The new DAN-energy, The rotational Dark Vacuum-particle, A Particular Calculation And The Rotational Universe.

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Abstract.

The title of this article presents evidence-based insight of the manner entropy-gravity might work in detail. Entropy-gravity stands in the picture while simultaneously the Double Torus hypothesis posits the universe can no longer be maintained as the Big Bang cosmology. So from the point of view of the Double Torus hypothesis both hypotheses could be theoretically related. The Double Torus hypothesis is point-particle related, but entropy-gravity used string-mathematics. However, entropy-gravity also used the Holographic Principle. So only the string-mathematics seem to be useful and not an expectable physics model; besides it is limited to Big Bang cosmology. Therefore it might be unexpectedly true that the Universe is Double Torus-shaped with dynamics that carry dark vacuum-particles with the same dynamics, namely: A Double Torus sub-quantum generated quantum-gravity whereof optical reality is a part of.

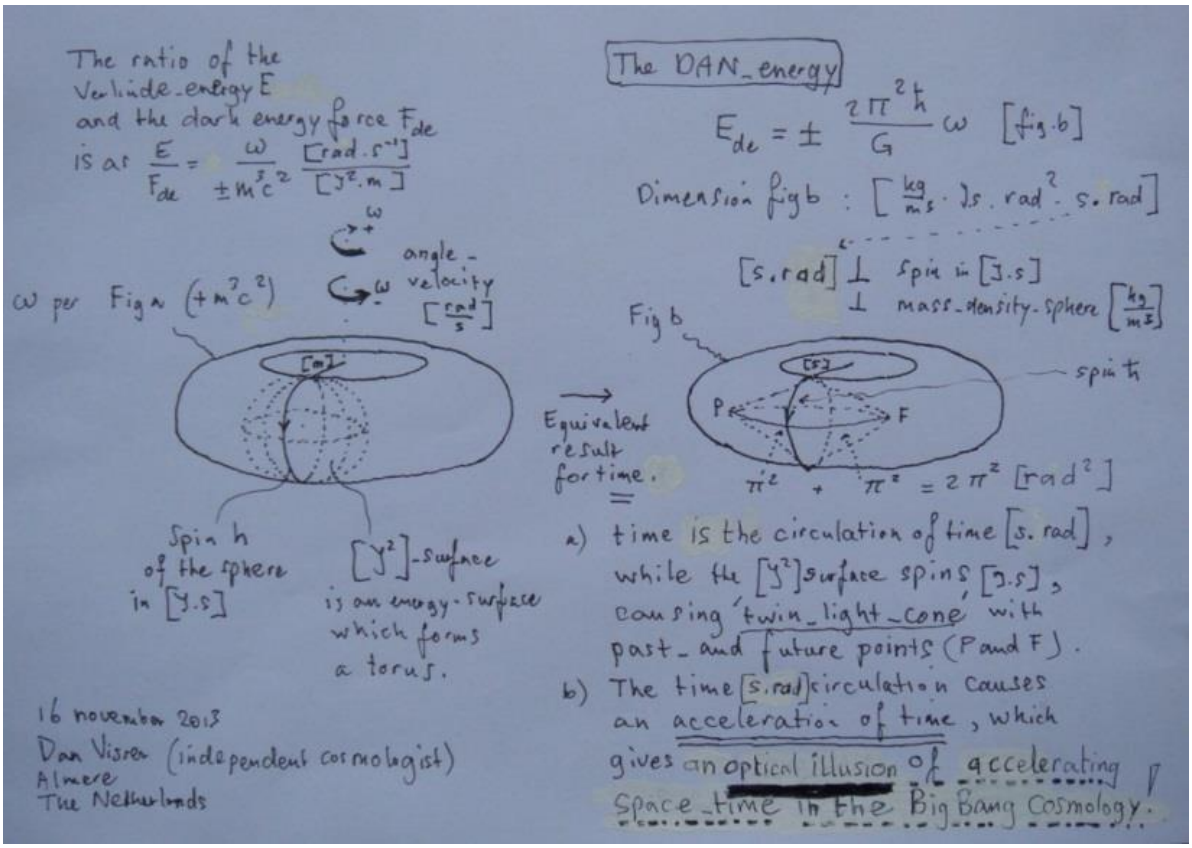
Introduction.

