New Cosmological Hypothesis Matches Observations By New Dark Energy-time Applied To Dark Matter For The Existence Of A Rotational Double Torus Universe.

Author: DAN Visser, Almere, the Netherlands

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Abstract.

The Double Torus hypothesis stands for a new architecture for the Universe. Based on practical evidence, another dark energy drives the dynamics making the Big Bang an illusion. There has not been a Big Bang! New dark energy applies two extra time-clocks from below the Planck-time to dark matter. The implication is: The universe exists of a Double Torus of the dark energy-time enclosing and intertwining an inner dark matter torus. This might sound controversial, but a new 'dark energy-force formula' and related calculations, described within the Double Torus framework in several 'papers', enables a match with real observed phenomena, such as: 1) A smallest Newton-acceleration, a dark matter-acceleration in galaxies, 2) an anomalous deceleration of the Pioneer 1 and 2 satellites, 3) a dark flow of spatial dark matter, 4) a solution eliminating the discrepancy of vacuum-energy-density (between General Relativity and Quantum-Mechanics calculations), 5) an α-dipole that indicates a torus-shape for the universe, 6) four times shifted 'hot- and cold spots' in the CMB, 7) an explanation for why 4,9% matter is visible, 26,8% is dark matter and 67,3% is dark energy and 8) at last why for ½ the squared-Planck-length gravity turns into anti-gravity. All the issues for evidence are described in my former 'papers' (see references), whereof the last two ones are in concept and will be published soon. However, particularly this paper relates to the combination of Newton quantum-gravity-force and dark matter-force, both implemented in one (new) formula. The dark matter force could be gravitational (+) and (-) , which means an anti-gravitational property of dark matter is highlighted in this paper. In this respect the measured laboratory acceleration-limit for Newton-gravity, 5×10^{-14} m/s^2, theoretically is set to a lower value of 2.8659×10^{-14} m/s^2. That is remarkable, because no other formula in science is at hand for that. In general the dynamics for the Double Torus hypothesis is developed by DAN Visser, Almere, the Netherlands. He is an independent cosmologist and painting-artist. His conclusion is: The universe did not start with a Big Bang, but is a rotational cyclic-curved Double Torus, which recalculates reality eternally and independent on the scale one imagines the walls of the universe.

Preface.

The original formula for a (new) dark energy force was a result derived from DAN's 'thought-experiment'[1]. This comprehends 'the scaling away (faster than light) of two different black holes. The original formula has a "-"sign and is published on my website on April 4 2004. However, in the summer of 2009, PhD Christopher Forbes (UK), also Fellow-member of the Astronomical Society (UK), noticed that formula on the web. He contacted me by email. In a follow-up I send him an additional idea of a 'time-torus'. These ingredients became the base of a mathematical expression[2], wherein my dark energy force formula was a solution of the math-expression of Forbes. However, now with also a "+" sign. Even a related (new) dark energy emerged from the mathematical equation. Unfortunately (in the course of 2011) the contact between Forbes and me got lost for unknown reasons. Then I decided to work out several issues in own written papers. Nowadays this seems to give rise to a an alternative for the Big Bang cosmology. An alternative that I investigated personally in

solitaire ‘private-confinement’. This became the dynamics of Double Torus framework for the universe.

Introduction.

In this paper the Double Torus hypothesis is put in perspective of gravity, dark matter and the Higgs-theory. This perspective is framed by a (new) dark energy-time, which forms a product of quantum-gravity-force and dark matter-force. It also relates to how elementary particles gets mass. Meanwhile the Standard Model of particles-and-forces theoretically assumes the Higgs-field to be fundamental for elementary particles to get mass (there should be five different Higgs masses). Recently a Higgs-like particle might be discovered, with 126 times the mass of a proton. However, still it is not proven that the spin of this Higg-like particle is “0” and that the parity is “+”. So, the question is rising: Is the ‘detected wobble’ in the Higgs-field really representing a signal belonging to an energy-field emerging from the energy the Big Bang introduced? Is it the a ‘syrup-like field’ to enable particles to gather their adapted mass? Or could it be the same field as the inflation-field assumed to power the cosmic inflation, directly after the Big Bang? Therefore my overall question is: Is it likely that two different fields should have been created after the Big Bang for giving the world its mass and gravity? So, is the Higgs-like-particle really what it supposed to be? And I put a last question: What is the relation with dark matter?

