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ZERO RESULTING POTENTIAL ENERGETIC AND QUANTIC IN *h* INITIATE FREE FALL AND PROXIMITY OF MASSES IN QUANTIC GRAVITY EVTD^2. DESIGN BY SUBSTRATUM COMPACTING MODE (INTER MASS) DEPENDING ON THE EMW WORK

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Abstract: *In this paper are proposed the prolongations and the supplements of the assumptions of [1-2] in gravity EVTD^2 [3-10] regarding potential of quantic gravity energy, considering more precisely the circumstances around the zero resulting potentials. The levels' lengths of these quantum potentials, relative to the masses, there are found to be identical and their "relative frequencies" in energy levels per meter n_{qg} representing average linear density of energy in gravitational field for each of the masses. The relative mass of free falling bodies, doesn't matter and, this is explained by the positioning of the resulting zero potential in the mass of the falling body, which makes it non-representative in this type of gravity. Compaction of EMW is indeed, then, directly on the mass structure and not on its representative external potentials of this mass. Gravitation could be also expressed by the product of h by the number n_{qg}, i.e. $F_G = n_{qg} \cdot h$, analogous to photon energy.*

Key words*: quantic potentials, quantic compaction, quantic gravity EVTD^2, Substratum, EVTD^2 theory.*

1. INTRODUCTION

The introduction of publication [2] is, especially, primordial in the initiation of the understanding of the reason of different values of acceleration in free falling on celestial bodies such as Earth and moon. But the reason for non-representativeness of the mass value for each of the bodies (pen, 10 Kg etc.) is not explained in phenomenological process. For this, one needs to interest to specific circumstances and positions of resulting zero potentials between the star and the concerned falling body. Nevertheless, the study of the classical case of gravity between two masses sufficiently away, must be first conducted. In order to establish the bases of quantum gravity EVTD^2, essentially based on quantic potentials (in levels and in diffuse energy) and on the suitable compaction work of these potentials by longitudinal vibration of EMW (Electromagnetic Mother Wave).

This compaction is done through the matrix of the space called *Substratum* [3-10] called which is the tri-quantic composition of EVTD^2 (dimension, time and energy). The $E=mc^2$ demonstration in EVTD^2 checks, without postulate, that the mass is unique as being a concretization and concentration of energy.

Energy represents the potentiality to do mechanical work – therefore, if different quantic levels of *Substratum* are compatibles they could be compacted and amalgamated by EMW. But, more these levels are hierarchized digressively through the exterior of the masse with respect of their gravitational potential, more they are superposing and integrating with temporal spatial structure EVTD^2. EMW is also the "motor" generating the gravitational forces for compacting the gravitational potentials intimately tied to each mass. Thus, an action on one of potential will automatically reflected on the mass itself. According to [1-2], the length of these different segments (or quantic level) is specifically scalable and calculable for each case but, as a general rule, their length increases with the distance from the mass [1].

With regard to free falling, the fact that le zero resultant potential is positioned inside the masse of the falling body *causes compacting directly on the body's structure what makes its mass non-representative*. Thus, all light bodies are submitted to ***the same free falling process directly dependent on attractive masse characteristics***.

Further, in this study is also proposed to formulate classical gravitational force F_G as an energy equivalent, expressed analogous to photon. Indeed, this expression returns to write $F_G = n_{qg} \cdot h$, i.e. the product of Planck quantum h by a "frequency" that is relative in energetic levels/meter n_{qg} (representing a sort of average linear density of gravitational energy for each of considered mass).

2. AT ZERO RESULTING POTENTIAL THE LENGTHS OF RELATIVE QUANTIC LEVELS ARE EQUAL

In order to do these determinations relative to the spatial and energetic conjunction, well known mass were chosen: that means around zero potential between Earth and Moon and, the study will be in prolongation of [1-2].