This paper is a supplement to my former paper http://vixra.org/abs/1311.0121, which was titled: 'Einstein's Energy Is Connected To A New Dark Energy In A Rotational Double Torus Universe While Accelerated Space-expansion in Big Bang Cosmology Is An Optical Illusion.' Here the supplement expresses in particular the details of the described twin-light-cone in the sub-quantum-domain of the Double Torus hypothesis. Thereby firstly is recognized that the spin of the twin-light-cone is stretched and curved and secondly it recognized that a unit of two time-clocks form a time-surface in the sub-quantum-domain. These features define a sub-quantum-unit of rotational energy-density (dark vacuum-particle), which leads to quantum-gravity when the rotation is dependent on the Planck-time-surface. In general the energy-density-unit is dependent on how much faster the sub-quantum-time-surface is running than the Planck-time-squared. The faster, the larger the energy-density of the dark vacuum-particle and the less energy-density is available for quantum-gravity. Based on this principle of sub-quantum-dynamics a calculation is made for the momentum when quantum-gravity is generated from a dark vacuum-particle at the Planck-time-surface; the energy-density of a dark vacuum-particle is then calculated on 984 eV per zepto-meter (is a scale of 10^-21 m).

Energy-density of the sub-quantum-time of the twin-light-cone.

I repeat the DAN-energy in equation (52) of my former paper [1], which is also dimensionally expressed in image-1:

$$E_{de} = \pm \frac{2\pi^2 \hbar}{G} \omega \left[\frac{kg}{m^3}.Js.rad^2.s.rad \right] \qquad (1) = (52)$$



However, in this supplement $\hbar = \frac{h}{2\pi}$ is substituted and gives a beautiful constant in the ratio of the DAN-energy and the Verlinde-energy (see also my former paper [1]):

$$\frac{E_{de}}{E} = \frac{\pm\pi \frac{h}{G}\omega}{\frac{1}{4\pi}h\omega} = \pm \frac{4\pi^2 \left[rad^2 \right]}{G\left[\frac{m^3}{kgs^2} \right]} = \pm \frac{4\pi^2}{G}\left[\frac{kg}{m^3} s^2 rad^2 \right] \qquad (2)$$

Equation (2) is expressed dimensionally in the image-2 (next page). The ratio of the DAN-energy and the Verlinde-energy reveals that a mass-volume-density at the border of quantum and sub-quantum-domain changes in a stretched and curved twin-light-cone in the *dark or visible reality*. The twin-light-cone spins and rotates as a torus. Spin and rotation take place at the same momentum. The sub-quantum points for past-and future (P_{sq} en F_{sq}) at both ends of the twin-light-cone are vector-time-composed by two time-clocks. These clocks are smaller than the Planck-time. In the sub-quantum-domain the time-surface and stretched curved mass-volume-density are united. Such a unit contains the distributed equivalent energy-density of the sphere-mass-value-density. The ration shows a constant $\pm \frac{4\pi^2}{G}\left[\frac{kg}{m^3} s^2 rad^2 \right]$.