Sideways, and contrarily, the M-string-theory has a place for gravity and dark matter by super-symmetry, but that only implies low mass Higgs-like particles to make-up super-partners next to the existence of elementary particles, like dark matter particles. However, super-symmetry fails the tests [3]. Moreover, as well the Higgs-theory as the M-theory still have no good answer on what dark energy in Big Bang cosmology really is. Neither do they have an answer for what dark matter is. Moreover, and intentionally, the Standard Model and the M-string-theories exclude time smaller than the Planck-time: In the Standard Model time larger than the Planck-time is a ‘holy’ principle. Well, the Double Torus breaks with this principle.

In the double Torus hypothesis quantum-gravity, dark matter and the Higgs-field have been placed in a new perspective of cosmology, wherein dark energy contributes to additional time smaller than the Planck-time in order to recalculate quantum-gravity. Hence reality is (re) calculated by a deeper level than quantum-physics. This makes dark energy ‘new dark energy’. Even dark matter gets a ‘cognitive new face’. Dark matter in the Double Torus is a ‘spinning torus-particle in vacuum’. It accelerates with small values, and generates a dark flow. These small values are calculated by the dark energy force formula of the Double Torus hypothesis.

The formulas I used within the Double Torus framework show quantum-gravity and dark matter being affected by time smaller than the Planck-time and are introduced successfully to calculate accelerations for dark matter in galaxies and the Pioneer satellites 1 and 2. The match is remarkable, but most remarkable is the setting of a slightly lower breakdown-limit for the smallest acceleration of the Newton-gravity to 2.8659×10^{-14} m/s^2. This is practical verifiable with experiments held, that measured an acceleration of 5×10^{-14} m/s^2.

The Double Torus framework comprehends papers hosted in the Vixra-archive (category mathematical physics). In some of these papers I contribute additional evidence in showing the Double Torus hypothesis also solved the discrepancy of vacuum energy-density. The discrepancy is a factor 10^{122} between a calculation from General Relativity and from quantum-gravity, which is eliminated in favor of the General Relativity. I also showed in one of the papers that an α-dipole (the fine-structure-constant with different values in opposite direction of the hemisphere) could be calculated by the

(new) dark energy force formula, and points to a curvature of flat Big Bang cosmology. This must be a shocking indication for conventional Big Bang believers. Such an almost unacceptable phenomenon is highlighted by the dimensions of the dark flow' emerging from my (new) dark energy force formula. Meanwhile the Planck-satellite-data[4] (and earlier the WMAP) have revealed quantum-fluctuations in the Comic Microwave Background (CMB) that match a quadruple image of 'cold and hot spots'. This reality supports the afore mentioned evidence odf a correlation with a dark flow of dark matter. It gives rise to the existence of a cyclic curved rotational torus with new dynamical properties as described afore: *The Double Torus Universe*.

Fig.1: Dan Visser (*1947), NL Almere, photograph 2008.

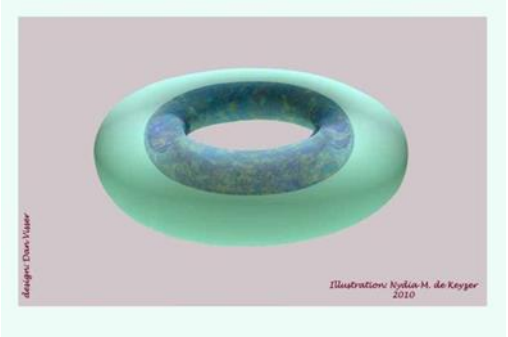

Fig.2: Double Torus Universe (illustration), a dark energy-time torus is enclosing and intertwining an inner 'flowing' dark matter torus.

The formulas.

In the following chapters the result of my derivations are given, as published in the Vixra-archive. Also some calculations are performed.