Firstly, it will be necessary to determine the most precise position of zero resulting potential. The Earth and Moon characteristics are the following: $m_T = 5.9736 \cdot 10^{24}$ Kg and $R_T = 6378$ Km for the Earth and $m_M = 7.348 \cdot 10^{22}$ Kg, $R_M = 1737$ Km for the Moon. The two celestial bodies are at an average distance of 384400 Km. In zero resulting potential point O, the gravitational field between the Earth and the Moon is zero. Thus it can be written:

$$g_T = \frac{G_N \cdot m_T}{OT^2} = g_M = \frac{G_N \cdot m_M}{OM^2} . \qquad (1)$$

It follows that:

$$O_M = O_T \cdot \sqrt{\frac{m_M}{m_T}} = O_T \sqrt{\frac{7.348 \cdot 10^{22}}{5.9736 \cdot 10^{24}}} ,$$

which means $O_M = 0.110908927 \cdot O_T$. With

$$O_T + O_M = 3.8440 \cdot 10^8 \, m = O_T \left(1 + 0.110908927\right),$$

we can have:

O_T=346022964.3 m and O_M=38377035.7 m.

On the other hand, the gravitation universal constant is G_N=6.6742·10^{-11} N·m^2 Kg^{-2} and Planck constant values: h = 6.626068·10^{-34} J·s.

The ratio of these two constants is:

$$R_{Gh} = \frac{G_N}{h} = 1.007264 \cdot 10^{23} \, Nm^2 Kg^{-2} J^{-1} s^{-1},$$

giving, R_{Gh} that is also an universal constant. In [2], the A and B constants were mentioned, relative to the Earth and the Moon. In positive values they will be:

$$A = R_{Gh} m_T = 6.016992 \cdot 10^{47} \, Nm^2 Kg^{-1} J^{-1} s^{-1},$$
$$B = R_{Gh} m_M = 7.401376 \cdot 10^{45} \, Nm^2 Kg^{-1} J^{-1} s^{-1}.$$

More, in [1] and [2] the natural numbers n and r, representative of levels in h potential quanta, placed at a certain distance d_n and d_r from the gravity center of Earth and, respectively, of the Moon, were determined as:

$$n = \frac{A}{d_n}, \quad r = \frac{B}{d_r}. \qquad (2)$$

Numerical values of n and r are, for the particular position O of zero resulting potential, n_o, at a distance $OT = d_{no}$ for the Earth and, respectively, r_o, at a distance $OM = d_{ro}$, for the Moon. We can then evaluate:

$$n_o = \frac{6.01699245 \cdot 10^{47}}{3.460229643 \cdot 10^8} = 1.73889975 \cdot 10^{39},$$

$$r_o = \frac{7.40137614 \cdot 10^{45}}{3.83770357 \cdot 10^7} = 1.928595044 \cdot 10^{38}.$$

According [1] and [2], it is possible to know the positions of immediately next quantic potentials neighbors relative to n_o and r_o on a side and on the other of zero resulting potential. They will be the respective positions of decreasing levels n_o-1 and r_o-1, relative,

respectively, to the Earth and to the Moon. This can be written, according to [1] and [2], as:

$$d_{n_o} = \frac{A}{n_o}, \quad d_{n_o-1} = \frac{A}{(n_o - 1)}$$
$$d_{r_o} = \frac{B}{r_o}, \quad d_{r_o-1} = \frac{B}{(r_o - 1)}. \qquad (3)$$

Then, it can express the distance along which the level quantum $h \cdot n_o$ is settled and continues until the beginning of the next level immediately below, can be express as $(n_0\text{-}1) \cdot h$. This length of quantic level of $h \cdot n_o$ value (in energy) is given by the next relationship, arising from [1] and [2]:

$$d_{n_o-1} - d_{n_o} = A\left(\frac{1}{n_o - 1} - \frac{1}{n_o}\right) = \frac{A}{n_o(n_o - 1)} \approx \frac{A}{n_o^2}.$$

Similarly, for the length of the level $h \cdot r_o$, neighbor with the level of value $h \cdot (r_0\text{-}1)$*:*

$$d_{r_o-1} - d_{r_o} = B\left(\frac{1}{r_o - 1} - \frac{1}{r_o}\right) = \frac{B}{r_o(r_o - 1)} \approx \frac{B}{r_o^2}.$$