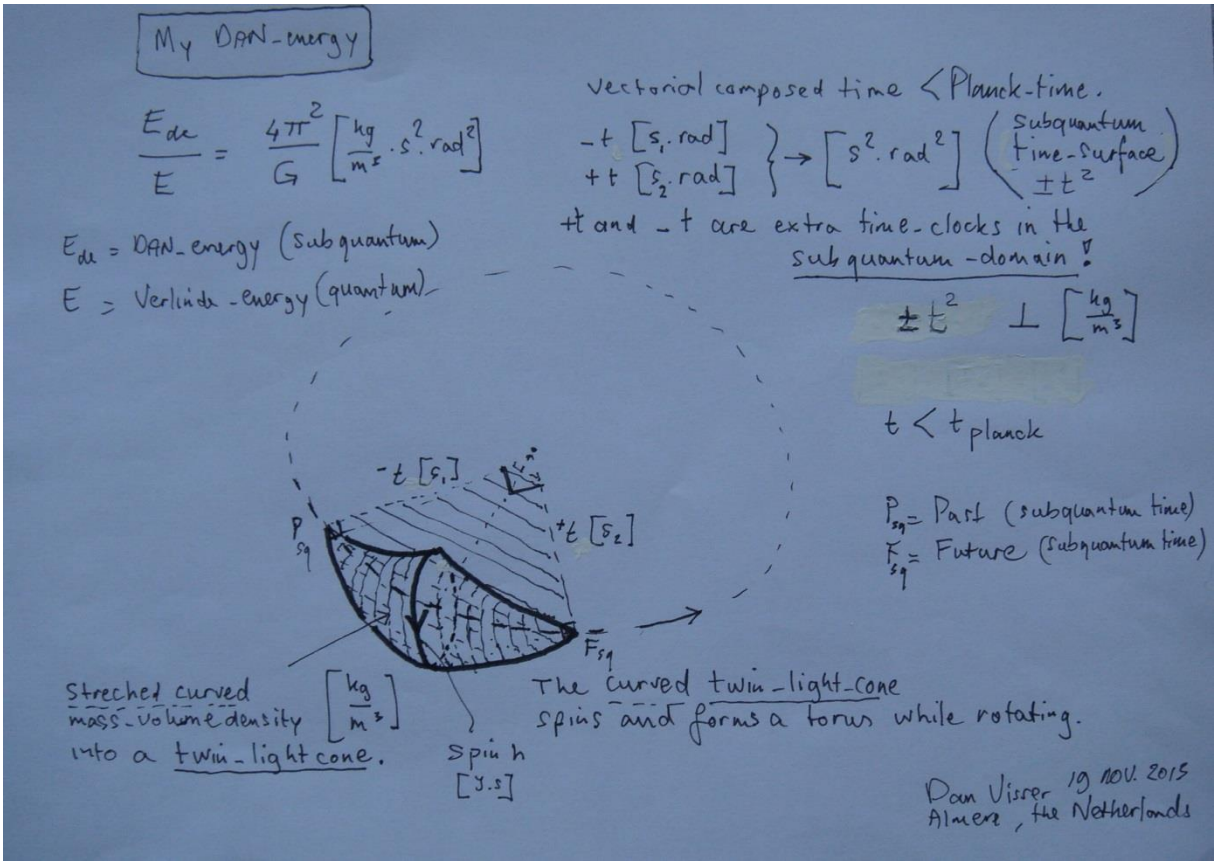


Image-2: The ratio of the DAN-energy and the Verlinde-energy reveals that a mass-volume-density at the border of quantum and sub-quantum-domain changes in a stretched and curved twin-light-cone in the dark or visible reality.

Dark vacuum-particle.

According to the details of my dark energy force-formula (3):

$$F_{de} = m.\left(k_{de}\right)^{\frac{1}{2}}\left[m^2\right] \otimes \pm\left(m_{dm}\right)^2.\left(k_{de}\right)^{\frac{1}{2}}\left[\left(\frac{m^2}{s}\right)^3\right], \text{(explanation of details in paper [2])} \quad (3)$$

Wherein *m* stands for visible matter in the Standard Model of particles and forces. Dark matter is expressed as $\pm\left(m_{dm}\right)^2\left[m^2 m^2 \frac{m}{s}\right]$. The lowest acceleration for Newton quantum-gravity for G=1 is: $\left(k_{de}\right)^{\frac{1}{2}} = \left(\frac{c^5 O_e}{2}\right)^{\frac{1}{2}}\left[\frac{m}{s^2}\right]$. The dark matter-acceleration is equal to that one for G=1. The series of equations in the reference of equation (3) are the base of the dark matter-acceleration that accelerates the sub-quantum time-surface as expressed in image- 2. There the dark matter seems more like a *dark vacuum-particle* than a dark matter particle in vacuum.

Sub-quantum Dynamics.

A dark matter vacuum-particle is accelerated by a sub-quantum-time-surface with a variable energy-density. This variable value depends on how fast the time-surface rotates. The acceleration could be as well positive as negative. This means generation of quantum-gravity is possible at (+) acceleration, but also expansion is possible at (–) acceleration. The quantum-spin maintains its constancy (h).

