

The mathematics behind a new dark energy force related to gravity and anti-gravity by negative mass through a dark matter force in another Cosmology named the 'Double Torus hypothesis'.

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Abstract.

I present the mathematics of a new 'Dark Energy Force' in replay with my former 'papers'. The reason is particles that feel small gravity, and anti-particles that maybe feel anti-gravity, and the particle-cosmology I use, with negative mass, never have been exposed experimentally to General Relativity, in order to prove that a real anti-gravity exists. However, the mathematics in my framework theoretically prove, that only dark matter-mass could have negative mass. This is in contradiction with a new theory of Entropy-Gravity, which theoretically proved gravity is not fundamental, but caused by entropy. My framework is also in contradiction with the Elementary Process theory, which also predicts gravity is not fundamental, but will cause anti-gravity by anti-matter with positive mass. Both these frameworks consider their theory in a Big Bang cosmology. So I replayed my mathematics to highlight again, that a new dark matter-force, embedded in a new cosmology named Double Torus Universe, is the only one that could cause real anti-gravity. My framework is independently developed from institutions and based on two extra-time arrows from below the Planck-scale. Additionally, and for the first time, I used a Feynman-diagram to express this dark matter-force in order to illustrate the existence of real anti-gravity theoretically.

Introduction.

It took a long time before the force of gravity for small particles and anti-particles are planned to be exposed to General Relativity in experiments. Fortunately such an experiment is coming-up in 2014, named AEGIS (CERN). It will try to prove, whether positive anti-matter can cause anti-gravity. Still I think an experiment that proves the existence of a (new) 'dark matter force' will only prove the existence of anti-gravity by negative dark matter-mass. My framework predicts this and is based on using dynamics from below the Planck-scale, an issue that is also described in the Entropy-Gravity theory. This is the theory of E. Verlinde (UVA-NL)^[1], who had followed (in my words) the 'correspondence principle' ("using what is known from before in physics"). However, in my particular case of analysis, it is about dynamics from below the Planck-scale, which concerns 'two extra time-arrows' additional to the always going forward time-arrow in Big Bang cosmology. The AEGIS-experiment, however, will have only a look at the prediction, whether anti-matter is falling-up or falling-down, a prediction that is made in the Elementary Process theory. This is a theory of M. Cabbolet (VUB-BE)^[2], who used an axiomatic system ("showing mathematically what might be not known in physics"). Verlinde's and Cabollet's frameworks were institutional developed. However, the framework of the 'Double Torus hypothesis' is independently developed from the institutions^[3, 4] (Dan Visser, an independent cosmologist in Almere). It is a framework for cosmology, that suggests dark matter-force can exchange positive and negative energy by dark matter mass (+ and -). The (new) 'dark energy-force' in the 'Double Torus hypothesis' comprehends the Newton-Gravity-force for small positive mass-particles in a product with a (new) 'dark matter force', existing of positive and negative dark matter-mass-particles, that spin and accelerate at a scale of about 10^{-22} meter. The

'dark matter force' could over-power the lowest limit of the Newton-Gravity at that scale and could cause anti-gravity as soon as two dark matter particles approach each other in vacuum too closely.

The (new) dark energy force, that embeds the (new) dark matter force, is described in the (new) cosmology, named: 'Double Torus hypothesis'. It excludes the Big Bang from being a singular model, but being instead an enclosure of dynamics that generates an illusion of space-expansion. The approach in this framework is developed independently from the institutional walls.

The (new) 'dark energy force' has emerged from my 'thought-experiment' in 2004 and is based on 'non-relativistic scaling'. And it works. I solved i.e. the discrepancy of vacuum energy-density. A discrepancy, that exists by different values, whether it has been calculated from quantum-dynamics, or General Relativity. These give a difference with a factor 10^{122} . I solved this, by using calculations directly from the (new) 'dark energy force-formula', as well as a calculation based on the ratio of the (new) 'dark energy force' and a (new) amount of 'dark energy' (the latter is described in the mathematics of a paper from 2009). It all considers 'papers' hosted in the Vixra-archive.

In these 'papers' I pretend to have found a the connection of visible mass and dark matter mass in vacuum, that might point to the existence of a (new) energy source by using my (new) dark matter-force formula. Also some other experimentally related puzzles are re-highlighted in these 'papers', such as neutrino-behavior related to light-speed and detection of dark matter instead of Higgs.

