Double Torus Cosmology Reveals Cosmic Microwave Background To Measure Dark Energy.

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Abstract.

This paper announces dark energy to be measured as a cosmic microwave background frame in the Double Torus hypothesis. This Double Torus (CMB)-frame is related to a specific quantum-state of dark energy and dark matter. In addition this paper also refers to a planned dark energy interferometer-project, which is expected to be operational in 2014. Both aspects can be combined in order to get a better expectation and interpretation of the detection of dark energy. This paper has motivated me to calculate a specific value for the Double Torus dark energy. The calculated value is about 4 x 10^{-114} [X.s] in 6.4 x 10^{-48} [m^2]. A new kind of spin-quantum-state [X.s] is introduced as a property of dark energy in the Double Torus. Probably this paper might be of interest to the dark energy interferometer-project. It surely is of importance for the discrepancy that exists in vacuum energy density.

Introduction.

In earlier viXra-papers[1,2,3,4,5,6,7] theoretical investigations revealed a cosmology based on a double torus of dark energy and dark matter (TTM cosmology, Twin Tori cosmology)). The implication is the universe is much larger than the big bang predicts, but also has another shape and dynamics.

The theoretical investigations of the TTM cosmology are continuously going forward, especially for the planned experiments for measuring dark energy in the lab, announced to be operational in 2014[8].

In general, however, conventional cosmology is hooked on big bang cosmology. It still depends on a lot of budget-responsibility for doing experiments to prove predictions from theories that are designed within the framework of big bang cosmology. Even the afore planned lab-experiment to measure dark energy, through falling-super-positioned-Cesium-atoms in a 1.5 meter vacuum-chamber, and which is planned to be built as a duplicated interferometer to exclude gravitational influence, is considered within the framework of big bang cosmology. Therefore I find it important to show that dark energy could be put in perspective of TTM cosmology during these planned experiments.

Comments on the dark energy interferometer-project suggest doubts whether dark energy might be measureable[9]. I do not agree with that. I show a math-physics-equation that dark energy had to be detectable and how dark energy unexpectedly will influence the experiments differently than the project-team expects. Firstly I explain how TTM cosmology considers dark energy. Secondly my derivations are given. Thirdly analysis and conclusion accomplish the paper for an abstract that might interesting to the dark energy interferometer-project at least. The Planck-satellite-data about the finer CMB-radiation also might be related to what is published in this paper.

At last I want to express my critics to science-magazines, which inform the public from papers out of the institutional archives only. The time is there now to use also the viXra-archive to the public and institutions.

TTM dark energy.

Dark energy in the TTM is a dark energy torus enclosing and intertwining a dark matter torus. This dark energy torus comprehends an amount of dark energy, which produces a dark energy force. This force could have a “+“ or “-“ sign. The “+“ is a new aspect of dark energy compared to conventional big bang cosmology. Big bang cosmology doesn’t assume such “+“ force. In the “-“ mode it enlarges the dark matter torus. This enables us to have the suggestion of an expanding relativistic space-time within big bang cosmology. The “+“ mode contracts the dark matter torus, and is important for the quantum-scale at which dark matter and dark energy are supposed to be measured.

In July 31 2010 I already questioned myself how? I took the quotient of the amount of dark energy (Y) and the dark energy force (F_{de}), as described in the TTM, and formulated a new math-physics-equation. To my astonishment this equation revealed CMB-frames (per 2π).

The nicest thing was, a specific CMB-frame was depending on how much mass was substituted in the equation, but I put it away until I read the paper about the up-coming plans to measure dark energy in the dark energy interferometer-project.

Then I questioned myself again: What is the difference between how the dark energy interferometer-project assumes dark energy and the way I assume dark energy acts in the TTM? The difference in my opinion is: Dark

energy is affecting dark matter by changing the density of dark matter particles by the “+“ and “-“mode of the TTM-dark energy. This property is due to two extra time-clocks below the conventional quantum-physics.
On the other hand the dark energy-interferometer-project considers dark energy as a kind of equivalent dark matter, just like $E=mc^2$ is considered as exchanging pulling matter and gravitational energy. This is why the dark matter interferometer-project-team supposes dark energy to affect matter in a gravitational way by planning a double-interferometer. However, dark energy is also assumed as non-Newtonian-force. This is not the way dark energy is described in the TTM cosmology. Besides, one dimensional time is also taken for granted by the dark energy interferometer-project.

I think such a view on dark energy is typically a view hooked on big bang cosmology. Therefore I decided to fix my point of view in this delicate puzzle of dark energy. My point of view might become important when the lab-experiments will run-out data in 2014.

Derivation of a CMB-frame in the TTM.

