A New Force Smaller Than The Smallest Gravity.

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Abstract.

In the formulations of this 'paper' speaks the existence of a force smaller than the smallest gravity. This is a new dark energy force, which affects neutrinos differently than is assumed according to current physics. The formulations also imply a different look on the Higgs-mass and dark matter-mass. The 'paper' is also is an overview of recent 'papers' [1] , which already described these issues, but a deeper analysis became important, because a new cosmological hypothesis is involved. The CERN-experiments on these issues are the falsification for my formulations, but until now my formulations withstand several experimental results, and in this case the match with the latest neutrino-faster-than-light experiments is very convincing (more attention might be given to this 'paper' towards institutional disciplines by the Arxiv or Nature).

Overview.

A New Cosmology introduces a Double Torus Geometry for the universe. This new hypothesis characterizes the Big Bang as an anomaly, which means the Big Bang is just an 'impression' (and not a real Big Bang). Instead space time is part of a new recalculating dynamics in the Double Torus geometry. A solid base in this hypothesis is a new *dark energy force formula*. This *new force* represents a *new definition for dark energy* (thus not Einstein's 'cosmological constant'). The *new formula* recalculates the reality within a torus of dark matter (with visible matter being an affiliate-state of dark matter), while the inner dark matter torus is embedded (and intertwined) in a torus of dark energy. This *dark energy* is characterized by *three time dimensions: One time dimension above and two time dimensions below the Planck scale*. The complete time in the Double Torus hypothesis is therefore formulated as: 't' = $t^{1/3}$. $t^{2/3}$, wherein $t^{1/3}$ is above and $t^{2/3}$ below the Planck scale, wherein the time 't' is not the same as the time (t) in the Big Bang cosmology. The new dark energy force formula (the-latest-specific-version) and this Double Torus time ('t') theoretically prove why and how neutrinos could go faster than light. I published a 'paper' posted in the viXra-archive. It discloses 62.8 nanoseconds time-gain in flight-path of neutrinos (compared to the light speed in vacuüm) from CERN to Gran Sasso within the experimental statistical and systematic limits (see the paper-reference in 'breaking news' mentioned hereafter). But more remarkable is that this 'neutrino-time-gain' is independent of any trajectory ! It is dependent of two neutrinos being in the same 'duo-state of energy' (like super-conductivity in electromagnetism). This 'duo-state of energy' enables them to pass the boundaries of Relativity. My theoretical research discloses the discovery that Einstein's Relativity (Gravity- and Big Bang-framework) is being part of a Double Torus Cosmology, instead of a Big Bang cosmology. The *new dark energy force formula* was derived by me, Dan Visser[2], Almere, the Netherlands, in 2004, and published on my website on April 10 2004. Then the British Christopher Forbes (PhD mathematics-physics and Fellow of the Royal Astronomical Society) picked it up and succeeded to express it in a general mathematical formulation (this was the first 'viXra-paper' of September 1 2009).

This ‘paper’ here gives a deeper analysis for the faster-than-light-neutrinos compared to light in vacuüm. It also points out that a new cosmological model is needed since the latest experimental CERN-results have been published about the faster-than-light-neutrinos. This ‘paper’ also predicts why and how a new value for the Higgs-mass has to be considered for a new place in the energy-range. Furthermore a definition for new dark energy is described.

Deeper analysis of neutrinos faster-than-light-in-vacuum.

My original dark energy force formula, posted on April 10 2004 on my website, is as follows:

$$F_{de} = \pm \frac{c^5 O_e}{2G} m^3 \left[(kgm)^3 \frac{N}{s} \right] \quad (1)$$

For $\left[kg = \frac{m^3}{s^2} \right]$ the dimensions of $G\left[N \frac{m^2}{kg^2} \right]$ changes into $G\left[N \frac{s^4}{m^4} \right]$ (2)

So, if $\frac{1}{G}$ is brought within the dimensions of formula (1), it will be as follows:

$$F_{de} = \pm \frac{c^5 O_e}{2} m^3 \left[\frac{1}{G} (kgm)^3 \frac{N}{s} \right] \quad (3)$$

And, if also the dimension $[kg]$ is replaced by $\left[kg = \frac{m^3}{s^2} \right]$ in the dimensions of formula (3),

then the dimensional change of formula (1) will be as follows:

$$F_{de} = \pm \frac{c^5 O_e}{2} m^3 \left[\frac{1}{\left[N \frac{s^4}{m^4} \right]} \left(\frac{m^3}{s^2} m \right)^3 \frac{N}{s} \right] \quad (4)$$

From this follows:

$$F_{de} = \pm \frac{c^5 O_e}{2} m^3 \left[\frac{m^4}{s^4} \frac{m^9}{s^6} m^3 \frac{1}{s} \right] \quad (5)$$

