A Short Article On A Newly Proposed Model Of Cosmology

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Abstract:

In this paper a new model of cosmology is proposed in an informal manner, with most results merely stated and not derived, in anticipation of a fuller, more mathematical paper to be published at a later date. A historical overview of its development is given and its main propositions and results are explained and evaluated.

Introduction

It is the purpose of this paper to provide an introductory account of a new cosmological model proposed by the authors, based on the prior theoretical insights of the Darkfieldtheory of Dan Visser, details of which may be found at [1].

In the original Darkfieldtheory model the conventional shape and evolution of the universe was abandoned in favour of a more aesthetic and theoretically interesting torus-universe. The problems of dark matter and dark energy were dealt with by implementing the torus universe containing all interacting dark matter, and at the centre of the torus-universe, in the 'hole of the doughnut' so to speak, an interacting sphere of dark energy providing the observed expansion dynamics and anti-gravitational (Λ) properties.

In the new theory, named the Twin-Tori Model, the interacting sphere of dark energy is still a theoretical possibility, however we explore another option found by our detailed calculations. This new option is a dual-domain paired-torus universe: The universe we observe and inhabit is defined as a 'tube' torus inside a much larger torus of dark energy, both expanding in harmony so to speak.

The Twin-Tori Model

A fundamental result of the Darkfieldtheory is a formula, derived from a thought-experiment, for Dark Energy Force.

Having already studied intensely the physical aspects of the Darkfieldtheory model of cosmology we attempted to derive, instead of take as an axiom, the shape of the universe as a torus and its interaction with the dark energy sphere. These attempts lead to an equation, and an associated constraint, to describe the anti-gravity effects of dark energy, and crucial to this is Dan's formula for dark energy force. We present the equation, and its consequent solution below, with x being the amount of dark energy force generated by a mass m:

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

$$\int(0)dx = k,\ k \in \mathbb{R}$$
$$\Rightarrow \int(\alpha x^2+\beta x+\gamma)dx = \int 0\ dx$$
$$\Rightarrow \alpha x^2+\beta x+\gamma=0,$$
$$\alpha=G,\ \beta=0,\ \gamma=-\tfrac{1}{4}c^4\hbar^2m^6G$$
$$\Rightarrow x=\pm\ \tfrac{1}{2}c^5m^3G^{-1}(L_{PLANCK})^2$$

However simple this equation may look, it has great content. If we take the negative solution, then we recover the original solution of the Darkfieldtheory, however in taking the positive solution, as we have in our new model, the properties and placements of dark energy and dark matter are altered. Using the negative solution whist still keeping the definition of dark energy force as being directed towards the matter emitting such a force, the dark energy retains its anti-gravitational property, and so to induce an illusive expansion dynamics in our observable universe, which is really a torus, it must be placed in the centre of the torus universe. No problem here, this is non-standard, but its basic essentials agree well with modern physical thinking about dark energy. However In taking the positive solution to the equation for x, and maintaining the same definitions, the derived properties of dark energy are altered. It no longer is contained 'within our universe' and acting anti-gravitationally, but it is now acting in the same way as normal (baryonic and dark) matter do and causing a gravitational force. Of course, how then does it cause the expansion dynamics that we know it must? The answer is to re-define its place in the scheme of our cosmological model, instead of being within the universe or indeed contained in the whole of the torus, it is placed outside the universe in some sense and the results of calculations within the framework of the new physics that emerges from the twin-tori model show that it too forms a torus that encases the universe, such that the universe is a 'tube' inside a torus of dark energy. These are not separate domains, but are interconnected in deep and subtle ways which are revealed in the detailed mathematics of the model.

Refe**rences:**

[1] www.darkfieldnavigator.com, Dan Visser.

[2] 'Time Torus' Dan Visser 2009