

# The Features For Dark Matter And Dark Flow Found.

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## Abstract.

Fly-By- and GPS-satellites reveal an earth-dark matter-halo is affecting the orbit-velocities of satellites. After analysis by a new set of equations, which describe dark matter, dark matter-force and quantum-gravity combined in a new dark energy force-formula, the new formulations match a percentage whereof satellites feel extra gravity. Also the dark matter-density has been calculated. The analysis confirms dark matter exists as a halo around the earth. Secondly it shows what dark matter really is. It also shows what a dark flow is. The dark matter-features are presented in a Double Torus Cosmology, a new model for the universe, which replaces Big Bang cosmology and enables to understand dark matter better!

## Introduction.

New dark matter-formulations prove a dark matter-halo around the earth affects Fly-by and GPS-satellites passing and circling around the earth. Corresponding satellite-measurements are put in perspective of a new set of equations belonging to a new cosmological model for the universe, called the rotational Double Torus Universe. The set of equations shows what dark matter really is! It easily calculates dark matter, because this is fundamental in the new model. The analysis given explain why these satellites get an extra orbit-velocity and feel more earth-gravity by a dark matter-halo around the earth. The new equation-framework shows dark matter are not mass-particles in vacuum, but vacuum-torus-particles looking spacious forming an energy-spin-density with specific dimensional features. I prove dark matter are no WIMPs. The WIMPs are a product of super-symmetry from string-theory, but super-symmetry is explicitly ruled out by CERN-experiments. The LUX-experiments measure dark matter wrongly. Dark-vacuum spacious spin-densities appear to be related to a moving smaller Newton-gravity constant. A calculation shows an energy-density of  $2.5 \times 10^{-4}$  J/m<sup>3</sup> per kg<sup>2</sup> and per ms<sup>-2</sup> for spacious dark matter (thus per two coherent moving masses in a surface and per acceleration). The calculation used a given extra orbit-velocity  $\Delta v$  of the fly-by satellites<sup>[1],[2]</sup> according to  $0.008 \pm 0.004$  mm/s  $> \Delta v < 7.21 \pm 0.07$  mm/s and proved the percentage of extra gravity caused by the spacious dark matter affective on the GPS-satellites matches the given 0.005 to 0.008 %<sup>[3]</sup>. That match proves dark matter really exists.

## Perspective.

This paper is a follow-up on paper<sup>[4]</sup> 1104.0085v3. That paper presented the average of a smaller Newton-constant playing a role in a possible halo of dark matter around the earth. This led to a calculation for the flow of dark matter energy-density surrounding the earth. The calculation, however, is not part of standard physics. It is part of a new cosmology, called the Double Torus Universe, which is an alternative cosmology replacing Big Bang cosmology without eliminating GRT (General Relativity Theory).

That flow of a dark matter density might empowerment an extra orbit-velocity of several fly-by satellites. However, new investigation on GPS-satellites also are marked with faster velocities

and imply a larger earth-mass of about 0.005-0.008 %. These investigations are performed with standard physics and suggest dark matter might be the cause for the extra-velocity the GPS-satellites. Thus both fly-by- and GPS-satellites are subject to dark matter increasing their orbit-velocity. One can imagine dark matter pulls on the satellites additional to the earth-gravity and suggests the earth having more mass than the AIU has originally calculated.

These investigations urged me to put them in perspective of the set of equations I use in the Double Torus framework. The calculations I use directly are made on dark matter described in the Double Torus cosmology. Within that framework it is shown how dark matter dimensionally looks like and that is not like in standard physics. Standard physics need a fundamental change to realize that dark matter are not WIMPs. WIMPs are predicted by super-symmetry from string-theories. But CERN-experiments proved super-symmetry is not confirmed experimentally. So, it is not unexpected that the LUX Dark Matter-project didn't dark matter. The chance it finds dark matter WIMPs diminishes by the day. Their 33GeV per cross-section of  $7.6 \times 10^{-48} \text{ [cm}^2\text{]}$  for WIMPs evaporates in front of the sun. The reason is dark matter-density only manifests in layers around the earth and not in mines deep down underground! In the new set of equations for the alternative cosmology dark matter is more like dark vacuum-particles than dark mass-particles in vacuum. Dark matter is particular density of space!!

