



Relation between “Constant Dark Energy Pattern” and “Ignored Energy by Einstein”

- Big Bang and Dark Energy are not Required. -

Hideaki Yanagisawa

Konosu Public Health Center, 4-5-10 Higashi, Konosu, Saitama, 365-0039,

Japan

science2001007@ybb.ne.jp

Abstract

Because the movement of distant heavenly bodies could not be explained by the equations of Newton and Einstein, the existence of dark energy was hypothesized. The evolution of the Universe beginning with the Big Bang is decided by the dark energy pattern in the present cosmological model based on the Big Bang theory. In the Big Bang theory, the cause of red-shift is considered to be the movement of the source of electromagnetic and gravitational waves. In addition, electromagnetic and gravitational waves are assumed to experience time in spite of the fact that their energy condition does not change. Furthermore, because the Universe is expanding, length is elongating. If the relation among length (l), time (t), and the light speed (c) is $l = ct$ for a photon, time must also be elongating as it increases because of the elongation of length. In addition, the speed of the Universe's expansion per time is not constant under all dark energy patterns, implying that the rate at which time elongates varies in the Big Bang theory. In the present cosmology model, there are some contradictions between length and time. However, their contradictions do not exist in the ignored energy theory. A constant dark energy pattern can be mathematically explained by this theory.

Hence, the Big Bang theory is mistaken, and dark energy is not required in the ignored energy theory.

Keywords: Dark energy, Ignored energy, Einstein, Gravitational wave, Big bang

Abbreviations

$E(t)$ = quantity of energy at time t

$E(0)$ = quantity of energy at time zero

c = speed of light

r = distance

L, l = length

T, t = time

δ, k, t_1 = constants

Introduction

Because the movement of distant heavenly bodies could not be explained by the equations of Newton and Einstein, the existence of dark energy was hypothesized [1]. The evolution of the Universe beginning with the Big Bang [2] is decided by the dark energy pattern in the present cosmological model based on the Big Bang theory [3]. If the Big Bang theory and general relativity [4] are right, dark energy is required. However, the red shift [5] can be explained employing the “ignored energy by Einstein” theory [6], an alternative to the Big Bang theory. The pattern of constant dark energy can be explained mathematically by my theory, without considering the Big Bang or dark energy.

Methods

Energy ignored by Newton and Einstein was reported in [6]. This discovery is outlined below.

Hypothesis

The quantity of all distortion power is in direct proportion to the quantity of energy at time t . The measure of distortion power is the degree of change of energy per unit time:

$$\text{Distortion_power}(t) = \frac{dE(t)}{dt} = kE(t). \quad (1)$$

Calculations

From Equation (1)

$$E(t) = E(0)(e^k)^t. \quad (2)$$

If $k < 0$,

$$e^k = 1 - \delta, \quad (0 < \delta \ll 1) \quad (3)$$

From Equations (2) and (3)

$$E(t) = E(0)(1 - \delta)^t, \quad (4)$$

$$E(t) \approx E(0)(1 - \delta t), \quad (5)$$

$$E(t) = E(0)(1 - \delta t). \quad (6)$$

From my report of the ignored energy theory [6], the ignored energy as a function of time is

$$\text{ignored } E(t) = E(0)(1 - e^{kt})e^{kt}. \quad (7)$$

If the Universe is limited, the existence of mass at the center of the universe is supposed. Gravitational waves are caused by this mass. Its energy quantity at time zero is $E(0)$.

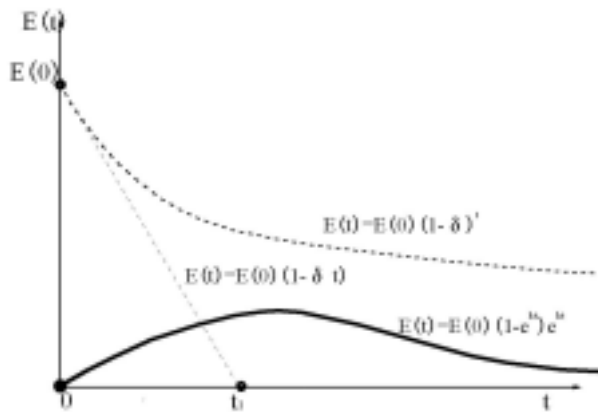


Figure 1: Relation between Equations (4), (6), and (7).

The vertical axis is the quantity of energy ($E(t)$) and the horizontal axis is time (t). Equations (4), (6), and (7) are plotted as a dotted curve, a dotted line, and a solid curve, respectively. The energy change of gravitational waves is explained by the Big Bang theory and ignored energy theory.