The dark energy force formula in the original setting of April 4 2004:

$$F_{de} = -km^3 = -\left(\frac{c^5 O_e}{2G}\right) m^3 \left[(kgm)^3 \frac{N}{s} \right]$$

$$k = k_{de} \frac{1}{G} \qquad \textbf{(1)}$$

$$k_{de} = \frac{c^5 O_e}{2}$$

Since the first paper was published in 2009 the "+"sign also became part of the formula (1).

$$F_{de} = \pm km^3 = \pm\left(\frac{c^5 O_e}{2G}\right) m^3 \left[(kgm)^3 \frac{N}{s} \right]$$

$$k = k_{de} \frac{1}{G} \qquad \textbf{(2)}$$

$$k_{de} = \frac{c^5 O_e}{2}$$

The original setting was supported by the general mathematical expression of Christopher Forbes, which showed the additional "+" sign. For causing no confusion with my "k" I use k_{chris} in his equation:

$$\int\left(\alpha x^2+\beta x+\gamma\right)dx=k_{chris},k_{chris}\in\mathbb{R}$$

$$for\quad \int(0)\,dx=k_{chris}\quad follows\quad \int\left(\alpha x^2+\beta x+\gamma\right)dx=\int(0)\,dx$$

$$from\quad \int\left(\alpha x^2+\beta x+\gamma\right)dx=\int(0)\,dx\quad follows\quad \left(\alpha x^2+\beta x+\gamma\right)=0 \tag{3}$$

$$for\quad \alpha=G,\quad \beta=0,\quad \gamma=-\frac{1}{4}c^4\hbar^2M^6G\quad follows\quad x=\pm\frac{1}{2}c^5m^3G^{-1}\left(L_{Planck}\right)^2$$

The "x" is identical to my (new) dark energy force formula in equation (2), wherein $O_e = (L_{Planck})^2$, as follows:

$$F_{de}=\pm km^3=\pm\left(\frac{c^5O_e}{2G}\right)m^3\left[\left(kgm\right)^3\frac{N}{s}\right] \tag{4}=(2)$$

Moreover, the dark energy from equation (3) is new:

$$\gamma=-\frac{1}{4}c^4\hbar^2M^6G \tag{5}$$

Further analysis during my solitaire research, after the contact with Forbes got lost, show the dimensions:

$$\left[\left(\frac{m}{s}\right)^4\left(Js\right)^2kg^6\frac{m^3}{kgs^2}\right]=\left[\frac{m^4}{s^4}J^2s^2kg^6\frac{m^3}{kgs^2}\right]=\left[\frac{m^4}{s^4}J^2kg^5m^3\right]=A$$

$$A=\left[kg^2\frac{m^4}{s^4}J^2kg^3m^3\right]=\left[\left(kg\frac{m^2}{s^2}\right)^2J^2(kgm)^3\right]=\left[J^2J^2(kgm)^3\right] \tag{6}$$

$$from\quad this\quad follows\quad -\gamma\left[\frac{1}{4}J^2J^2(kgm)^3\right]$$

So, these dimensions are two energy-spaces, one as $[J^2]$ and one as $[1/4\ J^2]$. This means one energy-space is four times smaller, always square (| _) to each other. This implies the circular description of an energy-torus within an a four times larger energy torus. Simultaneously it co-describes the 3D mass-surface in $[(kgm)^3]$, along with the smaller energy-torus embedded in the larger one. This means the larger energy torus intertwines the inner smaller one. This fully describes the Double Torus topology as a (new) dark energy torus, enclosing and intertwining an inner dark matter torus.

After having published several papers in the Vixra, I published my dark energy force formula in another setting.

The dark energy force formula in the setting of January 2013.

I started with equation (4) = (2)*:*

$$F_{de}=\pm m^3k_{de}\left[\left(kgm\right)^3\frac{N}{s}\right] \tag{7}$$

Wherein $k_{de} = \frac{c^5 O_e}{2\kappa}$,with κ = G, or κ =1

I transformed it into a product of visible mass and dark matter mass, which both accelerate. This split-up in visibility and darkness is justified, because another of my papers already derived a split-up due to a match with observations for gravity-conditions in galaxies. For ¼ of the dark matter-density the gravity-conditions for dark matter are the same as for gravity based on visible matter[5].

The split-up is as follows:

$$F_{de} = m_{vm} k'_{de} \otimes \pm m^2{}_{dm} k'_{de} \left[(kgm)^3 \frac{N}{s} \right] \tag{8}$$

$$k'_{de} = (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2\kappa} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] \tag{9}$$

Wherein, κ defines the conditions larger than, at the edge, and within the *Planck-surface.*

This would lead to lowest acceleration-limits (↓lim) as follows:

$$F_{de} = \downarrow \lim \left(F^{G}{}_{N} \right) \otimes \downarrow \lim \left(\pm F_{dm} \right) \left[(kgm)^3 \frac{N}{s} \right] \tag{10}$$

Now the conditions for κ can be described:

1. For an area larger than the Planck-surface (nO_e) with $n = 1, 2, 3, ..., N$, follows for :

$$(k_{de})^{\frac{1}{2}} > \downarrow \lim (g) \xrightarrow{1} (\kappa = G) \xrightarrow{2} (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2G} \right)^{\frac{1}{2}} > \downarrow \lim (g) \left[\frac{m}{s^2} \right] = (A)$$

$$(A) \Rightarrow F^{G}{}_{N} = mg[N] = G \frac{Mm}{r^2} [N] \tag{11}$$

2. For an area at the edge, or within, the Planck-surface $\left(\frac{1}{n} O_e \right)$, with $n = 1, 2, 3, ..., N$, follows for :

$$(k_{de})^{\frac{1}{2}} < \downarrow \lim (g) \xrightarrow{1} (\kappa = 1) \xrightarrow{2} (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] = (B)$$

$$(B) \Rightarrow \xrightarrow{1} F^{G=1}{}_{N} \left[m^2 \right] \xrightarrow{2} F_{dm} = \pm m^2{}_{dm} \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \tag{12}$$

The dimension F_{dm} in equation (12) is as follows:

$$\left[(kgm)^3 \frac{N}{s} \right] = \left[kg^3 m^3 \frac{N}{s} \right] = \left[\left(G \frac{m^3}{s^2} \right)^3 m^3 \frac{N}{s} \right] = \left[G^3 \frac{m^9}{s^6} m^3 \frac{N}{s} \right] = \left[G^2 \left(G \frac{m^4}{s^4} \right) \frac{m^8}{s^3} N \right] = (C)$$

$$(C) = \left[G^2 \frac{m^8}{s^3} N^2 \right] \tag{13}$$

Newton-gravity-force <u>at the edge</u> and <u>within</u> the Planck-surface has G=1 and the Newton-gravity-force is maximum, $[N^2]=1$.

So the dimension of (C) will be:

$$(C) = \left[G^2 \frac{m^8}{s^3} N^2 \right] = \left[\frac{m^2 m^6}{s^3} \right] \tag{14}$$

This is representative for the January 2013-setting of the dark energy force formula, as follows:

$$F_{de} = \left\{ \left(F^{G}{}_{N} \right) \left[m^2 \right] \right\} \otimes \left\{ \left(\pm F_{dm} \right) \right\} \left[\frac{m^6}{s^3} \right] \tag{15}$$

It is identical to:

$$F_{de} = \left\{ \left(F^{G}{}_{N} \right) \left[m^2 \right] \right\} \otimes \left\{ \left(\pm F_{dm} \right) \right\} \left[\left(\frac{m^2}{s} \right)^3 \right] \tag{16}$$

It gives a dimensional solution for dark matter and dark matter force:

$$F_{dm} = \pm m^2{}_{dm} \left[m^2 m^2 \frac{m}{s} \right] (k_{de})^{\frac{1}{2}} \left[\frac{m}{s^2} \right] = \pm m^2{}_{dm} (k_{de})^{\frac{1}{2}} \left[\left(\frac{m^2}{s} \right)^3 \right] \tag{17}$$

Which is identical to:

$$F_{dm} = \pm m^2{}_{dm} \left[m^2 m^2 \frac{m}{s} \right] . \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] \tag{18}$$

Which is identical to:

$$F_{dm} = \pm m^2{}_{dm} \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\left(\frac{m^2}{s} \right)^3 \right] \tag{19}$$

This equation (18) and (19) represent a *dark matter flow* by a *surface flow in three dimensions.* During the acceleration (see equation 18) the torus can expand (-) or contract (+) while the surface produces <u>*circles*</u> by a circular velocity of dark matter. So, the *'rotational torus produces temperature-circles at*

the surface of the torus' (see explanations in figure 3). Either the velocity is + and the acceleration is -, or the velocity is – and the acceleration is +.