The mathematics behind the (new) dark energy force.

Firstly:

$$F_{de} = \pm m^3 k_{de} \left[(kgm)^3 \frac{N}{s} \right] \quad (1)$$

Where $k_{de} = \frac{c^5 O_e}{2\kappa}$ is a constant, dependent on light-speed (c), the Planck-surface (O_e) and the typical two-state constant κ .

In order to define, (k_{de}) with κ , firstly equation (1) must be transformed to visible-mass and dark matter-mass each applied to an acceleration of:

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

This leads to the transformation of equation (1).

Secondly:

The transformation of equation (1) is as follows:

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

Wherein, κ in k'_{de} , defines the conditions larger than, or, at the edge, or, within the *Planck-surface*.

This implies we shall deal with the lowest limits ($\downarrow \lim$) of corresponding forces in that area:

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

Now the conditions for κ can be described:

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

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

$$(A) \Rightarrow F^G_N = mg [N] = G \frac{Mm}{r^2} [N] \quad (4)$$

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

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

$$(B) \Rightarrow F_{dm} = \pm m_{dm}^2 \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \text{ [this dimension will be expressed hereafter]} \quad (5)$$

Note: In point (1) and (2) the (g) is the gravitation-acceleration.

Thirdly:

In order to express the dimension of equation (3) and (5) in accordance to point 1 and 2 the dimension of equation (2) can be transformed, as follows:

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

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

$G=1$ for the Newton-gravity-force at the edge and within the Planck-surface with dimension $[m^2]$ and the Newton-gravity-force is then at a maximum with $[N^2]=1$.

So the dimension of (C) will be:

$$(C) = \left[G^2 \frac{m^8}{s^3} N^2 \right] = \left[\frac{m^2 m^6}{s^3} \right] \quad (7)$$

Accordingly equation (3) is transformed into:

$$F_{de} = \left\{ (F_N^G) [m^2] \right\} \otimes \left\{ (\pm F_{dm}) \right\} \left[\frac{m^6}{s^3} \right] \quad (8)$$

This is identical to:

$$F_{de} = \left\{ (F_N^G) [m^2] \right\} \otimes \left\{ (\pm F_{dm}) \right\} \left[\left(\frac{m^2}{s} \right)^3 \right] \quad (9)$$

From equation (9) follows that the Newton-gravity-force is not a fundamental force, but belongs to a (new) 'dark energy-force' existing of a product of the Newton-gravity-force and a (new) 'dark matter-force' that can be as well positive as negative.

Now the 'dark matter-force' in equation (9) and equation (2) can be given dimensionally structure:

$$F_{dm} = \pm m_{dm}^2 \left[m^2 m^2 \frac{m}{s} \right] (k_{de})^{\frac{1}{2}} \left[\frac{m}{s^2} \right] = \pm m_{dm}^2 (k_{de})^{\frac{1}{2}} \left[\left(\frac{m^2}{s} \right)^3 \right] \quad (10)$$

$$\text{Where, for } (\kappa = 1) \text{ in } \left\langle (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2\kappa} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] \right\rangle \Rightarrow (k_{de})^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] \quad (11)$$

That changes equation (10) in:

$$F_{dm} = \pm m_{dm}^2 \left[m^2 m^2 \frac{m}{s} \right] \cdot \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\frac{m}{s^2} \right] = \pm m_{dm}^2 \left(\frac{c^5 O_e}{2} \right)^{\frac{1}{2}} \left[\left(\frac{m^2}{s} \right)^3 \right] \quad (12)$$

In equation (12) the 'dark matter mass' has the dimension of a 'spinning torus' (fig. 1)

This 'spinning disc' accelerates in two possible opposite directions, which makes the 'spinning disc' either to expand or contract. This is the typical characteristic of the (new) 'dark matter force'.

