speeds because this Fond would be the Universe of perfect stillness absolute repository* (zero speed absolute). But it represents a temporal 3D canvas, which is animated, in a vibratory manner, absolute tempo which is given by rhythm of primary EMW absolute frequency that formats, by is propagating at the speed of light.

The absolute frequency of primary EMW is currently indeterminate, contrarily, within the framework thus defined, we can claim that the EMW frequency received and felt by the Substratum on the Earth surface, moving in this Fond, could have the same values as the frequency derived from the length of Planck and the speed of light c . The relationship between the wavelength (λ) and the frequency (f) corresponding to an EW is simple: $f \cdot \lambda = c$. Therefore, it becomes necessary to worry about transcribing the relations that link on the one hand, the frequency and the wavelength received and felt on Earth. This following its absolute speed but also perhaps the sense of her mobility in the Universal Fond with, on the other hand, the frequency and the wavelength of the primary EMW which structure this Coherent Fond.

For this, we should go to the Galilean Doppler-Fizeau effect and well understanding that the transmitter, as to be in analogy with this effect, may be considered having the absolute zero speed and it emits an EM signal on the frequency of initial and original EMW. This consideration on the Coherent Fond and his animation, which induces different animations in bodies in motion, is a sequel to the preliminary work, published in 2013, relatively to the determinations of the absolute speeds by Doppler-Fizeau effect [12].

While the receiver, the Substratum of the Earth's surface due to its absolute speed gradient in report to the Coherent Fond, will modulate the frequency and, hence, the wavelength of original EMW (signal somehow) that it receives during his cosmic displacement to approximately 369 Km/s.

In this case, it should be noted that there is no special conditions in the direction and sense of receiver motion because the texture of the Fond is fixed and further, the environment is admitted as being isotropic. Therefore, regardless of the orientation of the absolute movement of the receiver Earth, its speed (v_{rec}), in this case for the consideration of the Galilean Doppler-Fizeau effect, should all the time, depending on the compliance with this formalism, be counted in negative value because the receiver goes as against (to) the

transmitter (texture of Fond). So, the frequency of the received signal (primary EMW), at the speed of the Earth, will increase based on the latter. It remains only to transcribe the correct relationship of this Galilean Doppler-Fizeau effect adapting it to changing circumstances specific to this study. The relationship for an EM signal is written classically, when the receiver goes away from the stationary transmitter ($v_{em} = 0$) and its speed is not close to the value of the light speed:

$$f_{rec} \approx \left(\frac{c - v_{rec}}{c} \right) f_{em}. \quad (1)$$

But here, in accordance with the circumstances that have been defined, including the negatively considered v_{rec} , this general relationship becomes then, for v_{rec} , expressed in absolute value:

$$f_{rec} \approx \left(\frac{c + v_{rec}}{c} \right) f_{em} \approx \left(1 + \frac{v_{rec}}{c} \right) f_{em}, \quad (2)$$

where f_{em} is the frequency of the original EMW (emitted); f_{rec} is the received frequency on the Earth's surface from the modulated primary EMW; v_{rec} is the absolute speed of the receiver Earth and, $c = 299792,458 \text{ km} \cdot \text{s}^{-1}$ is the speed of light.

Here, it's better to show the relationship relative to the wavelengths on the one hand, emitted (λ_{em}) and on the other hand, received and felt (λ_{rec}). It comes in the end:

$$\frac{c}{\lambda_{rec}} \approx \left(1 + \frac{v_{rec}}{c} \right) \frac{c}{\lambda_{em}}; \quad (3)$$

$$\lambda_{em} \approx \left(1 + \frac{v_{rec}}{c} \right) \lambda_{rec}. \quad (4)$$

A first calculation will be performed, as a test, to try to see if the value found for λ_{em} (in its significant numeric expression) is close enough to the value of the Golden Number, using data that are recognized for average $v_{rec} = 369 \text{ Km} \cdot \text{s}^{-1}$ and $\lambda_{rec} = 1.616252 \cdot 10^{-35} \text{ m} = l_p$.

The result of this calculation gives the value for $\lambda_{em} = 1.618241 \cdot 10^{-35}$ m which is relatively close, numeric-expression (encrypted significant), to the value of the Gold Number without the factor 10^{-35} .

It may be a coincidence, almost perfect, between λ_{em} made significant expression and the Gold Number if one adopts for the absolute speed of the Earth the value of $330 \text{ Km} \cdot \text{s}^{-1}$. For this second calculation the value obtained for λ_{em} then becomes that of $1.618033988 \cdot 10^{-35}$ m which, without the factor 10^{-35} , is superimposed to the expression of the Golden Number.

Thus, the conducted approach allows to find a famous numeric expression (the Golden Number) starting from a constant with regard to ultra-size refined physics on Earth, i.e. the Planck length in significant numerical value for the needs of the cause.