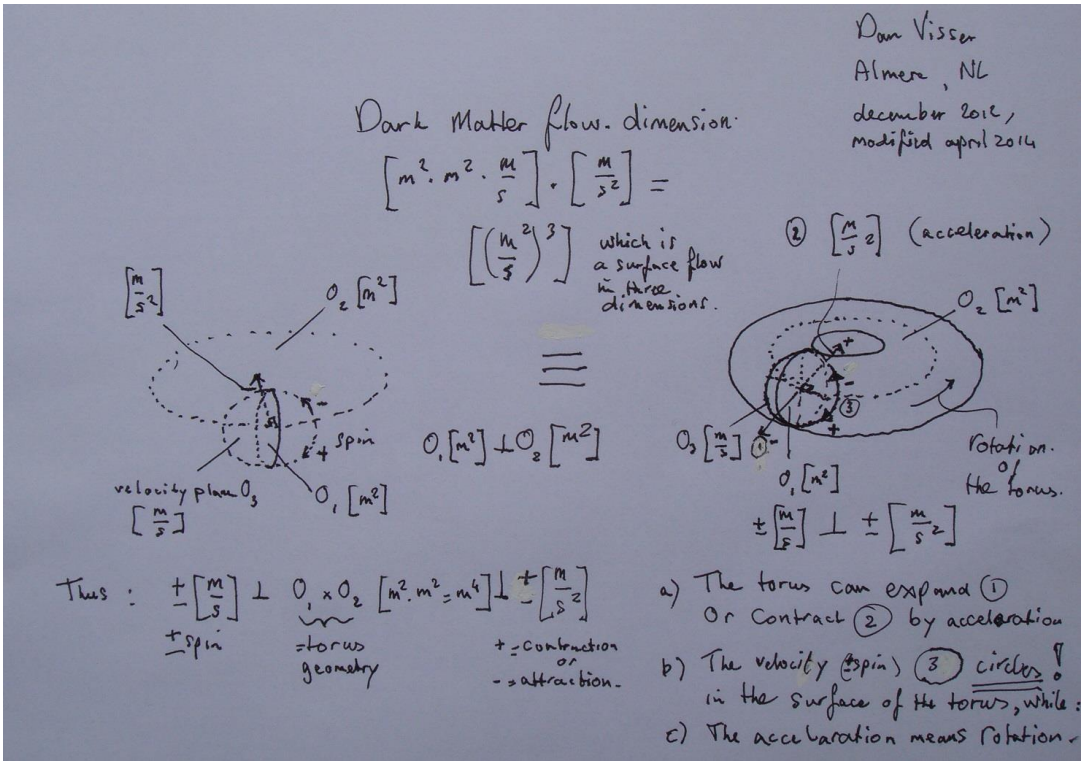

Fig. 3: Dark matter-flow in the Double Torus hypothesis.

Additionally I created (for the first time) a Feynman-like-diagram for the 'dark matter-force' (fig 4).