In the next formulations the quotient of amount of dark energy(Y) and the dark energy force (F_{de}) is derived:

$$\left(\frac{Y}{F_{de}}\right)^{TTM} = -1/4c^4\hbar^2 m^6 G. \pm 2Gc^{-5} O_e^{-1} m^{-3} \qquad (1)$$

G=1 for

$$\left(\frac{Y}{F_{de}}\right)^{TTM} . \frac{1}{G^2} = \pm \frac{1}{2c}\frac{\hbar^2}{O_e} m^3 \left[\left(\frac{kg}{m}\right)^3 Js^2 s\right] \qquad (2)$$

$$\left(\frac{Y}{F_{de}}\right)^{TTM} . \frac{1}{G^2} . \frac{1}{(2\pi)^2} = \pm \frac{h^2}{2cO_e} m^3 \left[\left(\frac{kg}{m}\right)^3 Js^2 s\right] \qquad (3)$$

$$\left(\frac{Y}{F_{de}}\right)^{TTM} . \frac{1}{G^2} . \frac{1}{(2\pi)^2} = \pm \frac{m^3}{2cO_e} h^2 \; X.s \qquad (4)$$

Analysis equation (4):

The dimension of equation (4) seems to be a 'higher order spin' [X.s], with [X = $(kg/m)^3$.$(Js)^2$]. A spin is usually a quantum-state in conventional quantum-physics (J.s). However, the spin-quantum state [X.s] has an intrinsic quantum-state [X]. The dimension [$(kg/m)^3$] is the mass-density at the surface of a 3D-sphere, while the dimension [$(J.s)^2$] is the spin-dynamics at the surface of a 3D-sphere. So, combining these 3D-sphere-activities show [X.s] will generate an elementary mass-density-variation at the surface of a torus as is shown in fig.1. These elementary mass-density-variations do occur in big bang cosmology. It is called CMB-radiation. We observe CMB-radiation stretched to microwaves after the expansion of the universe based on big bang cosmology. The CMB is located at the largest distance of observing quantum-gravity on the wall of the space-volume in [m^2], where G=1. From this follows equation (5):

For $G = 1$ follows;

$$\left(\frac{Y}{F_{de}}\right)^{TTM}_{per(2\pi)^2} = \frac{m^3}{2cO_e} h^2 \;\; X.s \qquad (5)$$

Now equation (5) presents the CMB-radiation as a Double Torus geometry (fig. 1). The dimension [X.s] is a new sort of spin-quantum-state in the dynamics of the Double Torus hypothesis, which drives the expansion of big bang cosmology. Just as the spin in conventional quantum-physics is the 'generator of rotations'.

Look at the following figure 1:

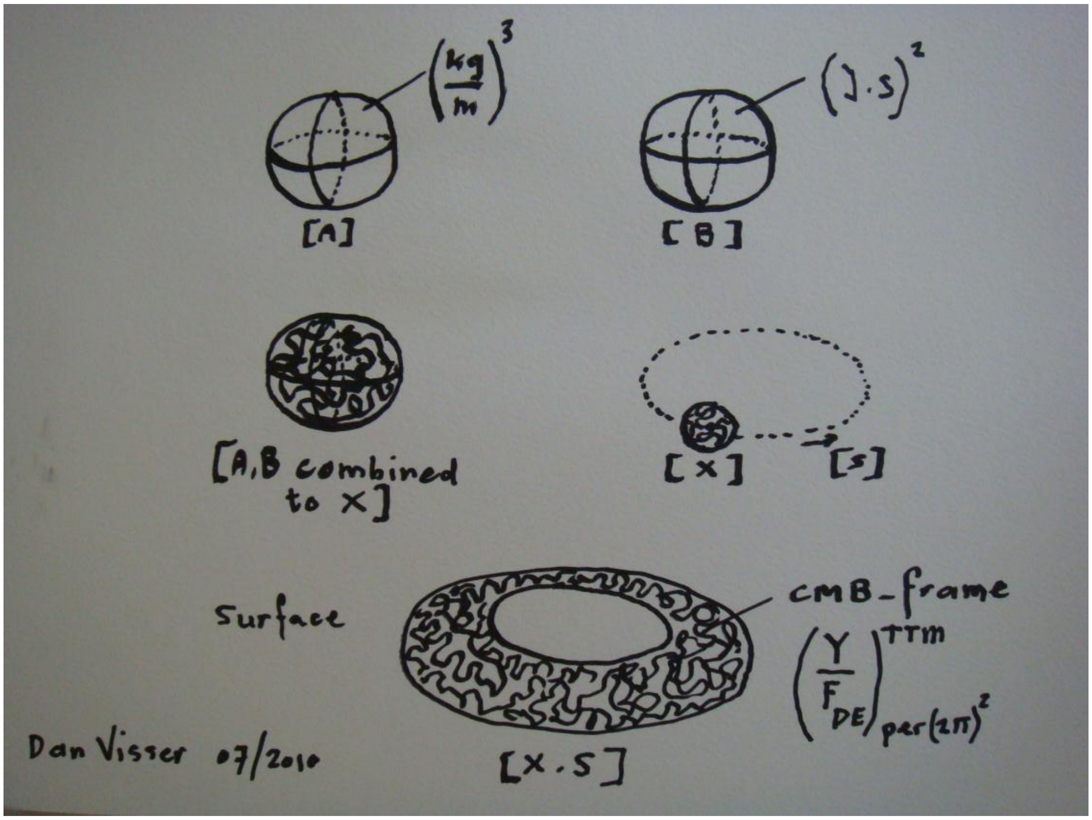

Fig 1: CMB-frame in the Double Torus Cosmology.