The n_o and r_o values are great and, thus, the used approximation are, here, justified. Numerical values of these two quantic levels, for the Earth and for the Moon are:

$$d_{n_o-1} - d_{n_o} \approx \frac{6.01699245 \cdot 10^{47}}{3.023772 \cdot 10^{78}} \approx$$
$$\approx 1.989895988 \cdot 10^{-31}\ m,$$

$$d_{r_o-1} - d_{r_o} \approx \frac{7.40137614 \cdot 10^{45}}{3.719367 \cdot 10^{76}}$$
$$\approx 1.989896018 \cdot 10^{-31}\ m.$$

So we can say that ***the zero resulting potential initiates, in its area, a remarkable equality between the two lengths of the respective levels in each of the masses***. This is perfectly coherent with the zero potential between two masses, relative to geometric and spatial characteristics of each mass. More, the magnitude order of levels' dimensions, about 10^{-31} m, is in good agreement with EVTD^2 entities' dimensions (about 10^{-35} m). This has to be integrated in report with the distances between Earth and Moon and the point *O* that measures many thousands of kilometers. By these results, we also find a good correlation with the theory of that structured space-time in quantic entities, which can be slightly deformable: the EVTD^2.

3. n_{qg} AND r_{qg} (AVERAGE REPARTION) OR "FREQUENCIES" ARE EQUAL IN ZERO RESULTING POTENTIEL

The quantic space-time in EVTD^2 is also characterized by its repartition in basic energetic quanta – Planck's quantum *h*. We must try to highlight such a feature, of energetic type, on the zero resulting potential. But, already, in EVTD^2 theory, the photon is described as an electromagnetic shock-impulsion propagating in a quantic space-time and produced by an electron, for example [12-16], on the cubic structure EVTD^2. For actual Physics, after Planck, the photon is a quantified energy by a multiple value of *h* according to the frequency of each electromagnetic wave.

The above recalled expression of *A* and *B* are equivalent to:

$$A = R_{Gh} \,.\, m_T = \frac{G_N \,.\, m_T}{h};$$
$$B = R_{Gh} \,.\, m_M = \frac{G_N \,.\, m_M}{h}.$$

If we consider in zero resulting potential point a mass equal to m_o =1 Kg, as to simplify the example, the gravity forces exerted by the Earth and the Moon will be equal and, hence:

$$F_T = \frac{G_N \,.\, m_o \,.\, m_T}{d_{n_o}^2} = F_M = \frac{G_N \,.\, m_o \,.\, m_M}{d_{r_o}^2}. \quad (4)$$

Multiplying them by *h*, the following ratio are found, for m_o=1 Kg:

$$F_T = \frac{G_N \cdot m_T}{h \cdot d_{n_o}^2} h = F_M = \frac{G_N \cdot m_M}{h \cdot d_{r_o}^2} h;$$

$$F_T = \frac{G_N \cdot m_T}{h \cdot d_{n_o}^2} h = \frac{A}{d_{n_o}^2} h = \frac{n_o \cdot d_{n_o}}{d_{n_o}^2} h = \frac{n_o}{d_{n_o}} h .$$

Defining $\frac{n_o}{d_{n_o}} = n_{qg}$, we can write: $F_T = n_{qg} \cdot h$.

Similarly, for F_M:

$$F_M = \frac{G_N \cdot m_M}{h \cdot d_{r_o}^2} h = \frac{B}{d_{r_o}^2} h = \frac{r_o \cdot d_{r_o}}{d_{r_o}^2} h = \frac{r_o}{d_{r_o}} h .$$

With $\frac{r_o}{d_{r_o}} = r_{qg}$ we can write: $F_M = r_{qg} \cdot h$.

It is possible to calculate the values of n_{qg} and r_{qg}, defined as:

$$n_{qg} = \frac{n_o}{d_{n_o}} = \frac{A}{d_{n_o}^2} =$$

$$= \frac{6.01699245 \cdot 10^{47}}{\left(3.460229643 \cdot 10^{8}\right)^2} = 5.02538828 \cdot 10^{30}$$

and

$$r_{qg} = \frac{r_o}{d_{r_o}} = \frac{B}{d_{r_o}^2} =$$

$$= \frac{7.40137614 \cdot 10^{45}}{\left(3.83770357 \cdot 10^{7}\right)^2} = 5.02538829 \cdot 10^{30}.$$