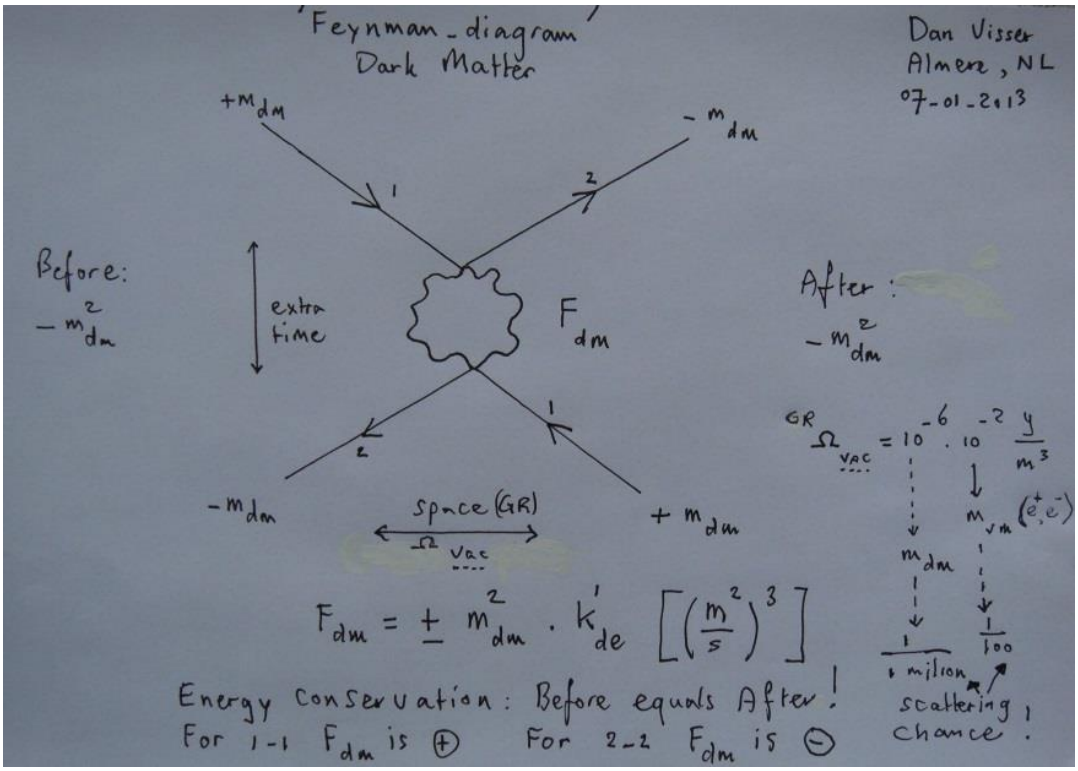

Fig. 4: Feynman-diagram for 'dark matter', which relates to gravity, or anti-gravity by negative dark matter-mass.

Then the setting of January-2013 slightly extended afterwards.

The transition of the gravity-constant G [N.(m^2 /kg^2)] into 1 [m^2] gave a better insight in the Newton force as quantum-gravity force (quF$^G{}_N$) and the dark matter force. The insight is found by an analysis of the Christopher Forbes-math-expression, as follows:

β =0 demands the function ax^2+bx+c= 0 to have two roots. These roots are:

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-\beta \pm \sqrt{\beta^2 - 4\alpha\gamma}}{2\alpha} \tag{20}$$

$$x_{1,2} = \frac{0 \pm \sqrt{0 - 4G\gamma}}{2G} = \pm\sqrt{\frac{-\gamma}{G}} = \pm\sqrt{\frac{-(-\frac{1}{4}\ c^4\hbar^2 M^6 G)}{G}} = \pm\sqrt{\frac{1}{4}\ c^4\hbar^2 M^6} = \pm\frac{1}{2}(\hbar M^3)c^2 \tag{21}$$

The roots have a sort of similarity with $\frac{1}{2}mv^2$, which is the average energy of visible moving Newtonian mass. However, now I found an average energy to be gravitational (+) and anti-gravitational (-). Moreover, that energy is operating as an M^3-massglobe (in 3D) within the energy-time Planck-surface, expressed with dimensions [Js]. This means activity of dark energy and dark matter is a full dynamical case within the Planck-surface.

According to the afore mentioned discriminant $D = b^2 - 4ac = 0 - 4G\gamma = -4G\gamma$, (22)

and for dark energy is negative, which means $(\gamma < 0) \Rightarrow D = 4G\gamma > 0$ there are two roots. These roots are not dependent on G, but only proportional to $(\hbar M^3)c^2$. (23)

So the α in equation (3) is allowed to change the gravity-constant G [N.(m^2 /kg^2)] into 1 [m^2], This can be described as follows:

$D = 4\alpha\gamma$, with $G \le \alpha \le 1$. From this follows:

For $(\alpha = G) \rightarrow D = 4G\gamma$ (24)

For $(\alpha = 1) \rightarrow D = 4\gamma$ (25)

This leads to the setting of March 2013

The setting of the March 2013 dark energy force formula.

When a gravitational field is described by a gravitational constant G than reality is observable. Then cosmology is related to a dark matter force with dimensions in [(kgm)^3 /s], which means a static moment of 3D mass-surface per second (thus without observable dynamics). Then we are only aware of time larger than the Planck-time. The formula for dark energy force then becomes as follows:

$$F_{de}{}^{t \geq tplanck} = quF^{G}{}_{N}\left[kg\,\frac{m}{s^2}\right]\otimes\pm F^{invac}{}_{dm}\left[\frac{(kgm)^3}{s}\right]$$
$$\pm F_{de}{}^{t \geq tplanck}\left[(kgm)^3\,\frac{N}{s}\right] \qquad (26)$$

However, a significant detail is, that the dark energy produces 4 times 'G'!! when looking at the discriminant of equation 24. This correlates to an 'Einstein-cross', representing observations of four images of an object that lies behind a strong gravitational field (for example caused by stars, galaxies or clusters of galaxies). But if α = G =1 still the dark energy remains to have a 4 times larger (new) dark energy. So, then it has to be related to (new) energy per 1 [m^2], while it operates deeply hidden in vacuum. This operation must be based on time smaller than the Planck-time. This is observable as CMB. Then the formula for dark energy force becomes:

$$F_{de}{}^{t \leq tplanck} = quF^{G}{}_{N}\left[m^2\right]\otimes\pm F^{invac}{}_{dm}\left[\left(\frac{m^2}{s}\right)^3\right]$$
$$\pm F_{de}{}^{t \leq tplanck}\left[\frac{m^8}{s^3}\right] \qquad \textbf{(27)}$$

An emerging significant detail then becomes: We observe dark matter as a 3D-*dark* <u>matter flow</u>, because the dimensions are in ($m^2/s)^3$]. So, here we are: <u>A 'dark flow', observed by astronomers in reality</u>[6].