### Start of the analysis.

Let's start with the explanations of how the dimensions of dark matter vacuum-particles form a the dark matter energy-density FLOW that drives the satellites. As investigated in in paper 1104.0085v3 this has all to do with a smaller Newton-gravity constant  $G' < G$ . That starts with the equation (14) from the afore mentioned paper, where I calculated an AVERAGE dark matter quantum-spin on:

$$\frac{(1.25 + 0.0013) \cdot 10^{-11}}{2} = 0.62565 \times 10^{-11} \left[ \frac{\text{Js}}{\text{m}^4 \text{ Nkg}} \right] = \left[ \frac{\text{Js}}{\text{m}^3} \frac{1}{\text{mNkg}} \right] \quad (1)$$

This dimension is a *spin-density* (Js per  $\text{m}^3$ ) per m, per N and per kg.

Then I calculated the dark matter energy-density for a satellite-orbit-velocity at 40.000 km/s:

$$0.62565 \times 10^{-11} \left[ \frac{\text{Js}}{\text{m}^4 \text{ Nkg}} \right] \cdot 4 \times 10^7 \left[ \frac{\text{m}}{\text{s}} \right] = 2.5 \times 10^{-4} \left[ \frac{\text{J}}{\text{m}^3} \right] \left[ \frac{1}{\text{N kg}} \right] \quad (2)$$

From this I will now dimensionally prove the dark matter-density is a FLOW caused by  $G' \cdot v$ , where  $G'$  is smaller than the Newton-gravity constant.  $G'v$  is moving gravity. The velocity  $v$  is the orbit-velocity !!

I Start with the specific related  $G'$  for dark matter causing the extra-velocity of the fly-by satellites, where  $\Delta v/v$  is dimensionless according to formulations in the 1104.0085v3 paper:

$$\frac{\Delta v}{v} = 0.62565 \times 10^{-11} \left[ \frac{\text{Js}}{\text{m}^4 \text{Nkg}} \right] \quad (3)$$

I will prove this dimension can be correctly related to the standard physics G [N.(m<sup>2</sup>/kg<sup>2</sup>)].

$$\text{Firstly in standard physics } \frac{\Delta v}{v} = 1 \text{ (dimensionless)} \quad (4)$$

But:

$$G \left[ N \frac{\text{m}^2}{\text{kg}^2} \right] \quad (5)$$

$$\frac{1}{G} \left[ \frac{1}{N} \left\langle \frac{\text{kg}^2}{\text{m}^2} \right\rangle \right] \quad (6)$$

$$\text{So } G \cdot \frac{1}{G} = 1 \text{ just as } \frac{\Delta v}{v} = 1 \text{ (dimensionless)} \quad (7)$$

Dimension (6) shows an energy-density is per Newton, but it also shows  $\left\langle \frac{\text{kg}^2}{\text{m}^2} \right\rangle$  for dark

matter-mass of  $(m_{dm})^2 \left[ \left\langle \frac{\text{kg}^2}{\text{m}^2} \right\rangle \right]$ . This is similar to the way I described in the dark matter-

force of the new dark energy-force equation within the set of equations of the Double Torus Universe. This I will mention just afterwards.

It legitimizes to put the energy-density dimension  $\left\langle \frac{\text{kg}^2}{\text{m}^2} \right\rangle$  into the dark matter energy-density

as  $\left[ \frac{\text{J}}{\text{m}^3} \right]$ , so then follows:

$(m_{dm})^2 \left[ \frac{\text{J}}{\text{m}^3} \left( \frac{1}{N} \right) \right]$  but there is still missing a dimensional part, because  $\left\langle \frac{1}{\text{kg}} \right\rangle$  is also

$$\text{embedded in } G \left[ \frac{\text{m}^3}{\text{kg s}^2} \right] = \left[ \frac{1}{\text{kg}} \frac{\text{m}^3}{\text{s}^2} \right] \quad (8)$$

This makes G for dark matter in the flyby-satellite case dimensionally correct per N and per kg, as:  $G' = 0.62565 \times 10^{-11} \left[ \frac{Js}{m^4 Nkg} \right]$ . This is a *spin-density* in a torus-geometry [m<sup>2</sup>.m<sup>2</sup>] per N and per kg.

From this the energy-density FLOW follows by the movement of a smaller Newton-gravity constant  $G' < G = 6.6 \times 10^{-11} [N.(m^2/kg^2)]$ , however  $G'$  is changed in another order of dimension.

That is the dimension belonging to the *dark matter spin-density*.