As expected by the equality of forces F_T and F_M: $F_T = n_{qg} \cdot h = F_M = r_{qg} \cdot h$, we shall find ***the numerical equality*** $n_{qg} = r_{qg}$. These results confirm the followed approach. Thus, these parameters represent the quotient between on the one hand, the natural number of energy level in quanta h in the considered point O of zero resulting potential generated by each masses and on the other hand, the distance from O to the concerned mass. These n_{qg} and r_{qg} *represent average linear repartitions of natural numbers characteristic of quantic levels* n_o and r_o *in report to distances* [m] *from zero resulting potential point O and gravity center of each mass.* These average repartitions could be understood as *pseudo "frequencies" that are not temporal (waves) but basically dimensional*. Thus, is possible the analogy with the temporal frequency of an electromagnetic wave whose product with h gives the wave energy: $E_{photon} = f \cdot h$, while for gravitation will be: $F_G = n_{qg} \cdot h = r_{qg} \cdot h$.

Thus, by quantifying the gravitational potential in quanta levels h, we can arrive to the conclusion that the gravitation force itself F_G could be expressed in quantic energetic equivalent, alike the photon energy. Fundamental difference between them is that *photon energy is depending in true frequencies that are functions of time, while the linear repartitions in quantic levels are spatial and geometric for gravitational force*. This corroborates well the fact that the photon is kinetic and gravitation is for the less potential and spatial (geometric). The time interferes in gravitation only when a displacement occurs and, then, the compaction work initiating the gravity is time based (as well as the falling, for example), being connected to the EMW frequency.

4. ZERO RESULTING POTENTIALS INITIATE DIFFERENT EMW COMPACTING MODES IN EVTD² GRAVITATION

Geometric characteristics identifying the zero resulting potential just were highlighted in the two previous sections. It's the same length of energy quantum level for the Earth and Moon and the other hand, of their same averaged distribution in the area of zero resulting potential. Therefore, in the context of the quantic gravitation theory in EVTD², by the compacting work of EMV, if there is a spatial inter masses zone where the assembling and compacting work of EMW on energetic level of *Substratum* can be primarily initiated, that would be around the zero resulting potential point. In case of masses closer by the gravity, the resulting zero potential point moves along the axis of the centers of gravity and, thus the compacting is primarily done on this axes.

Studies in [1] and [2], especially in the part 3 of [2] concerning the understanding the accelerations of free falling on Earth and on Moon, allowed to identify basic assumptions on compaction process in EVTD² gravity. In conclusion, it would be two types of compacting: on one side, on a quantic level composed of EVTD² entities as to transfer it in its neighbor

and, on the other side, the compacting work between two neighbor level having quite similar intrinsic characteristics. So as the previous numerical results show, the area of the zero resulting potential, suitable for EVTD^{2}gravity, has perfect similarities between the essential characteristics of the implementation of two masses approximation. The lengths of the quantum levels are precisely the same and, this allows to perfectly superimpose them by summing their respective quantum levels. This fact, as advocated in [2], *allows to favor especially the compaction in simultaneous mode that quite often overlaps, to compaction mode by piecemeal, imperative, within each level*. In this manner, the *Substratum* quantic levels would be compacted one in another around the zero resulting potential and, this will have as effect the lower potential compaction in those of higher potential. The specificity of gravity potential is represented by its energy quantum level. So it will grow all their values by moving, then to measure from zero resulting potential, any hierarchical distribution of the specific potential of a mass. Thus, after a period of time, directly positioned in the mass potential will be finally, but at very high speed, close to *c*, also compacted. This will have as immediate effect the displacement of the mass itself to point *O* and, therefore towards face-to-face mass. Is ***in this very moment when the gravitational displacement between bodies will effectively begin***. So, there is an approximation of the mass considered towards the zone of zero resulting potential which will result in all that changes in the hierarchy of quantum potentials of this mass that will always be transferred at a speed close to *c*.

In addition, the transfer of potential thus renewed will progresses to another mass at the speed of approximation suitable to the context mass-position in which is the concerned mass.

That, ultimately, will favorably accentuate the compaction around the *O* point causing, somehow, a compression in opposite direction to that of the current compaction by the action of EMW itself. The effects are favorably adding yielding out in a more effective compaction modes.

