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STUDY THE EVOLUTION OF FRW SCALE FACTOR IN MODELS WITH AND WITHOUT DARK ENERGY

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ABSTRACT :

Black prevents the simple connection between the energy of the geometry of presence and destiny, combines the understanding of the luck of dark energy, improves the viewer a dark future for cosmologists, and raises a deeper question [Cross and Turner 1995] Can we ever determine with certainty the future of the universe? Use as an idea, is to ignore the current era of rapid expansion and determined to imagine the place that dominated the universe is flat. We can be inspired to conclude that the universe will always develop at a slower pace. However, no matter what can be hidden under our measure precisely, there is a small range of detection that may be cosmological stability. For example, if the energy density of the current void has a substance density of billions, will be dominated by the vacuum energy after the factor 1000 in detail. If it were positive, then eventually the exponential expansion would be; If negative, then the universe will eventually start again. The components of the universe and only a basic understanding of their relative abundance can provide certainty about the fate of the universe.

KEYWORDS: *geometry and destiny, energy density of vacuum, cosmological concerts, etc.*

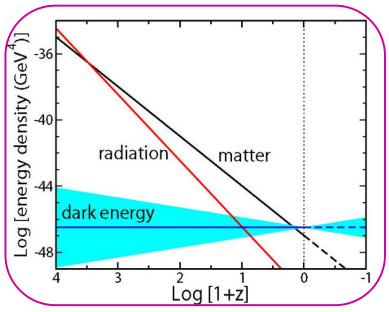
INTRODUCTION:

One of the first things to learn in cosmology is that geometry is destiny: a closed universe (positive wind) eventually falls back, and an open universe (flat or negative curve) spreads forever. The provision is only the case and = 0 in the universe, it happens directly from the eq. (2). The presence of dark energy separates this famous connection between geometry and destiny and raises fundamental questions related to the distant future of our universe [cross and turner 1995].

To illustrate the geometry-destiny connection, we can rewrite the equation. In terms of effective capacity and dynamic energy term

$V_{eff}(\alpha) + \alpha^2=0$ $V_{eff}(\alpha) + \alpha^2=k-\square H_0^2 a^{-(1+3wt)}$

Where WT is the ratio of the total pressure of the total energy density (including all components). If WT> -1 / 3, as it is only case and radiation, then the second word of waif increases from 0 to ∞ monotonically up to, which means that from ∞ to k Increases For 0>, where there is a value of 0, how far it should go to zero and its maximum value is obtained. For K = 0, only one disappears; And for <0, there is also a positive. There is a new twist with dark energy: when the density of dark energy gradually decreases relative to substance or radiation, because the universe expands dark energy, it finally dominates the second term in Waff . After this, the wafer becomes monotonically low, because WTW <-1/3, comes as one.



Provided that DE> 0 and WIDE remains negative, if the scale factor becomes large enough to dominate the dark energy, which happens to M> 1 "De, then the universe will be extended indefinitely, regardless of. If the dark energy is the vacuum energy, the acceleration will continue, and the expansion will become exponential, thus becoming "red" in the universe. To see it, consider the reduction distance of the fixed redshift jade at time T in the exponential expansion era:

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REVIER OF LITERATURE

Shibli et al presented in his article entitled "The Basis of the Dark Energy Theory: Einstein's Cosmological Constant Mass Densities of Mass Energy Universe, a New Formulation and the Ultimate Destiny for the Expansion of the Universe of the Universe" 'universe, lodge Nutnian Kepler'. Universe solve the theory of energy on the basis, the questions relating to the fixed cosmological physics interpretation of Einstein's dark universe of dark energy and Einstein's cosmological constant (lambda = 0.2 times 9447 10-52 M-2), the dark energy density of the universe value (= 1.2622 times 10 to 26 kg / m 3 = 6,8023 Jiivi), the universe critical density (= 1.8069 times 10-26 kg / m 3 = 9,7378 Jiivi), the density of the universe matter (= 0.54207 times 10-26 kg / m 3 = 2.9133 Jiivi), and the universe's radiation density (= 2.7103 times 10 to 31 kg / m 3 = 1.4558 mV). The present document, in which the interpretation is based on geometric modeling of space-time, is a continuous four-dimensional continuous cosmic fluid and the pulse generated at that time. In such a modeling, time is considered a mechanical nature, so that the speed associated with it is equal to the negative energy of the total energy of the universe. Dark energy is found to be a property of space-time. In addition, according to the fluid nature of dark energy, the fourth law of thermodynamics presents a new formulation and the physical interpretation of Kepler's three laws. Moreover, seeing this fact on the basis that he glimpsed the history of our universe, the Big Bang theory, Einstein's general relativity, Hubble parameter, the estimated age of the universe, the theory of Global inflation and NASA Supernova LA, So to describe the expansion of the universe, a parametric model of second-order (parabolic) is obtained in this proposed article. This model shows that the Universe of the Universe is approaching the cosmic horizon and will pass through an important point that will greatly affect its destiny. Keeping in mind the different principles of breaking simulation models and mechanics, the universe will be an infinitely stable state and a homogeneous circuit breaker. As a result, there will be a very large scale impu-lse (large linear motion effect ~ 1033 x intensity of the universe) quickly and consistently, the universe will collapse. Finally, the results of the simulation are displayed to check the proposed model.