The FLOW of the dark matter energy-density follows when a velocity affects this spin-density:

$$G' \left[ \frac{Js}{m^4 Nkg} \right] v \left[ \frac{m}{s} \right] = G' v \left[ \frac{J}{m^3 Nkg} \right] = \left[ \frac{J}{m^3 Nkg} \right] \quad (9)$$

However, I promised to mention the set of equations that mark the new dark energy-force formula related to this dark matter-analysis.

### Set of equations of the new dark energy-force.

The set of equations for the new dark energy-force is formulated could be retrieved in my other vixra-paper, but in general I give them here:

$$F_{de} = qF_z [\text{dim1}] \otimes sqF_{dm} [\text{dim2}] \quad (10)$$

$$qF_z = m_{vm} (k_{de})^{\frac{1}{2}} [\text{dim1}] \quad (11)$$

$$sqF_{dm} = (m_{dm})^2 (k_{de})^{\frac{1}{2}} [\text{dim2}]$$

### Firstly:

for  $G = 6.6 \times 10^{-11} [N.(m^2/kg^2)]$  follows:

$$\text{dim1} = \left[ kg \frac{m}{s^2} \right] = [N] \text{ and } \text{dim2} = \left[ \frac{(kgm)^3}{s} \right] \quad (12)$$

from that follows:

$$qF = m_{vm} (k_{de})^{\frac{1}{2}} [N] \quad (13)$$

$$sqF_{dm} = (m_{dm})^2 (\pm k_{de})^{\frac{1}{2}} \left[ \frac{(kgm)^3}{s} \right] \quad (14)$$

$$\pm F_{de} [\text{dim1} \cdot \text{dim2}] = \left[ (kgm)^3 \frac{N}{s} \right] \quad (15)$$

$$(\pm k_{de})^{\frac{1}{2}} = \left( \pm \frac{c^5 O_e}{2G} \right)^{\frac{1}{2}} \left[ \frac{m}{s^2} \right] \quad (16)$$

$$O_e = (L_{Planck})^2 \quad (17)$$

That is the original dark energy force formula from April 2004 adapted with the + sign in September 2009, as follows:

$$F_{de} = \pm \frac{c^5 O_e}{2G} m^3 \left[ (kgm)^3 \frac{N}{s} \right] \quad (18)$$

**Secondly:**

$$\text{for } G = 1 \text{ follows } \text{dim1} = [m^2] \text{ and } \text{dim2} = \left[ \left( m^2 m^2 \frac{m}{s} \right) \frac{m}{s^2} \right] \quad (19)$$

That is for maximum gravity. As well as the universe as the Planck-scale. So then follows:

$$qF = m_{vm} (k_{de})^{\frac{1}{2}} [m^2] \quad (20)$$

$$sqF_{dm} = (m_{dm})^2 (\pm k_{de})^{\frac{1}{2}} \left[ \left( \frac{m^2}{s} \right)^3 \right] \quad (21)$$

$$\pm F_{de} [\text{dim1} \cdot \text{dim2}] = \left[ \frac{m^8}{s^3} \right] \quad (22)$$

From this follows the set of equations used in the Double Torus cosmology, a new model for the universe, which replaces the Big Bang cosmology.

$$\pm F_{de} = \left\langle m_{vm} (k_{de})^{\frac{1}{2}} \right\rangle_{\text{quantum}} \otimes \left\langle (m_{dm})^2 (\pm k_{de})^{\frac{1}{2}} \right\rangle_{\text{subquantum}} \left[ \frac{m^8}{s^3} \right]$$

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

$$\kappa = (0 < G' < G)$$

$$\kappa \neq 0 \rightarrow \text{otherwise} - \text{no} - \text{universe}$$

$$\kappa = 1 \rightarrow \text{Planck} - \text{scale}$$

$$\kappa = 1 \rightarrow \text{Universe} - \text{scale}$$

$$O_e = (L_{\text{Planck}})^2$$

(23)

For  $0 < G' < G$  the Newton-gravity constant starts moving through the product of  $G'$  and the velocity ( $v$ ) related to visible mass  $m_{vm}$ , which is embedded in dark matter vacuum-particle-density with dimension  $[m^2 \cdot m^2 \cdot (ms^{-1})]$  and empowered by acceleration  $(ms^{-2})$  in order to generate the dark matter force. I will describe the dark matter force by combining my theoretical set of equations with the equation from the reality of the fly-by and GPS-satellites.