In Figure 1, the vertical axis is the quantity of energy, $E(t)$, and the horizontal axis is time, t . Here the speed of light is c . The distance, r , is related to time, t , as

$$r = ct. \quad (8)$$

From Equation (8), the horizontal axis of Figure 1 is the distance. In Figure 1, Equations (4), (6), and (7) are shown as a dotted curve, a dotted line, and a solid curve, respectively. Equation (6) is equivalent to the red-shift in the Big Bang theory. From equations (4), (5), and (6), it is clear that the Big Bang theory is an approximation of my theory. The horizontal axis and the dotted line intersect at the point $(0, t_1)$. The time (t_1)

according to big bang is 13.7 billion years; however, ignored energy theory interprets it differently.

$$t_1 = 13.7 \text{ billion years} \quad (9)$$

In Figure 1, the point $(0, t_1)$ is equivalent to the present. A relation between Equation (6) and Equation (4) is shown in Figure 2.

Conversely, Figure 3 shows the pattern of constant dark energy in the present Big Bang theory-based cosmology [3].

Relation between the constant dark energy pattern and ignored energy

Figure 2 will be explained according to the Big Bang theory. The decreasing energy of electromagnetic and gravitational waves over time is shown as the dotted line; the cause of the energy decrease is the movements of the sources of gravitational and electromagnetic waves. Because the cause of expansion is their movements, electromagnetic and gravitational waves are unrelated to the expansion of the universe. Therefore, the dotted line is considered to be the horizontal axis.

Next, the vertical axis, indicating the Universe's size, is decided in Figure 4. A solid line through the point 0 is perpendicular to the dotted line of Equation (6). Q is the point at which the solid line and the dotted line intersect. The coordinates of point Q are

$$\left(\frac{\delta}{\delta^2 + 1}, \frac{E(0)}{\delta^2 + 1} \right). \quad (10)$$

P is the point at which the dotted line and the solid curve intersect. Figure 4 is rotated around the center point, Q, as the dotted line is changed to the horizontal axis. This new

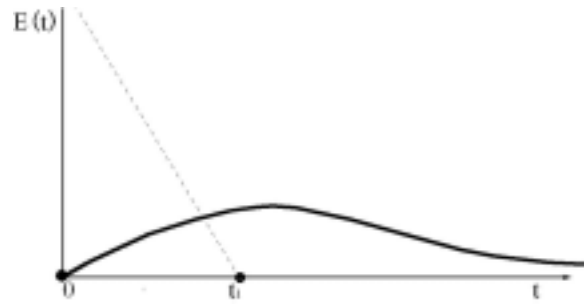


Figure 2: Relation between Equations (6) and (4).

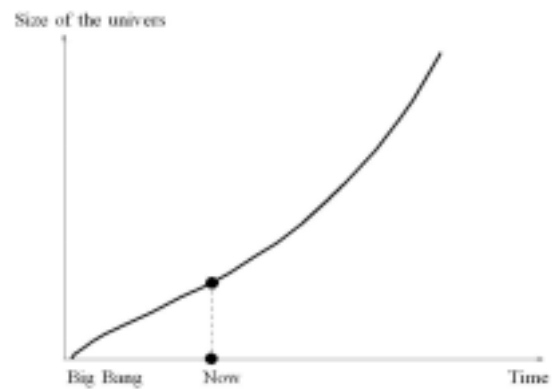


Figure 3: The pattern of constant dark energy considered in the present cosmology model.

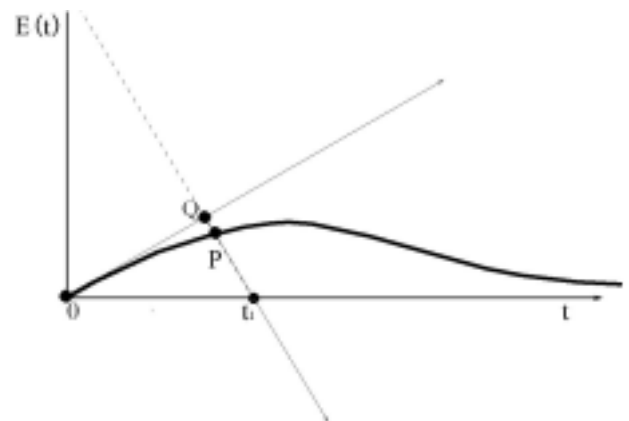


Figure 4: A basic point, Q, of the Big Bang theory in Figure 2.

A solid line perpendicular to the dotted line of Equation (6) is shown through the point 0. It represents the length (L) in the Big Bang theory. Q is the point where the solid line and the dotted line cross. P is the

representation is shown in Figure 5, and the horizontal axis of Figure 1 is shown as a solid line through the point $(t_1, 0)$. Because this line does not pass through the origin, the relation between length and time is different from Equation (8) in the Big Bang theory. Therefore, a new relation, different from the horizontal axis of Figure 1, is necessary.

The horizontal axis of Figure 5 is the time, T , under the precondition that there is no decrease in the energy of electromagnetic and gravitational waves. However, time occurs with change in energy [7]. Time is assumed to apply to electromagnetic and gravitational waves with no energy change according to the Big Bang theory. The vertical axis represents length (L), which is equivalent to the radius of the Universe. Length expands with the expansion of the Universe. These axes differ from the vertical axis ($E(t)$) and the horizontal axis (t) in Figure 1.