Ergo: Concrete proof for the existence of a Double Torus universe is at hand, because it follows my formulas in the Double Torus hypothesis while matching observations!

So, I think Gravity $F^{\alpha}{}_{N}$, for $G<(\alpha)\leq 1$, means:

$$quF^{G}{}_{N}\left[N\right] \leq F^{G<\alpha\leq 1}{}_{N} \leq quF^{1}{}_{N}\left[m^2\right]\otimes\pm F_{dm}\left[\left(\frac{m^2}{s}\right)^3\right] \qquad \textbf{(28)}$$

Equation 26, 27 and 28 are therefore new and hint to a new cosmology, called the Double Torus hypothesis.

Verification of my statements is done by two calculations on the acceleration as described in equation (9).

Verification of the dark energy force accelerations.

For $(\alpha=\kappa=G)$ follows:

for $\left\langle (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2\kappa}\right)^{\frac{1}{2}}\left[\frac{m}{s^2}\right]\right\rangle \Rightarrow (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2G}\right)^{\frac{1}{2}}\left[\frac{m}{s^2}\right]$ = **35.27 x 10 $^{-10}$ [m/s^2].** (29)

This is the theoretical value for the observed dark matter-acceleration in galaxies. This acceleration is astronomical observed and determined[7,8] on 1 x 10^{-10} [m/s^2]. So, my theoretical value is 35 times larger than the practical value. This is due to the lack of sufficiently sensitive instruments for measuring the right amount of dark matter in galaxies accurately; in fact there is more dark matter. This conclusion is not odd, because the Planck-satellite data of 2013 shows there is more dark matter (the percentage increased from 22.7% to 26,8 % dark matter).

The same is at hand for the calculation of the acceleration of the Pioneer-satellites 1 and 2 (or actually a deceleration). This is also due to dark matter. The experimental value is determined at 9 x 10^{-10} [m/s^2] (see references 7 and 8). This is about 4 times smaller, but still more accurate due to the smaller scale that could be measured. In galaxies there is much more dark matter present, as mentioned before, hence increased the larger deviation.

In the other case, where $(\alpha = \kappa = 1)$, follows:

For $\left\langle \left(k_{de}\right)^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2\kappa}\right)^{\frac{1}{2}} \left[\frac{m}{s^2}\right] \right\rangle \Rightarrow \left(k_{de}\right)^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2}\right)^{\frac{1}{2}} \left[\frac{m}{s^2}\right]$ = **2.8659 x 10^{-14} [m/s^2].** (28)

In both calculations c = 3 x 10^8 [m/s^2], O_e= (2.6 x 10^{-35})^2 [m^2], G = 6.6 x 10^{-11} [$N.(m^2/kg^2)$]

The result of equation (28) is the smallest acceleration-limit produced by dark matter. It is roughly1,7 times smaller than the experimental laboratory-results of 5 x 10^{-14} [m/s^2] (see also reference 7 and 8). The theoretically calculated value is the real breakdown of Newton-gravity. There dark matter takes over.

Conclusions.

A (new) dark energy force formula performs calculations that match astronomical observations and experiments in earthy-laboratories. This implies leaving the Big Bang cosmology. For me it is clear we live a Double Torus Universe, wherein dark energy is based on time smaller than the Planck-time and is applied on dark matter. That describes the dimensions of dark matter and a dark matter flow. That correlates to observing four times ‘hot and cold spots’ in the CMB. That gives evidence for a rotational cyclic–curved universe, like a Double Torus. In reality the dark flow of dark matter is the evidence for galaxies closer by to be already part of that dark flow. This is a real acknowledged observation . So, this paper opens-up the universe is a Double Torus and not emerged from the Big Bang.

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An overview of my publications can be found at http://vixra.org/author/dan_visser.

Website: www.darkfieldnavigator.com Contact: dan.visser@planet.