The new physics of EVTD² entities and the consideration of the Galilean Doppler-Fizeau effect allowed, perhaps, the correlation between two bounds dimensional basis for references in physics. It is on the one hand, the wavelength of original and initial EMW, λ_{em} , and secondly for the wavelength λ_{rec} of EMW received and modulated by the absolute speed of the immediate environment of the Earth's surface in the Cosmos.

The fact that the absolute speed of the Earth, which is best suited to the correlation between two numeric expressions, proves to be a relatively nearby value that is currently estimated in Astrophysics ($330 \text{ Km} \cdot \text{s}^{-1}$ for $369 \text{ Km} \cdot \text{s}^{-1}$) is an index comforting and encouraging to this approach. That would mean, continuing in the logic of this, that universal consistent bottom EVTD² cubes would have their edges formatted to the length value representative of the half-value of the Gold Number multiplied by the factor 10^{-35} , i.e. $0,809017 \cdot 10^{-35}$ m. While those that are formatted in the immediate environment of the Earth would be equal to one half-length of Planck length: $0,808125 \cdot 10^{-35}$ m. However it is also possible to think that in quantum theory EVTD² the basic lengths of entities are doubled, i.e. the l_P and the Golden Number multiplied by 10^{-35} .

This does not change actually the previous approach since the wavelengths that is

taken into account are both doubled. It follows that this does not change the results. Then, from this brick reference, why not brick of Gold by analogy, all the other dimensions of the structuring in entities EVTD² would ensue, overall, the original size of Gold. But also by taking into account of Galilean relativity (depending on each of their respective absolute speeds) to each of the bodies of condensed matter moving within the universe.

4. CONCLUSION

Taking account of the zero resulting quantum potential allow with some logic and *a certain number of positive findings*, to have an understanding which seems to be correct on the various processes involved in different types of attractive quantum gravity and electrostatic repulsion. The major importance of the zero resulting quantum potentials has been demonstrated by encryption of intrinsic essential conditions to this area inter mass and inter loads.

These are various work compacting and spacing of EMW, omnipresent throughout space-time, to induce these different phenomena on and around the zero resulting potential. It is proved that it is not, for example, the two masses who are attracted to each other but they are put into individualized approaches at different speeds (for non-equal masses), towards a common point which is their zero resulting potential.

Ultimately we can say that the masses and charges are doing nothing more but to participate in the resulting energy quantum potentials organization in hierarchy all around them. But it is the diversified EMW work initiating everything, especially from zero resulting potential. Strait with this, one is able to think that while the Gold Number would be the developer, it must be admitted somewhat hidden (within 10^{-35}), of a dimension value of the universal space representing the basic tiny brick of the entire universe organization.

If this would be proved a day, it should be recognized, in this case, that would be a revelation for scientific knowledge as for humanity, really amazing, especially for the

credibility of the physical entities EVTD²-based.

From this reference brick, why not Gold brick by analogy, all the other dimensions of the structuration in entities EVTD² would, overall, follow from the original Gold dimension and from taking into account of Galilean relativity (depending on each of their respective absolute speeds), particularly for the Earth.

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Caracteristicile și funcționarea primară a unui spațiu-timp energetic (cuantic, vibrațional și electromagnetic), ca suport a materiei condensate induc bazele unei noi fizici bazate pe entități zuantice EVT²

Rezumat: În această lucrare sunt propuse prelungiri și ipoteze ale lucrărilor [1-2] despre gravitația cuantică [3-10], relativ la potențialele gravitaționale cuantice energetice, prin studiul mai amănunțit al conjuncturilor create în jurul potențialelor rezultante nule. În ceea ce privește efectele atractive și repulsive ale sarcinilor electrice de semn opus și de același semn, se face apel la noțiunile de gaură neagră și de gaură albă, poziționate respectiv, la nivelul potențialelor nule ale acestor perechi de sarcini. Mai mult, în teoria cuantică EVT², o demonstrație cu ajutorul efectului Doppler-Fizeau tinde să admită că Numărul de Aur (1,618033..) ar fi expresia de referință (fără 10^{-35}) a unei dimensiuni identificatoare din Cosmos, corelată pentru Pământ cu lungimea lui Planck ($1,616252 \cdot 10^{-35}$ m). Aceasta ar reprezenta lungimile de undă ale EMW, pe de o parte, primară din Cosmos și, pe de altă parte, a modulației sale în mediul înconjurător terestru ce se deplasează cu o viteză absolută de aproximativ 369 km/s în Univers [11].

Michel CONTE, Ph.D., Honorary Professor of Transylvania University of Brasov, michelconte13104@gmail.com .

Ileana ROȘCA, Ph.D., Professor, Transylvania University, Design Product, Mechatronics and Environment Department, ilcrosca@unitbv.ro , Phone: 0040 744317171, 18/A/10, Bd. Gării, Brașov, Romania,