From this follows:

$$F_{de} = \pm \frac{c^5 O_e}{2} m^3 \left[\frac{m^3 m^2 m^3}{s^3} \left(\frac{m^4}{s^4} \right)^2 \right] \quad (6)$$

From this follows:

$$F_{de} = \frac{c^5 O_e}{2}\left(\pm m^3\right)\left[\frac{m^3 m^2 m^3}{s^3} N^2\right] \tag{7}$$

Now the dark energy force formula is transformed in:

$$F_{de} = k_{de}\left(\pm m^3\right)\left[\frac{m^3 m^2 m^3}{s^3} N^2\right] \text{ with } k_{de} = \frac{c^5 O_e}{2} \tag{8}$$

Formula (8) is the one I used in my 'paper' http://vixra.org/abs/1110.0030

That 'paper' calculated the time-gain of 62.8 nanoseconds for a few neutrinos that travelled amongst a lot of neutrinos in the package-beam from CERN to Gran Sasso compared to flight-path of light in vacuum. Remarkable is that the time-gain is independent of a neutrinos-trajectory. In addition on that 'paper' I felt the obligation to write down a more profound analysis here in this paper for how formula (8) affects the neutrinos in the way I described in that 'paper'.

Therefore it is important to express the constant k_{de} as follows:

$$k_{de} = \frac{c^5 O_e}{2}\left[\frac{m^5 m^2}{s^5} = \frac{m^3 m^3}{s^3} \cdot \frac{m}{s^2}\right] \tag{9}$$

This shows an intrinsic-acceleration on two sub quantum spaces [m^3] and [m^3] per [s^3]. This means the mass $\pm m^3$ in formula (8) can be divided in two different masses, as follows:

Visible mass $+m_{vm}\left[kg\right]$ and dark matter mass $\pm\left(m_{dm}\right)^2\left[\frac{m^3 m^3}{s^3} N^2\right]$ (10)

These features enables formula (8) to be rewritten in a Newton-force and a dark matter mass.

Before doing that, it is good to realize for a scale with length $L \le L_{planck}$ the Newton gravitational constant *G* is dimensionally projected as $\left[m^2\right]$ on any thinkable event-horizon (i.e. black hole, Planck hole, or cosmological event-horizon as defined by the Hubble-radius and observed from the inside to the event-horizon). This means that for a length L, with $L_{planck} < L < L^{\min}{}_{F_N}$, wherein $L^{\min}{}_{F_N}$ is the minimal length for a Newton-force F_N having its lowest possible limit at $F\left(\downarrow \lim\right)_N$, the acceleration for visible mass m_{vm} will be *g'*, such that $F\left(\downarrow \lim\right)_N = m_{vm} g'$. Now the formula (8) can be rewritten as planned:

$$F_{de} = F\left(\downarrow \lim\right)_N \left[N\right] \pm \left(m_{dm}\right)^2 \left[\frac{m^3 m^3}{s^3}\right] \tag{11}$$

The dimension *[m^2]* is disappeared in favor of *g'* $\left[\frac{m}{s^2}\right]$ in $F\left(\downarrow \lim\right)_N = m_{vm} g'$ (12)

But then also must be taken care for k_{de} as follows:

$g' = (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2}\right)^{\frac{1}{2}} \left[\frac{m}{s^2}\right]$, because two possible accelerations were minimized into one acceleration, according to the dimensional change of [N^2] into *[N]*. Then formula (11) will be as follows:

$$F_{de} = F\left(\downarrow \lim\right)_N [N] \pm (m_{dm})^2 \left[\frac{m^3 m^3}{s^3}\right] \text{ with } k = g' \text{ and } F\downarrow(\lim)_N = m_{vm} k \qquad (13)$$

Formula (13) shows the dark energy force F_{de} being a force smaller than the smallest gravity in Relativity. Therefore it affects neutrinos.

How does the dark energy force affects neutrinos?

The answer is: In the current assumptions of physics only left-handed neutrinos occur in particles-experiments. Right-handed neutrinos have never been detected. Only anti-neutrinos have a right-handed helicity. In science history Ettore Majorana predicted that neutrinos and anti-neutrinos could be the same particle because they are neutral. Within the framework of the Standard Model Extension (SME theory), various theorists have suggested that the neutrino might have a tachionic nature, while others have disputed that possibility. In some theories of quantum theory with very high velocities the behavior of the particles becomes distinct from the relativistic ones. They can reach the speed of light at finite energy (which is odd and violating with Relativity).