I give attention to following analysis:

Equation (5) also comprehends a mass-parameter (m^3). This means Y/F_{de} per $(2\pi)^2$ is the representation of a *specific CMB-frame*, depending on which mass-value is substituted in equation (5). So this paper introduces the expire-date of big bang cosmology, starting today, hopefully for them who understand the implications given in this paper. A calculation will show how a specific dark energy-value relates to a specific dark matter mass-value by substituting a specific value for mass in (m^3).
The dark matter energy-density, earlier calculated (my paper[6]) shows dark energy is not the same as dark matter. In the paper, just referred to, the dark matter energy-density value was calculated on 1 TeV in 6.4 x 10^{-48} [m^2], which is equivalent to 1.782 661 731(70) x 10^{-36} [kg] in a same surface of 6.4 x 10^{-48} [m^2]. Substitution of this mass-value in equation (5) leads to the calculation of a dark energy-value in the Double Torus:

$$\left(\frac{Y}{F_{de}}\right)^{TTM}_{per(2\pi)^2} \sim \pm \frac{1.78x10^{-36}\ ^{3}}{2x3x10^{8}x2.6x10^{-70}}\ 6.6x10^{-34}\ ^{2}\ X.s$$

$$\left(\frac{Y}{F_{de}}\right)^{TTM}_{per(2\pi)^2} \sim \pm 15.8x10^{-114}\ X.s \qquad (6)$$

1. Based on the calculation (6) extra attention has to be given to a practical effect: The specific Double Torus dark energy CMB frame Y/F_{de} per $(2\pi)^2$ has a three dimensional torus-geometry. That means the surface of 6.4 x 10^{-48} [m^2] is not flat. Ergo, the calculated dark energy in (6) is distributed on the CMB-torus surface. Related to experiments to measure dark energy, such a CMB-torus might touch a falling (super positioned) Cesium-atom. So, only a part of this CMB- dark energy surface might touch the Cesium atoms. It is more like a 3D-sphere (instead of a torus) hits the cesium-atom. This bounce results in a ¼ in detected dark energy.

The calculated dark energy thus will be *about 4 times smaller than in calculation (6), which is about:*

$$\left(\frac{Y}{F_{de}}\right)^{TTM}_{per(2\pi)^2} \sim \pm 4x10^{-114}\ X.s \quad \textit{in 6.4 x } 10^{-48}\ [m^2] \qquad (7)$$

2. The CMB-torus geometry, touching Cesium atoms might imply touching the Cesium atoms subsequently twice !

3. The “+” and “-” mode in the calculation (6) means ‘expansion, or contraction’, and thus will affect the measurements too. It does respectively decrease and increase the subsequence of hitting the cesium-atom twice.

References.

[1] **http://www.vixra.org/abs/0909.0005** ; September 1 2009; Authors: Dan Visser, Cristhopher Forbes, Keith Lees, titled: “A Short Article On A Newly Proposed Model Of Cosmology“.
[2] **http://vixra.org/abs/0910.0016** ; October 11 2009; Author Christopher Forbes, titled “Mathematical and Phenomenological Elements of the Twin-Tori Model of Physics and Cosmology”.
[3] **http://www.vixra.org/abs/0911.0061** ; Novenber 28 2009; Authors Christopher Forbes, Dan Visser, titled: “A New Quantum Gravity Framework Based on the Twin-Tori Model of Cosmology (Part 1)”.
[4] **http://vixra.org/abs/1010.0013** ; October 7 2010; Author Dan Visser: Describing the original "dark energy formula" in retrospective.
[5] **http://vixra.org/abs/1010.0014** ; October 7 2010; Author Dan Visser, titled: "Deeper Properties derived from the 1-st derivative of the Dark Energy Force Formula".
[6] **http://vixra.org/abs/1010.0063** ; October 29 2010; Author Dan Visser, titled: "Dark matter and visible matter fundamentally related to a new cosmological Model and Recalculated".
[7] **http://vixra.org/abs/1101.009**6 ; Februari 2 2011; Authors Dan Visser, Christopher Forbes, titled: “Entanglement related to cosmology-TTM.

[8] arXiv:1101.5626v1 [astro-ph.CO] 28 Jan 2011, A terrestrial search for dark contents of the vacuum, such as dark energy, using atom interferometry.

[9] http://physicsworld.com/cws/article/news/45100, Ultra cold atoms could reveal the dark sector.