Now, to understand why the lightest mass moves simultaneously more than one more massive, it is just to take into account the respective distances of each of the masses to the point *O*. Let us reconsider the Earth and Moon example for what the distances *OT* and *OL* were previously calculated: O_T =34602296 m and O_M = 38377035 m. The distance *OT* is about nine times greater than *OM* therefore, with regard to both simultaneous compaction in *O* to each of the masses, that oriented to the Moon will arrive to its purpose (the Moon) about nine times faster than that which will reach the Earth. Therefore the relative displacement (if this was possible) of the Moon to *O* will occur r much more rapidly than that of the Earth. But the phenomenon is not completed because, as has been mentioned, there would be the effect of the Moon foreshortening that would displace all range of its potential, at its speed, through *O*. This second phase *would be carried out also nine times faster* than the corresponding from Earth that would start already with a time delay. Therefore, the improvement of Moon compacting conditions being developed in advance and faster than those relative to the Earth, *finally Moon's its displacement would be preponderant car carried out at a greater speed* (shorter reaction time).

If this would be allowed, this is the approximation of the moon to the Earth which would be dominant.

Therefore the "remote control" guiding the two free masses in gravity to go closer obeys to dimensional and geometrical rules (distances of masses to the point *O*, among others).

This whole process is done continuously through vibratory work of EMW in the context of the EVTD^2 gravity. Classical physics refers to the appearance of gravitational forces equal and symmetrical but, ultimately, it is *an extrapolated consequence of physical phenomena* which were clarified and which must be actually involved in the gravity. In quantum gravity EVTD^2, the major consequence in differentiated displacements for different masses ***remains the diversified speed in their reciprocal compaction and answers***. Therefore, the *quantum gravity EVTD^2 is characterized by quantic energetic levels* (*masses comprises*), *by inter-masses dimensions and, by the answer response speed of each mass to the compaction mode of EMW in their reciprocal displacement to O*. Thus, Newton was able to extrapolate the effects of gravity and provide its

relationship, consequently without giving a phenomenological explanation.

In conclusion, from here, it is to note that there are not, in quantum gravity EVTD^2, two forces directly inter-masses but ***mostly two attraction forces of masses to zero resulting potential point O***. These two forces are finally equal, by concretization of identical positive pressures generation on gravity axes, starting from *O* and directed concentric to *O*. Indeed, in *O,* the characteristics of both masses are identical or with identical performance of compaction at the start of the displacement of one to another. Further, ***different answering times induce different accelerations.*** The position of *O* evolves on the axe of gravity centers because of the displacements with an intrinsic value of speed for each mass; this adequately to correct the position of area from which are generated the two particular forces for each of the masses in attraction to this mobile *O* point and only to him. Consequently, from here, results that ***basically, and inversely to classical gravity, condensed matter does not attract directly any concentration of condensed matter***. But that is happening ***mostly and reciprocally through the resulting zero potential that moves during the respective reciprocal displacements***.

We can say that *the passive role of two energetic concentrations* (*masses*) is to participate to participate in the implementation of their respective hierarchies of potentials in quantum levels in *h* and ***only further to be in the right places at the right times!***

5. EXPLANATION BY ZERO REZULTING POTENTIAL INSIDE BODIES

Following the initiated approach we shall to understand the free falling of bodies in vide. Simply considering the bodies' free falling on Earth surface it is possible to calculate the position that the zero resulting potential would have, for example, in the case of 1 kg body. Let us use the previous calculus and note with O_C the distance between the (falling) body gravity center and the point *O* of zero resulting potential:

$$O_C = O_T \cdot \sqrt{\frac{1}{m_T}} = O_T \sqrt{\frac{1}{5.9736 \cdot 10^{24}}},$$

i.e. $O_C = 0.40914941 \cdot 10^{-12} \cdot O_T$ and

$O_T \approx 6378 \cdot 10^3$ m.

