

5th force-particle in vacuum fits in new universe RTHU postulate.

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Abstract.

This article refers to the 5th-force fitting a new model for the universe, which is called, the Rotating Torus Hologram Universe (RTHU). In this new cosmological model the length-scale whereon a dark boson (X17) occurs is calculated from the perspective of negative charged quarks in the neutron of Helium4 to be affected by the dark-boson. The occurrence at a scale of approximately $0,3 \times 10^{-18}$ meter is also correlated to experiments wherein an accelerated He4 atom decays in $e^+ e^-$ in vacuum. The reach of the dark-force-particle is also calculated and appears to be about a factor 8 larger than the emerging-scale. Moreover, the corresponding dark energy related to the X17 is calculated too. All the calculation are related to the RTHU. The exercises given here in this article are based on my earlier postulated duo-bits in order to prove the origin of the dark matter force emerges from below the Planck-boundary. Essentially the RTHU-model generates a materialized holographic Big Bang universe. I wrote a lot of articles about that.

Introduction.

In a new postulated Rotating Torus Hologram Universe (RTHU) an elementary dark matter force-particle ('duo-bit') is designed and pre-calculated, and posted, by the author in a series of articles in the vixra-archive. Institutional archives never react to endorse the author's new ideas about the origin, shape and dynamics of the universe^[2]. The article-formulas are emerged from a thought-experiment^[3] in 2004, and published in 2010, in order to prevent information-loss in black holes as well as in the classical Big Bang universe.

The earlier published RTHU framed-formulas do postulate a new dark energy (Y), which is variable, and urge to leave the Planck-boundary of the classical Big Bang-theory. My new postulate is applied to experiments of the Hungarian Academy of Sciences, Atomki, in Debrecen, Hungary, managed by the head division nuclear physics, Attila Krasznahorkay. In quite an other way the explanation of the existence of X17 (dark boson), marked as a 5th-force, is shown by me as rather really possible^[4,5,7].

The new dark energy (Y) is distributed as Double Torus geometry, one large dark energy-torus surrounding and intertwining a smaller elementary torus. This is expressed by four 'duo-bits', of which two 'duo-bits' enlighten two Planckmasses in vacuum. However, below the Planck-boundary the four 'duo-bits' dominate to exist.

The 'duo-bits' are the dark bosons, being 'dark matter force-particles', also experienced as X17 in the Hungarian 'dark boson' Experiments and others. Combining my RTHU framed-formulas and the Hungarian X17 result also a new perspective on a new origin, shape and dynamics of the universe is gathering proof.

Basic 'duo-bit' value.

Speaking of a torus, we deal with an interior-torus here, within a torus of new dark energy Y. The interior-torus may expand or contract. The interior-torus is the buildingstone for all small and large objects (particles, planets, stars and galaxies) leaving a torus-track behind, during the rotation of the RTHU. Thereby the RTHU is a maximum torus, emerging a materialized Big Bang universe by its rotation. This means the classical Big Bang universe is not fundamental. However it is an imprint of a hologram, which is experienced as real for decades, but that is a illusion. In this article here a basic 'duo-bit' is described as a publication^[2] to emphasize more proof for statements made earlier in my posted articles^[6], as follows:

$$\begin{aligned}
 m_{dm}^2 &= 4.6 \left[\frac{eV}{c^2} \right] \cdot \frac{1}{100} [mm^2] \\
 m_{dm}^2 &= 0.046 \left[\frac{MeV}{c^2} m^2 \right] \\
 E_{m_{dm}^2} &= 0.046 [MeV.m^2]
 \end{aligned} \tag{1}$$

Lateron in this article the basic energy value (equation 1) is used as an elementary value in order to calculate X17 from the different cosmological perspective of the RTHU. Firstly I start with some formulas related to the earlier series of articles^[6]:

$$\begin{aligned}
 F_{de}^2 - Y &= 0 \\
 Y &= F_{de}^2 \\
 Y &= (F_N^{G=1})^2 \otimes (F_{dm})^2 \\
 Y &= \left(k_{de}^{\frac{1}{2}} \right)^2 \cdot (m_p)^2 \otimes \left(k_{de}^{\frac{1}{2}} \right)^2 \cdot (m_{dm}^2)^2
 \end{aligned} \tag{2}$$