MATERIAL AND METHOD:-

The exponential decrease in this distance is that the number of galaxies is rapidly decreasing below a certain redshift. On the contrary, in the Einstein-D Sitter model with M = 1, this distance increases as T 1/3, so that the number of galaxies with less redshift than the fixed value can be increased gradually. Alternatively, ek. 35 means that at the current distance, the redshift is developing rapidly for a galaxy. Outside the local group, galaxies, R-1-2 MPCs, T-T 0 ~ 100 gears will be redshifted beyond the period of espionage from time to time. The galaxy will be linked to the local gravitational group, which will appear as a stable, "Island Universe". Even the CMB, another major proof of the expanded universe, will be rebuilt for Knownness [Cross and Sherr 2007]. If the dark energy is a scalar zone, then the zone finally remains at its minimum capacity; See picture 10. If the potential energy is zero, then the universe will once again be dominated and return to the exponential extension, restore the link between geometry and destiny. If the minimum capacity of the scalar area has a negative energy density, then the dark matter energy and scalar field energy is eventually canceled, because of which it is recovered despite Kerala. If the minimum capacity is more positive and greater than the potential energy that depends on M (the important value is zero for M ≤ 1 and M is small for 1), then the rapid expansion will recommence eventually and as above. discussion was discussed, the universe will experience a "red-out". These possibilities are illustrated in Figure 4.

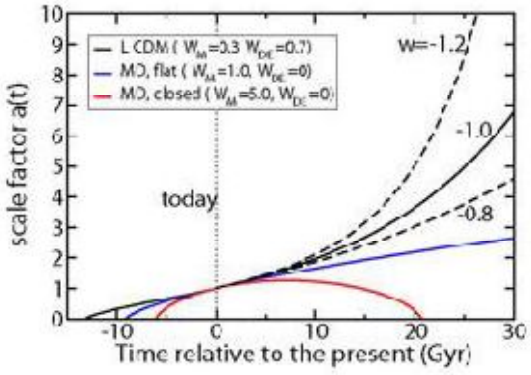

Figure 4. Evolution of the FRW scale factor in models with and without dark energy. Upper four curves are for flat models. Dashed curves denote models with w = -0.8 or -1.2 and M = 0.3. MD denotes matter-dominated models.

In the end, WIDE is entitled to a special comment of <-1. In this case, the dark energy of the energy density actually increases over time, the DA, where -3 (1 + w)> 0. In turn, the scale factor is very gradual and the Infinite size limited in time Arrivals

CONCULSION

Ten years after its discovery, the acceleration of the expansion of the universe is now firmly established. However, the material origin of this phenomenon is a deep secret associated with other important problems in physics and astronomy. At present, the simplest explanation, the vacuum energy, all according to the current data, but the theory does not understand the point that must be why the small price for this need. Offers a very high accuracy (point to the correct way to check the history of cosmic expansion with a few percent compared to 10% currently) solution to the best hope. This goal has been an impressive array of experiences with or plan created, and we believe there will be significant progress over the next fifteen years. We concluded with our list of open global issues and ten important takeaways on the acceleration of the universe and the dark energy of our reflections on the challenges for the future.

Strong evidence for an approved expansion

Because SN research acceleration, have held several hundred supernovae on a wide range of redshift, which significantly enhances the case by reducing the sources of statistical and systematic errors. In addition, based on SN Hubble independent and complete GR chart, is very strong (5) is growing rapidly in the recent expansion of the universe than the evidence [Shapiro and Turner 2006].

Dark energy as a reason for cosmic entry

Within GR, rapid expansion can not be the substance or explained by known energy, but can be almost soft energy with a large, adjusted negative pressure, which is known as dark energy, which is about 75% of the energy. 'universe.

Independent evidence for dark energy

As part of the cold black matter model of structure formation, CMB and large-scale data structure is an energy in the elegant universe that provide independent evidence that about 75% of the total and which , inevitably, after all Only the dominant structure was formed when it became dominant. Thus, the independently formed structure indicates the dark energy that represents a negative pressure (with W-1/3), the largest part of the universe.

Vacuum energy in the form of dark energy.

The simplest explanation for dark energy is the energy associated with vacuum; It is mathematically equivalent to a cosmological stability. However, all quantum fields of the zero-point energy of the vacuum energy density by several orders of magnitude, which generate all computed stress results are very large or infinite.

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