Equation (2) concerns the spin of the twin-light-cone, which is stretched and curved. Secondly it concerns that two time-clocks form a vector-unit of two clocks representing a time-surface in the sub-quantum-domain. These features (in total) emerge a unit of rotational energy-density. This leads to a rotational torus. Thereby the unit of the energy-density appears to be dependent on how fast the sub-quantum-time-surface is running with values smaller than the Planck-time. For the Planck-time-squared this value enables just quantum-gravity to be generated. That value defines dark matter already more like a dark vacuum-particle than a dark matter-particle in vacuum. Thereby these sub-quantum-dynamics could be much smaller than the Planck-time squared, however, it is limited by the Planck-time-squared to the exponent 4, because the surrounding dark energy-time-torus is a factor 4 larger than the inner dark matter torus [3].

The Double Torus is a shape for a dark –vacuum-particle as well as for the Universe.

The Double Torus framework (equations, definitions and dimensions) didn't need strings from the String-theory. The Double Torus framework is composed by simple mathematics and point-particle- related. It links more to the energy-results of entropy-gravity described by E. Verlinde (UvA-NL) than it would be related to strings. But because the entropy-gravity framework is composed of combining the Holographic Principle and String-mathematics one can conclude that the Double Torus framework is indirectly related to the Holographic Principle. That would imply the Double Torus hypothesis emerges a holographic universe!! Simply said: "Take a part of the Double Torus-vacuum and you will find an amount of Double Torus dark vacuum-particles ". My conclusion therefore is: The Universe is shaped like a Double Torus.

Calculation energy-density for a dark vacuum-particle at Planck-time squared.

$$\pm\frac{4\pi^2}{G} \cong 6x10^{11}\left[\frac{kg}{m^3}s^2rad^2\right] \qquad (4)$$

Scaling down to yocto-meter (10^{-24} m, the sub-quantum-scale) and converted in energy-density without considering the sub-quantum-time-surface yet:

$$\pm\frac{4\pi^2}{G} \cong 6x10^{11}.9x10^{16}.\left(10^{21}\right)^3\left[\frac{J}{zeptom^3}s^2rad^2\right] \qquad (5)$$

$$\pm\frac{4\pi^2}{G} \cong 54x10^{90}\left[\frac{J}{zeptom^3}s^2rad^2\right]$$

So 54 x 10^{90} Joule is compressed in a sphere with a diameter of 10^{-21} meter (zepto-scale). But this sphere is combined with the sub-quantum-time-surface smaller than the Planck-time-squared. So now this is next taken into account. But in this particular calculation the Planck-time squared is used, because that is the momentum where quantum-gravity is generated. So the following sub-quantum-energy-density σ_{sq} will be the case:

$$\sigma_{sq} = 54x10^{90}.\left(5.4x10^{-44}\right)^2 = 1574x10^2\left[\frac{J}{zeptom^3}s^2rad^2\right] \quad (6)$$

This will be converted from Joule to eV, with 1.6 x 10^{-19} Joule = 1eV

$$\sigma_{sq} = \frac{1574x10^2}{1.6x10^{-19}} = 984x10^{21}\left[\frac{eV}{zeptom^3}s^2rad^2\right] \quad (7)$$

Then the energy-density is scaled down to zepto-second-scale in order to adapt to the sphere with a diameter on zepto-meter scale. From this follows:

$$\sigma_{sq} = 984x10^{21}.10^{-21} = 984\left[\frac{eV}{zeptom^3}zeptos^2rad^2\right] \quad (8)$$

The rule is: The less energy-density is available in the sub-quantum-time-surface the more energy is available for the stretched and curved twin-light-cone. Here in this particular calculation the energy-density is represented that generates the quantum-gravity of the Standard model. So the energy-density of dark vacuum-particle that enables quantum-gravity is 984 eV per zepto-meter (scale 10^{-21} m).

Reference.

[1] http://vixra.org/abs/1311.0121 , which is titled: 'Einstein's Energy Is Connected To A New Dark Energy In A Rotational Double Torus Universe While Accelerated Space-expansion in Big Bang Cosmology Is An Optical Illusion.'

[2] http://vixra.org/abs/1301.0065 , which is titled: ' 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'. In particular equation (9) within equation (2) to (12) .

[3] http://vixra.org/abs/1308.0034 , which is titled: 'Riemann Hypothesis solved through physics-math in new cosmological model: the Double Torus Hypothesis.' In particular equation (6) proves the inner dark matter torus is ¼ of the surrounding dark energy-time torus. So the outer-torus is 4 times larger.