Wherein $(m_p)^2 = (m_{dm}^2)^2$ in the RTHU, giving birth to a geometric-dimension of new dark energy (Y), as follows:

$$\begin{aligned}
 Y &= \left(k_{de}^{\frac{1}{2}} \right)^4 \left[\frac{m^4}{s^8} \right] \cdot (m_{dm}^2)^4 \left[\left(\frac{MeV}{c^2} m^2 \right)^4 \right] = \left(k_{de}^{\frac{1}{2}} \right)^4 \left[\frac{m^4}{s^8} \right] \cdot (E_{m_{dm}^2})^4 \left[(MeVm^2)^4 \right] \\
 Y &= \left(k_{de}^{\frac{1}{2}} \right)^4 \cdot (E_{m_{dm}^2})^4 \left[\frac{m^4}{s^8} (MeVm^2)^4 \right] \\
 Y &= \left(k_{de}^{\frac{1}{2}} \right)^4 \cdot (E_{m_{dm}^2})^4 \left[(MeV^2 m^2)^2 \left(\frac{m^4}{s^4} \right)^2 \right] \\
 Y &= \left(k_{de}^{\frac{1}{2}} \right)^4 \cdot (E_{m_{dm}^2})^4 \left[(MeV^2 m^2)^2 N^2 \right]
 \end{aligned} \tag{3}$$

This is an energy-sphere following a torus-geometry and feeling a Newton-force in the front and sideways. This means the torus may expand or contract.

Connotations:

F_{de}^2 is the new dark energy force; Y is the new dark energy. Y is variable-vacuum below the Planck-border, but constant at the Planck-border and above); $k_{de}^{\frac{1}{2}} = 1.78 \times 10^{-14} \left[\frac{m}{s^2} \right]$ [6,8] is the interior torus-acceleration (the torus may expand or contract); m_{dm}^2 is the basic 'duo-bit', or so to say a basic 'dark matter force-particle' in the RTHU-model; m_p is the Planck-mass, which is enlightened by two out of four 'dark bosons'; $F_N^{G=1}$ is the baryonic gravity-force (visible gravity); F_{dm} is a dark matter force (dark gravity). See further fig. 1: The duo-bit in the process of vacuüm related tot the RTHU.