Hence, $O_C = 2.6096 \cdot 10^{-6}$ m $\approx$ 2.61 μm, which means that the zero resulting potential is situated at few μm of body's gravity center: *so, it is positioned inside the mass.*

The compacting modes described in the previous section are also active but, here, the difference consists in the fact that they are done directly inside the body's mass. It is, therefore, that it is the mass structure (concentration of energy) itself that simultaneously undergoes compaction and the displacement to the Earth. We can admit that *generated phenomena spread almost instantaneously*, since the light body and point mass *O* are not only one. Therefore, there is no separation between the zero potential and mass: *thus the value of the latter has no longer the same importance as in more traditional circumstances*. This mass value is no more representative in this process different in report with those of two masses clearly separated by the zero resulting potential. In conclusion any light mass, compared to the Earth mass and from a not-too-distant point of the Earth's surface, will free fall following the same process, giving the same acceleration to the involved bodies masses. This completes the understanding of phenomena, participating in free fall, which has been described in part 3 of [2]. In addition, this demonstrates the great importance of the zero resulting potential and its relative positioning relative to the two concerned masses in the reciprocal effect of approximation, i.e., between concentrations of condensed matter. Then comes the extrapolation of the governing phenomena of this effect that gives the simplifying effect of the gravitational attraction between two masses in the traditional form. On the other hand, the here developed approach allows to raise questions relating to this effect which would generate this pseudo attraction between two masses neutral electrically without much explanation. This effect is indicated, in classical physics, as being direct and reciprocal with no further explanation on the phenomena. Applying the electromagnetism following quantum gravity EVTD^2 and reminding again that everything is structured (space-time) based on electromagnetism: entities EVTD^2 included.

6. CONCLUSION

As already mentioned the relationship of Newton is not an ideal of explanation in the case of free fall of bodies. Taking account of the quantum zero resulting potential, allow with some logic and *a number of positive findings*, to have an understanding which seems correct on the various processes involved in different types of quantum gravity. The major importance of quantum zero resulting potential was demonstrated by numerical values of essential conditions intrinsic to this area inter mass. Thus this energetic and geometric context, allows with the various compaction work of EMW wave, ubiquitous in any space-time, to argue that the gravity between two masses is generated primarily on and around the zero resulting potential. It is therefore that it is not the 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 - is their zero resulting potential.

The use of the quantum h of Planck, to prioritize the quantum and gravitational potential energy levels, integrates [1-2] very well in formulations to calculate the lengths of the quantum levels and averaged linear densities or "frequencies" n_{qg} and r_{qg}. This new physics, based on tri-quantic energy space-time, allows good numbers of correlated understandings that bring a unique knowledge about the phenomena that are not sufficiently explained by current physics. As has been shown, there is a way to express the force of gravity F_G through a product of a "frequency" n_{qg} or r_{qg} (equal) with quantum h: $F_G = n_{qg} \cdot h$. This energetic expression of F_G in analogy with the photon energy $f \cdot h$ clearly shows that the final attraction between two energy concentrations (masses) is primarily dependent on the quantum levels of their zero potential in reciprocal average linear densities. This goes to and in the uniqueness in the conception of a quantified energetic space-time in h levels, which provides a research orientation in order to more correlate electromagnetic wave and quantum gravity. But nothing could be done without the "universal engine" of it all: the EMW work that formats permanently at the speed c in this case, a well-adapted tri-quantic space-time. Finally, we can say that the masses do nothing more to participate in the resulting energy quantum potentials hierarchy organization all around them. But it is the EMW work making everything, from the zero resulting potential.

More, if we want to take into account the distances in very small dimensions such as those below the quarks, the new geometry of the fully quantic space-time should be used [17]. It no longer uses the Euclidean point (non-realistic for these dimensions) but the volume point of an $EVTD^2$ entity. In addition, the speed of a very thin beam of light can be variable since the speed c until the instant speed [17]. This has its importance in effects and information changes, using light or gravitational waves in much subatomic space.

7. REFERENCES

[1] Conte M., Rosca I. *Phenomena in bodies' freefall by EVTD² gravity in energetic quantic space-time formatting potentials in quantic energy levels*, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering Vol.58, Issue II, June, 2015

[2] Conte M., Rosca I. *Energetic and quantic potentials in values multiples of h, distributed on lengths adapted to the 6,048 ratio between the free fall on earth and moon, confirm their accelerations and the compaction process of the EMW in gravity quantum EVTD²* . Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering Vol.58, Issue II, June, 2015

[3] Conte M., Rosca I. *An explanation of the bodies' free fall by the quanta bipolar gravity theory of EVTD²*, 9th International Research/Expert Conference TMT 2005, Antalya, Turkey, 26-30 September, 2005