### Dark matter force.

The formulation of the dark matter force is be as follows:

$$F_{dm} = (m_{dm})^2 \cdot (\pm k_{de})^{\frac{1}{2}} \left[ \left( m^2 m^2 \frac{m}{s} \right) \frac{m}{s^2} \right] = G' v_{orbit} (\pm k_{de})^{\frac{1}{2}} \left[ \left( \frac{J}{m^3} \frac{1}{Nkg} \right) \frac{m}{s^2} \right] = [\text{dim 3}]$$

$$[\text{dim 3}] = \left[ \frac{J}{m^2} \frac{1}{Nkgs^2} \right] = \left[ \frac{J}{m^2} \frac{1}{kg \frac{m}{s^2} kgs^2} \right] = \left[ \frac{J}{m^3} \frac{1}{kg^2} \right]$$

(24)

Shortly:

$$F_{dm} = (m_{dm})^2 \cdot (\pm k_{de})^{\frac{1}{2}} \left[ \left\langle \left( m^2 m^2 \frac{m}{s} \right) \frac{m}{s^2} \right\rangle \right] = G' v_{orbit} (\pm k_{de})^{\frac{1}{2}} \left[ \left\langle \frac{J}{m^3} \right\rangle \frac{1}{kg^2} \right]$$

(25)

The dark matter force is a dark matter vacuum-energy density per two masses each in kg.

From this follows:

$$(m_{dm})^2 = G'v_{orbit} \left[ \frac{J}{m^3} \frac{1}{Nkg} \right] = \left[ \frac{J}{m^3} \frac{1}{kg \frac{m}{s^2} kg} \right] = \left[ \frac{J}{m^3} \frac{1}{kg^2} \frac{1}{\frac{m}{s^2}} \right] \quad (26)$$

In the case of the fly-by satellites the result is:

$$m_{dm}^2 = 0.62565 \times 10^{-11} \left[ \frac{Js}{m^4 Nkg} \right] \cdot 4 \times 10^7 \left[ \frac{m}{s} \right] = 2.5 \times 10^{-4} \left[ \frac{J}{m^3} \frac{1}{kg^2} \frac{1}{\frac{m}{s^2}} \right] \quad (27)$$

$$\text{Shortly: } m_{dm}^2 = 2.5 \times 10^{-4} \left[ \frac{J}{m^3} \frac{1}{kg^2} \frac{1}{\frac{m}{s^2}} \right] \quad (28)$$

To a further understanding, as follows:

Dark matter-energy-density can only be detected in  $\left[ \frac{J}{m^3} \right]$  or  $\left[ \frac{GeV}{m^3} \right]$  if one accelerates !! two

masses simultaneously in a surface as  $kg^2$  !! That is the reason the LUX dark matter project doesn't get any significant WIMPs-dark matter signal, because LUX measures the energy per

surface in  $\left[ \frac{GeV}{m^2} \right]$ ; LUX found:  $33 \text{ GeV} / 7.6 \times 10^{-48} [\text{cm}^2]$  which is  $33 \text{ GeV} / 7.6 \times 10^{-44} [\text{m}^2]$ .

According to equation (28) I found:

$$m_{dm}^2 = 2.5 \times 10^{-4} \left[ \frac{J}{m^3} \frac{1}{kg^2} \frac{1}{\frac{m}{s^2}} \right] \quad (29)$$

$$m_{dm}^2 = 2.5 \times 10^{-4} \times 6.24 \times 10^{18} \left[ \frac{eV}{m^3} \frac{1}{kg^2} \frac{1}{\frac{m}{s^2}} \right] \quad (30)$$

$$m_{dm}^2 = 1560 \left[ \frac{\text{GeV}}{\text{m}^3} \frac{1}{\text{kg}^2} \frac{1}{\frac{\text{m}}{\text{s}^2}} \right] \quad (31)$$

So a dark matter mass energy-density of **1560 GeV / [m<sup>3</sup>]** per two masses shaped surface and per acceleration for fly-by and GPS satellites passing and circling around the earth. In general this also expressed in fig. 1. The calculated value cannot be compared to what LUX tried to measure.