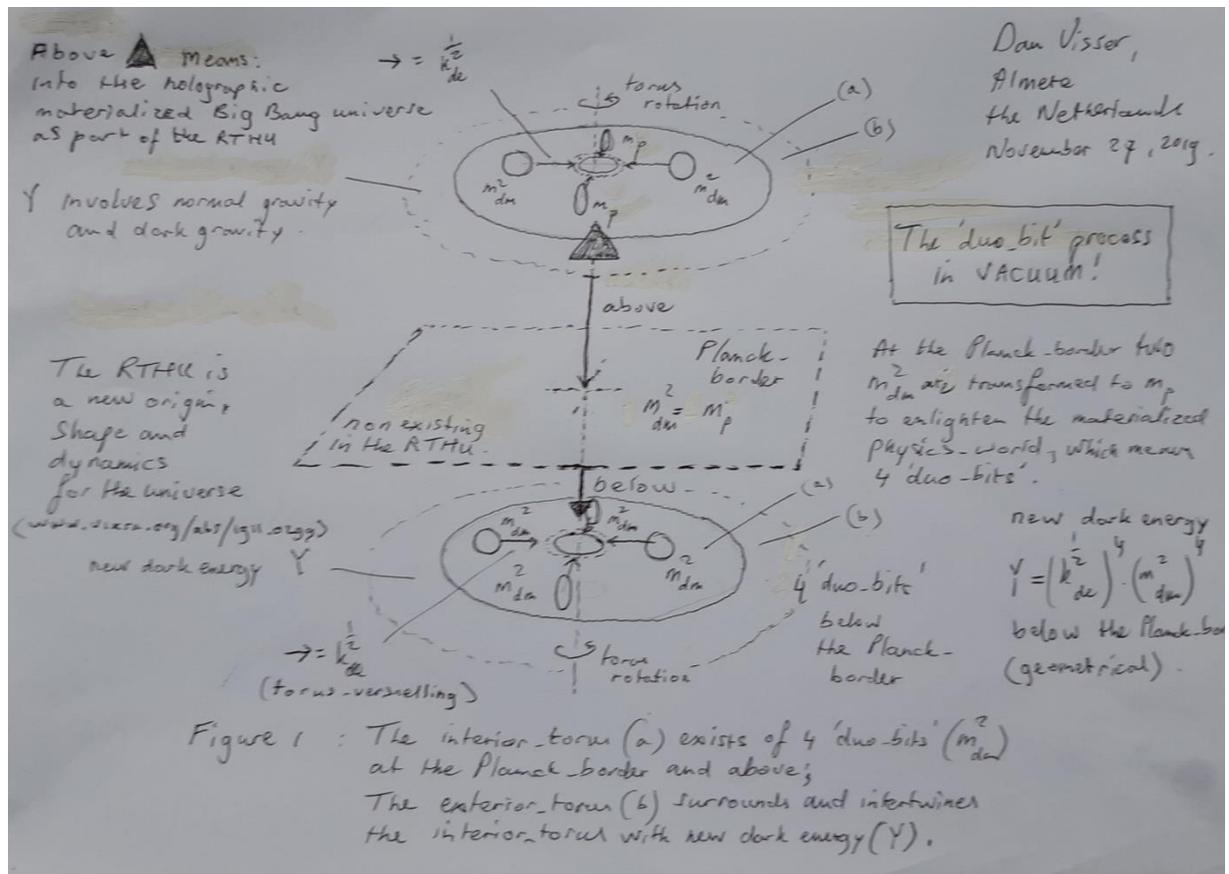


Fig. 1: Duo-bit in the process of vacuüm related to the RTHU.

From equation (2) and (3) follows:

$$\left(m_{dm}^2 \right)^4 = \frac{\left(F_N^{G=1} \right)^2 \otimes \left(F_{dm} \right)^2}{\left(k_{de}^{\frac{1}{2}} \right)^4} \quad (4)$$

Equation (4) represents a basic '4-duo-bit for equation (5)', wherein it represents the elementary energy of the dark boson, shaped as an interior-torus, as follows:

$$\left(E_{m^2_{dm}}\right)^4 = \frac{\left(F_N^{G=1}\right)^2 \otimes \left(F_{dm}\right)^2}{\left(k_{de}^{\frac{1}{2}}\right)^4} \quad (5)$$

In order to get the relation with the 2 duo-bits as m^2_{dm} in fig. 1 the following exercise is performed:

$$\left\{\left(E_{m^2_{dm}}\right)^4\right\}^{\frac{1}{2}} = \left\{\frac{\left(F_N^{G=1}\right)^2 \otimes \left(F_{dm}\right)^2}{\left(k_{de}^{\frac{1}{2}}\right)^4}\right\}^{\frac{1}{2}} \quad (6)$$

However, at the Planck-boundary $F_N^{G=1} = 1[m^2]$, so follows: (7)

$$F_{dm} = \left(E_{m^2_{dm}}\right)^2 (k_{de}) \left[\frac{MeV^2 m^4 \left[\left(\frac{m}{s}\right)^2\right]}{[m^2]}\right] \quad (8)$$

$$F_{dm} = \left(E_{m^2_{dm}}\right)^2 (k_{de}) \left[(MeV.m)^2 \left(\frac{m}{s}\right)^2\right] \quad (9)$$

From equation (9) the scale where X17 (dark boson) occurs can be calculated, as well as the belonging scale of the dark force (dark matter particle-force), as follows:

$$n^2 F_{dm} = n^2 \left(E_{m^2_{dm}}\right)^2 (k_{de}) \left[(MeV.m)^2 \left(\frac{m}{s}\right)^2\right] \quad (10)$$

Wherein:

$$E_{m^2_{dm}} = 0.046 [MeV.m^2]; \text{ (see equation 1)}$$

$$k_{de} = \left(k_{de}^{\frac{1}{2}}\right)^2 = (1.78 \times 10^{-14})^2 = 3.1684 \times 10^{-28} \left[\left(\frac{m}{s}\right)^2\right]; \text{ (see connotation, equation 3).}$$

Scale-calculation dark boson:

The n , for which X17 exists at a certain scale, is as follows:

$$nE_{m^2_{dm}} k_{de}^{\frac{1}{2}} \cong 17 \left[\text{MeV} \cdot \frac{m^2}{s^2} \right] \quad (11)$$

$$n \cong \frac{17 \left[\text{MeV} \cdot \frac{m^2}{s^2} \right]}{0.046 \left[\text{MeV} \cdot m^2 \right] \times 1.78 \times 10^{-14} \left[\frac{m}{s^2} \right]} \cong 207.621 \times 10^{14} \left[\frac{1}{m} \right] \quad (12)$$

The n is scalar. It generates the SCALE - X 17, meaning at which X17 (the dark boson) occurs to exist, but also enables to detect the SCALE - X 17, at which the dark force is felt. The n increases the torus-acceleration and causes expansion of the the elementary-torus; Thereto it becomes a scalar factor to increase the Plancklength and determines the scale whereon the X17 (dark boson about 17 MeV) occurs, as follows:

$$n \left[\frac{1}{m} \right] \cdot k_{de}^{\frac{1}{2}} \left[\frac{m}{s^2} \right] = nk_{de}^{\frac{1}{2}} \left[\frac{1}{s^2} \right]; \text{ which is flat expansion of vacuum} \quad (13)$$

With equation (13) the SCALE factor of X 17 can be calculated, as follows:

The SCALE-factor is:

$$\alpha_{X17} \cong nl_p \cong 207.621 \times 10^{14} \left[\frac{1}{m} \right] \times 1.616199 \times 10^{-35} [m] \cong 0.335 \times 10^{-18} \quad (14)$$

That leads to the enlargement of the Plancklength, as follows:

$$\frac{l_p}{\alpha_{X17}} = \frac{1.616199 \times 10^{-35} [m]}{0.335 \times 10^{-18}} = 4.82 \times 10^{-17} [m] \quad (15)$$

This scale corresponds to the quark-scale in vacuum. However, It only affects the neutron quarks (+2/3, -1/3, -1/3 charge), because X17 is proto-phobic (it is afraid of proton-quarks, with +2/3, +2/3, -1/3 charge).

The reach of the the dark-force.

The approach from equation 12, 13, 14 and 15 can also be used for the calculation of the reach of the Dark orce (DF), which is a spatial expansion of vacuum, as follows:

$$n^2 \left[\frac{1}{m^2} \right] \cdot \left(k_{de}^{\frac{1}{2}} \right)^2 \left[\frac{m^2}{s^4} \right] = n^2 k_{de} \left[\left(\frac{1}{s^2} \right)^2 \right] \quad (16)$$

The scale-factor for the DF-surface is:

$$\begin{aligned}\alpha_{DF} &\cong n^2 l_p^2 \cong (207.621 \times 10^{14})^2 \left[\frac{1}{m^2} \right] x (1.616199 \times 10^{-35})^2 [m^2] \\ \alpha_{DF} &\cong 43106.479641 \times 10^{28} \times 1.34936 \times 10^{-70} \cong 58166.159368379 \times 10^{-42} \\ \alpha_{DF} &\cong 0.058 \times 10^{-36}\end{aligned}\tag{17}$$

The radius of the DF-surface is:

$$\frac{l_p}{\alpha_{DF}} \cong \frac{1.616199 \times 10^{-35} [m]}{0.029 \times 10^{-18}} \cong 4 \times 10^{-16} [m]\tag{18}$$

This is a factor $\frac{4 \times 10^{-16}}{4.82 \times 10^{-17}} \cong 8.3$ more than the scale of occurrence of X17.

The dark boson and dark-force In further perspective of the RTHU.

The perspective is as follows: The moment Helium4 decays in vacuum, negative charged quarks in the neutron of He4 are affected by the dark-boson $X17 = 17 [MeV]$ at $4.82 \times 10^{-17} [m]$ in vacuum.

Simultaneously a belonging dark-force F_{dm} is delivered with a reach to $4 \times 10^{-16} [m]$ in vacuum.

Moreover, significantly the value of the Dark Force (DF) is equivalent to dark energy (Y); see the equation 1 and 10.

From this follows:

$$F_{DM}^X \cong n^2 F_{dm} \cong 43106 \times 0,002116 \times 3.1684 \times 10^{-28} \cong 0.289 \times 10^{-25} \left[(MeV \cdot m)^2 \left(\frac{m}{s^2} \right)^2 \right]\tag{19}$$

According to equation 3 the expanding or contracting torus-energy (Y) is:

$$\begin{aligned}Y &= \left(k_{de}^2 \right)^4 \cdot \left(E_{m_{dm}} \right)^4 \left[(MeV^2 m^2)^2 N^2 \right] \\ Y &= (1.78 \times 10^{-14})^4 \cdot (0.046)^4 \left[(MeV^2 m^2)^2 N^2 \right] \\ Y &\cong 45 \times 10^{-62} \left[(MeV^2 m^2)^2 N^2 \right]\end{aligned}$$

Prediction.

Earlier, experiments with Berilium8 (a heavier isotope), were involved. Hence, a larger acceleration in vacuum would have been needed to detect the X17 dark boson (equations 13 and 15). This means up-coming experiments should use heavier atom-masses with a larger acceleration to release an X17 boson in order to get the subsequently decay of e+ and e-.

Further understanding.

In the practical setting of experiments vacuum is considered as constant, while the atoms (or isotopes) are accelerated in that “constant” vacuum. However, vacuum is variable in the RTHU and rotating below the Planck-boundary. According to that aspect vacuum must be cooled down below 2.7 degrees Kelvin to release the dark force.

Conclusions.

The exercises in this article prove the existence of a deeper rotating vacuum generating a dark boson to be enlightened for a materialized physicsworld, a world we use to call the classical Big Bang Universe. But it exactly means that the classical Big Bang is originally generated by a Rotating Torus Hologram Universe (RTHU), which is based on ‘duo-bits’ being ‘dark matter force-particles’. Or also called dark-bosons. These reside below the Planck-boundary.

References.

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