[4] Conte M., Rosca I. *Theory of quanta double polar gravitation by the theory of EVTD² – as it would be neither force nor a deformation but a space-time's vibratory work*, 9th International Research/Expert Conference TMT 2005, Antalya, Turkey, 26-30 September, 2005

[5] Rosca I., Conte M., *Structuration des entités EVTD² de l'espace–temps : assimilation à la gravitation bi polaire quantique et holographique*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 50, Vol. II, 2007

[6] Conte M., Rosca I., *Détermination des vortex de la gravité quantique par la théorie des entités EVTD², Première Partie : cas du bi vortex attractif entre les masses*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 51, Vol. I, p. 47-52, 2008
[7] Conte M., Rosca I., *Détermination des vortex de la gravité quantique par la théorie des entités EVTD², Deuxième Partie : cas des vortex propulsifs derrière chacune des masses entre les masses*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 51, Vol. I, p. 53-58, 2008
[8] Rosca I., Conte M., *Configuration des potentiels résultants, pour deux et trois masses en gravité quantique bipolaire (théorie des entités EVTD²). Partie I : Cas de trois masses symétriques*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 51, Vol. I, p. 7-14, 2008
[9] Conte M., Rosca I., *Configuration des potentiels résultants, pour trois masses en gravité quantique bipolaire (théorie des entités EVTD²). Partie II : Masses différentes en triangulation quelconque*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 51, Vol. I, p. 15-22, 2008
[10] Conte M., Rosca I. *Corrélations entre les matière et énergie noires, la loi des aires de Kepler et la gravité quantique en EVTD²*. Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 52, Vol. I, 2009
[11] Conte M., Rosca I. *Approach of the postulate $E=m\cdot c^2$ by the theory of EVTD² from the mechanic and phenomenon point of view*, 9th International Research/Expert Conference TMT 2005, Antalya, Turkey, 26-30 September, 2005
[12] Conte M., Rosca I. *Short presentation of EVTD² entities theory*, International Workshop Advanced Researches in Computational Mechanics and Virtual Engineering 18-20 October, Brasov, Romania, 2006
[13] Conte M., Rosca I. *Introduction in a new mechanical theory of the universal space –time based on EVTD² entities*, Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 50, Vol. II, 2007,
[14] Conte M., Rosca I. *Conception d'un espace-temps universel, quantique et relati-viste : pour une physique de réconciliation.* Acta Technica Napocensis, Series: Applied Mathematics and Mechanics, 53, Vol.III, 2010
[15] Conte M., Rosca I. *Une histoire de famille : Photon, Graviton, X-on et compagnie*, Ed. Triumf, Brasov, Roumanie, 2002
[16] Conte M., Rosca I. *Physique de TOUT. Les EVTD²*, Ed. Graphica, Brasov, Roumanie, 2004
[17] Conte M., Roşca I. *New geometry in the quantic space-time of EVTD² theory: the Pytha-gorean Theorem is no more valuable* Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering Vol. 58, Issue 1, March, 2015

Potențialele rezultante zero energetice și cuantice în *h* inițiază căderea liberă și apropierea maselor în gravitația cuantică EVTD²

În lucrare sunt propuse continuările și complementele ipotezelor [1-2], în gravitația EVTD² [3-10] relativ la potențialele energetice de gravitație cuantică, prin studiul mai amănunțit al conjuncturilor din jurul potențialelor rezultante zero. Lungimile palierelor potențialelor cuantice ale maselor se găsesc a fi identice ca și „frecvențele„ relative în niveluri energetice n_{qg} reprezentând densitatea liniară medie de energie gravitațională a fiecărei mase. Masa relativă a corpurilor în cădere liberă nu are importanță, ceea ce se explică prin poziționarea potențialului rezultant zero în masa corpului în cădere, ceea ce o face nereprezentativă în acest tip de gravitație. De fapt, compactarea făcută de OME se face direct pe structura masică și nu asupra potențialelor exterioare reprezentative ale masei. Forța de gravitație se poate scrie, conform cu produsul lui *h* cu numărul n_{qg} de forma: $F_G = n_{qg} \cdot h$, analog cu energia fotonului: $f \cdot h$.

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