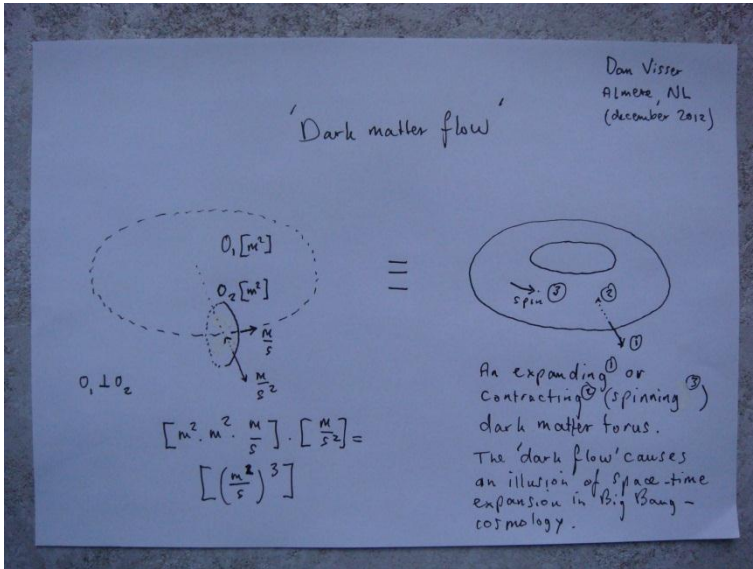


Fig 1.: Dark matter flow in the Double Torus hypothesis.

The spinning- and expanding-process (c.q. contraction) causes a 'dark flow', which could be also related to the α -dipole observed astronomically in Big Bang cosmology. The α -dipole can be explained by imagining (relative to the observer in the flow) a larger dark matter-density in the direction ahead and a smaller in the direction opposite backwards.

This is what I already found and described in former 'papers', using the α in calculations with the (new) 'dark energy force formula'. That proved the geometry to be the Double Torus. This 'paper', however, re-highlights the mathematics behind the Double Torus hypothesis in order to sharpen the view on ant-gravity. I tried to do it more detailed and more accurate, although it could always be better.

Additionally I come forward (for the first time) with a diagram (fig. 2) that can be compared to 'Feynman-diagrams'. Here I present a Feynman-diagram for the (new) 'dark matter-force'.

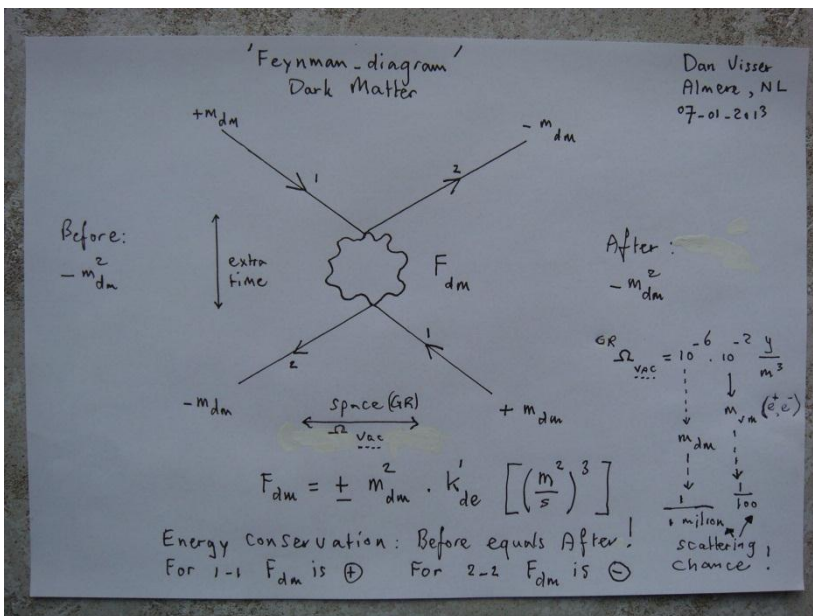


Fig. 2: Feynman-diagram for 'dark matter', which relates to gravity or anti-gravity by negative dark matter-mass.

[1] JHEP04(2011)029; On the origin of gravity and the laws of Newton; E. Verlinde.

[2] arXiv:1202.2001v1 [math.LO] 9 Feb 2012. Set Matrix Theory as a Physically Motivated Generalization of Zermelo-Fraenkel Set Theory; Marcoen J.T.F. Cabbolet^{1,2,*}, Harrie C.M. de Swart^{3,†}

[3] http://vixra.org/author/dan_visser; overview papers Double Torus hypothesis.

[4] www.darkfieldnavigator.com; website Dan Visser; Double Torus Universe.