Figure 5 is explained in terms of the Big Bang theory. The solid line being the horizontal axis of Figure 1 is given by

$$L = \delta E(0)T - \frac{E(0)}{\delta \sqrt{E(0)^2 + \frac{1}{\delta^2}}}. \quad (11)$$

The solid curve comes from Equation (11). When equation (7) is considered in the present cosmology model based on the Big Bang theory, the solid curve is the relation of length to time, implying that time (T) and length (L) have no constant relation such as that in Equation (8) in the present cosmology:

$$L \neq cT. \quad (12)$$

Next, because the energy under the horizontal

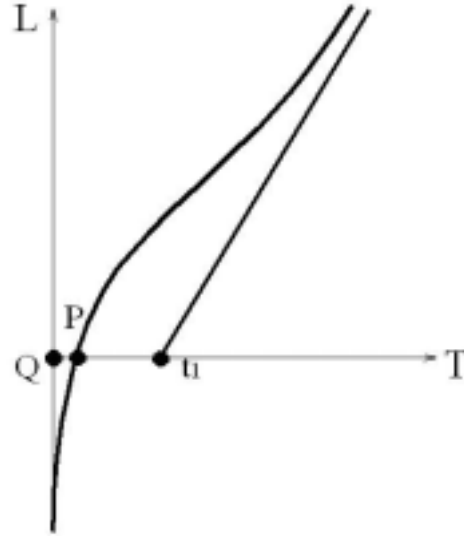


Figure 5: Relation between length (L) and time (T) in the Big Bang theory.

Figure 4 is rotated around the center point, Q , as the dotted line is changed to the horizontal axis. The vertical axis represents the length (L) and the horizontal axis represents time (T) in the Big Bang theory.

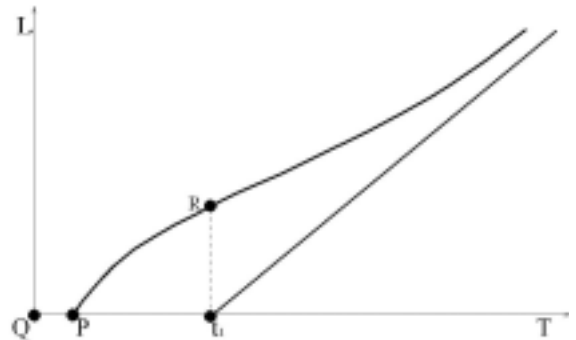


Figure 6: Figure 5 erased under the vertical axis.

Because the energy under the horizontal axis is understood as negative space with negative length, the energy between the points P and Q is never recognized in the Big Bang theory. Equation (9) is shown as a solid line.

axis is understood to be negative space, energy between the points P and Q is never recognized in the Big Bang theory. Therefore, it is erased under the vertical axis in Figure 6. The Universe's radius of its part is 0, and the point P is recognized as the origin of the assumed Big Bang. In the Big Bang theory, the time between the points P and t_1 is the time since the assumed Big Bang. However, the time between the points Q and t_1 is the time since the Big Bang in the ignored energy theory. The vertical axis ingredient of the point R is the present Universe's distance from the center, which is similar to that of Figure 5.

Results

Ignored energy is similar to the pattern of constant dark energy in the present cosmology. Because the relation between length (L) and time (T) changes with the Universe's expansion and dark energy's existence in the present cosmology, Equation (12) holds. In the Big Bang theory, the energy condition of electromagnetic and gravitational waves never changes; however, they are nevertheless assumed to exist in time. This contradiction does not exist in the ignored energy theory.

Discussions

Since the red shift was discovered by Hubble [5], its cause was considered to be the movement of the sources of the electromagnetic and gravitational waves. Consequently, the Big Bang theory was suggested [2]. However, there are two contradictions with regard to time in the Big Bang theory. First, electromagnetic and gravitational waves are assumed to experience time, in spite of the fact that the energy condition of electromagnetic and gravitational waves is constant in time in the Big Bang theory. Time is necessary with change in energy [7], and it is not required without change. Second, the contradiction with regard to the relation between distance and time. If distance is related to time as in Equation (8), time must be elongated because of the elongation of distance with time in the Big Bang theory. This implies that the Universe's time is not constant in the Big Bang theory. In the present cosmology model based on the Big Bang theory, the speed of the Universe's expansion is not constant because of dark energy's existence. Therefore, the degree to which time elongates is also not constant. Not only space expansion, but also time elongation must be considered in the Big Bang theory. Either that or a new relation between distance and time other than that in Equation (8) must be considered. No contradiction between them exists in the ignored energy theory; the constant dark energy pattern can be explained mathematically by the ignored energy theory, for which, the Big Bang, and dark energy

are not required. Because the Big Bang theory is wrong, phantoms such as dark matter and dark energy are always necessary for revising some contradictions.

Conclusions

The pattern of constant dark energy can be explained mathematically by the ignored energy theory, without considering the Big Bang or dark energy.

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