Formula (12) shows, the dark energy force F_{de} is able to divide the Ettore Majorana neutrinos in a left- and right-handed neutrino (not a right-handed anti-neutrino) and restore the chiral-symmetry of particles-antiparticles as originally defined for Dirac-fermions with their + and – helicity. Then for neutrinos the following (blue) ball picture will be valid (fig. 1):

For $\vec{s} + \overleftarrow{s} = 0$ the spin energy (s) of both neutrinos is fully converted in

$$\leftarrow F_{de} \rightarrow$$

Fig 1: Neutrinos with momentum (p) and their projected helicities (s). If the projection of (s) on (p) is 1 than the neutrinos are massless and can reach the speed of light. If not than neutrinos do have mass and cannot reach the speed of light. We already know that neutrinos can vary their mass. However, In this new case we have no anti-neutrinos, which means that two equal neutrinos with a different helicity-projection of both neutrino-spins(s) on (p) demands a conversion of spin- energy to a new force according to the energy equivalence principle. This new force is the *dark energy force, which restores the symmetry between left-and right-handed neutrinos*.

Proposed general mathematics.

Proposed mathematics match the dark energy force formula and thus the Double Torus and thus the new behavior of neutrinos.

The new situation does not need imaginary mass! It points to the capacity of two neutrinos to share the same direction of momentum by the conversion of opposite spin energies (s) into a dark energy force to hold them together. In that energy state both neutrinos form a duo energy-state, which enables them to go faster than light in vacuum, independently of having mass or being massless. This lack of necessity of having imaginary mass urges to extend the existing cosmological model of the Big Bang. Apparently the *duo state neutrinos* are able to escape from Relativity. Thus General Relativity must fit in a wider geometry of the universe. That is precisely what the Double Torus is: A wider perspective of the universe. It comprehends a dark energy force which is part of a general mathematical formula, wherein also an amount of dark energy is included, as follows:

$\int (\alpha x^2+\beta x+\gamma)\, dx = k, \quad k \in R,$

$\int (0)dx = k, \; k \in R$

$\int (\alpha x^2+\beta x+\gamma)\, dx = \int 0\, dx$

$\alpha x^2+\beta x+\gamma=0,$

$\alpha=G, \; \beta=0, \; \gamma=-¼\, c^4\, (\text{h-bar})^2\, m^6\, G$

$x=\pm ½\, c^5\, m^3\, G^{-1}\, (L_{planck})^2$ (13)

the x is my original dark energy force formule (1).

The general expression (13) can also be written as:

$\int (\alpha(F_{de})^2 + \gamma)\, dx = k, \quad k \in R$

$\alpha = G \; (\approx 6.67 \times 10^{-11}\ N\ m^2\ kg^{-2})$

$\gamma = -¼\, c^4\, (\text{h-bar})^2\, G\, M^6 \; (\approx 10^{-61}\ M^6)$

For $\{\alpha(F_{de})^2 +\gamma=0\}$ follows $F_{de} = \pm ½\, c^5\, M^3\, G^{-1}\, (L_{planck})^2$ (14)

The Y is the amount of dark energy and has the dimensions of a Double Torus geometry (see my reference 'paper': **http://vixra.org/abs/1101.0096** (equation 5).

The afore mentioned mathematical equations are described by **Christopher Forbes** and his colleague, who both assigned me to their publications in the 'viXra papers' **http://vixra.org/abs/0909.0005** and **http://vixra.org/abs/0910.0016**. So we deal with a two torus shaped universe, wherein an outer torus is the dark energy torus embedding and intertwining an inner dark matter torus, wherein also visible mass is acting.

New Higgs-mass.

In addition to my 'paper' **http://vixra.org/abs/1108.0048** I point out that a new Higgs-mass might be in focus. The reason is that particles as neutrinos are most sensitive for the Higgs field, which tries to delay them by an energy resistance. As a result of my analysis now I understand why CERN has difficulties to find the Higgs-mass within the expected ranges of energy being left behind after the first exclusions by CMS an ATLAS. They will not find the Higgs-mass in the range of 114 to 145 GeV/c^2 (with a preference at 120 GeV/c^2). I think, according to the afore neutrino-analysis, the Higgs-mass could be found at a value of ± 0.5 x 0.5 (TeV/c^2)^2 = 2.5 (TeV/c^2)^2 (Tetra !). This value is squared and thus different from a solo-value of 0.5 (TeV/c^2)^{2}as calculated in the afore mentioned 'paper'; this makes it more difficult to find. Moreover, the Higgs-mass might occur earlier in time than light-events in vacuum, because of the time-gain that neutrinos can get. That challenges the search for the Higgs-mass. Furthermore I also think that dark matter is of the same value of the Higgs-mass, because its connection with the dark matter-term in the new dark energy force formula.

Reference Vixra papers

[1] References:

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[2] Reference Dan Visser, owner of website www.darkfieldnavigator.com