The value **33GeV / 7.6 x 10<sup>-44</sup> [m<sup>2</sup>]**, like LUX estimated as a limit, has to be considered in a similar way as applicable on the earth-rotation around the sun. But still LUX wouldn't find dark matter, because it lacks to measure the energy-density in three dimensional way. Moreover WIMPs are a prediction of super-symmetry, which CERN explicitly ruled out.

Instead dark matter exists of spacious vacuum-particle shaped as a torus. This dark matter contributes as well to quantum-gravity as to quantum-expansion, depending on the acceleration-direction of the surface-coherent moving duo-mass! Then LUX will be more successful according to my analysis.

But this is not the end of my analysis. I will check the percentage published for the GPS-satlites feeling more gravity.

Dark matter-Flow:

$\pm F_{dm} \left[ \frac{\text{y}}{\text{m}^3} \cdot \frac{1}{\text{kg}^2} \right]$  is a FLOW per  $\text{kg}^2$

Just as  $(G' < G) \times v_{\text{orbit}}$  is (2)

In the dark matter set of equations

$$F_{dm} = m_{dm}^2 \times \left( \frac{1}{\text{kg}^2} \right)^{\frac{1}{2}} \left[ \left( \frac{\text{m}^2}{\text{s}} \right)^{\frac{1}{3}} \right]$$

(1) acceleration  $\left[ \frac{\text{m}}{\text{s}^2} \right]$

The flow is caused by an acceleration (1)

A FLOW of dark matter energy-density

$\frac{\text{y}}{\text{m}^2}$  per  $\text{kg}^2$  per  $\frac{\text{m}}{\text{s}^2}$

$m_{dm}^2 = \pm G' v_{\text{orbit}}$

Dark Matter:

$m_{dm}^2$  is a sphere of emitted energy-density a halo

A halo of dark matter energy-density

per  $\text{kg}^2$  and per  $\frac{\text{m}}{\text{s}^2}$

General

$F_{da} = g F_2 \otimes \text{sq} F_{dm} \pm$   
dark energy-force formula van DAN.

This is what dark matter is! This is what a dark matter-flow is!

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Fig. 1: Dark Matter and Dark Flow (by Dan Visser, Almere, the Netherlands)



## Check on percentage for the GPS-satellites.

This check applies a factor that the earth mass-density differ from the calculated dark matter vacuum energy-density. The factor is directly applicable on the extra orbit-velocity of a GPS-satellite around the earth.

It starts as follows:

$$\frac{m_{dm}}{m_{earth}} = \frac{\Omega_{dm}^E}{\Omega_{earth}^m} \sim \frac{2.5 \times 10^{-4} \left[ J m^{-3} k g^{-2} (m s^{-2})^{-1} \right]}{10^4 \left[ k g m^{-3} \right]}$$

$$\frac{m_{dm}}{m_{earth}} \sim 2.5 \times 10^{-8} \left[ k g^{-2} \right]$$

This a factor per  $kg^2$  whereto also the extra orbit-velocity is related to.

$$\Delta v_{orb} = \frac{\Delta v_{esc}}{\sqrt{2}} = \frac{\Delta \sqrt{\frac{Gm}{r}}}{\sqrt{2}} = \frac{\sqrt{\frac{Gx\Omega_{dm}^E m_{earth}}{r}}}{\sqrt{2}} = \frac{\sqrt{\frac{Gx2.5 \times 10^{-8} m_{earth}}{r}}}{\sqrt{2}}$$

$$\Delta v_{orb} = \frac{1.25 \times 10^{-4} \sqrt{\frac{Gm_{earth}}{r}}}{1.4} = 0.89 \times 10^{-4} = 0,89 \times 10^{-2} \text{ percent}$$

$$\Delta v_{orb} = 0.0089 \text{ percent}$$

That matches the experimental GPS-satellites results for feeling an extra orbit-velocity by 0.005 to 0.008 % extra gravity by a dark matter halo around the earth.

## Conclusion.

Fly-By- and GPS-satellites reveal an earth-dark matter-halo is affecting the orbit-velocities of satellites. After analysis by a new set of equations, which describe dark matter, dark matter-force and quantum-gravity combined in a new dark energy force-formula, the new formulations match a percentage whereof satellites feel extra gravity. Also the dark matter-density has been calculated. The analysis confirms dark matter exists as a halo around the earth. Secondly it shows what dark matter really is. The dark matter-features are presented in a Double Torus Cosmology, a new model for the universe, which replaces Big Bang cosmology and enable to understand dark matter better!

## References.

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