

Centrifugal Force and Kinetic Energy Equations Corrected using the Inertial Force Coefficient

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Abstract: - It is now considered that centrifugal force and kinetic energy depend only on mass, speed, and radius. However, both can never exist without inertial force. Both magnitudes change if the inertial force changes. And the inertial force is determined by the cumulative gravitational forces exerted by all the celestial bodies in our universe. Therefore, the magnitude of the inertial force changes when the size of our universe changes. Here, the size of our universe is expanding over time if the Big Bang theory is correct. Therefore, the old centrifugal force and kinetic energy had to be greater than the current ones.

In this report, the magnitude of the inertial force is defined as the inertial force coefficient and is added to the centrifugal force and kinetic energy equations. Then, our earth of 3.5 billion years ago existed near the position of the present Mercury. According to the corrected centrifugal force equation, the Big Bang theory is contradicted by Cyanobacteria of 3.5 billion years ago. And there is no evidence that the current kinetic energy is less than it was in the past in the observed crater. According to the corrected kinetic energy equation, the Big Bang theory will be contradicted by the relation between the crater's diameter and the created time. When the size of the universe changes, corrected centrifugal force and kinetic energy equations are required. It is not required in the constant universe.

Key-Words: Big Bang theory, Cyanobacteria, inertial force, centrifugal force, rotation radius, expansion of universe, kinetic energy, crater's diameter

Received: May 4, 2025. Revised: June 7, 2025. Accepted: July 25, 2025. Published: October 17, 2025.

1 Introduction

It is now considered that centrifugal force [1] and kinetic energy [2] depend only on mass, speed, and radius. However, centrifugal force and kinetic energy can never exist without inertial force [2]. And the inertial force is determined by the cumulative gravitational forces exerted by all celestial bodies in our universe. Therefore, the magnitude of the centrifugal force and the kinetic energy changes if our universe expands according to the Big Bang theory [3, 4]. In this report, the magnitude of the inertial force is defined as the inertial force coefficient and is added to the centrifugal force and the kinetic energy equations.

2 Relation between the Magnitude of Inertial Force and the Expansion of the Universe

Is the magnitude of the inertial force unchanging? The inertial force is determined by the cumulative gravitational forces exerted by all celestial bodies in our universe. And all gravitational forces relate to each distance between celestial bodies. Therefore,

the inertial force must become smaller along with the expansion of the universe.

In Figure 1, the upper side A is the relation among the celestial bodies (masses) m , $M1$, $M2$, and $M3$ when the radius of the universe is $r3$. The position of the celestial body m is a center of the universe. Each distance to the celestial bodies $M1$, $M2$ and $M3$ from the celestial body m is $r1$, $r2$ and $r3$. In this case, the celestial body m is drawn to the right side by each gravitations from the celestial bodies $M1$, $M2$ and $M3$. So far, Newton [2] and Einstein [5] reported each gravitational equation. In this report, the Newton's gravitational equation is simply used. The Newton's gravitational equation is

$$F = G \frac{Mm}{r^2} \quad (1)$$

F , G and r are respectively force, gravitational constant, and distance. And, M and m are two masses. From Equation (1), the sum of gravitational forces (sFA) from a direction related to the celestial bodies $M1$, $M2$ and $M3$ are

$$sFA = G \left(\frac{m(M1)}{(r1)^2} + \frac{m(M2)}{(r2)^2} + \frac{m(M3)}{(r3)^2} \right) \quad (2)$$

On the other hand, the lower side B is the relation among the celestial bodies m , $M1$, $M2$ and $M3$ when the radius of the universe expands by d

times. Each distance to the celestial bodies M1, M2 and M3 from the celestial body m is $d(r1)$, $d(r2)$ and $d(r3)$. In this case, the sum of gravitational forces (sFB) from the direction with the celestial bodies M1, M2 and M3 are

$$sFB = G \left(\frac{m(M1)}{\{d(r1)\}^2} + \frac{m(M2)}{\{d(r2)\}^2} + \frac{m(M3)}{\{d(r3)\}^2} \right) = \frac{G}{d^2} \left(\frac{m(M1)}{(r1)^2} + \frac{m(M2)}{(r2)^2} + \frac{m(M3)}{(r3)^2} \right) \quad (3)$$

From Equations (2) and (3),

$$sFB = \frac{sFA}{d^2} \quad (4)$$

From Equation (4), the sum of gravitational forces to the direction must become smaller along with the expansion of the universe. Here, the inertial force coefficient (δ) is

$$\delta = \frac{1}{d^2} \quad (5)$$

2.1 Relation between the Inertial Force Coefficient and Centrifugal Force

When a mass (m) revolves around a circle of the radius (r) at a speed (v), the centrifugal force (Fc) is

$$Fc = \frac{mv^2}{r} \quad (6)$$

Equation (6) is calculated as follows.

In Figure 2, a point A is a circle center of the radius (r). A dotted line BC is a diameter. When the mass (m) revolves from a point B to a point D over time (t), the distance between the diameter BC and the point D is a solid arrow ED. And a solid arrow F is the force attracting the mass (m) to the center A. Because the mass (m) moves with speed (v) over time (t), the distance ED is

$$\text{distance ED} = vt \quad (7)$$

And the acceleration (α) of the mass (m) occurs with the force (F).

$$F = m\alpha \quad (8)$$

From Equation (8), the distance BE that the mass (m) moved with time (t) is

$$\text{distance BE} = \frac{\alpha t^2}{2} \quad (9)$$

From Equation (9), the distance BE is

$$\text{distance BE} = 2r - \frac{\alpha t^2}{2} \quad (10)$$

Here,

$$\frac{\text{distance BE}}{\text{distance ED}} = \frac{\text{distance ED}}{\text{distance CE}} \quad (11)$$

From Equations (7), (9), (10) and (11),

$$\frac{\frac{\alpha t^2}{2}}{vt} = \frac{vt}{2r - \frac{\alpha t^2}{2}} \quad (12)$$

From Equation (12),

$$\alpha = \frac{v^2 + \frac{\alpha^2 t^2}{4}}{r} \quad (13)$$

From Equation (8) and (13),

$$F = \frac{m(v^2 + \frac{\alpha^2 t^2}{4})}{r} \quad (14)$$

Here, when the time (t) is infinitesimal, the force (F) of the moment can be calculated. From Equation (14),

$$F = \lim_{t \rightarrow 0} \frac{m(v^2 + \frac{\alpha^2 t^2}{4})}{r} = \frac{mv^2}{r} \quad (15)$$

However, the force (F) is not the centrifugal force but the attractive force to the center A. A direction of the centrifugal force (Fc) is a reverse direction to the attractive force (F). And the centrifugal force (Fc) can never exist if there is no inertial force. Therefore, the inertial force coefficient (δ) must be added to Equation (15). From Equations (5) and (15), the correct centrifugal force equation (Fcc) is

$$Fcc = \frac{\delta mv^2}{r} \quad (16)$$

In Equation (16), it can be explained that the centrifugal force varies with the magnitude of the inertial force.

2.1.1 Relation between the Big Bang Theory and the Magnitude of Centrifugal Force

If no celestial bodies except the Moon and Earth existed in our universe, there would be no centrifugal force due to the absence of inertial force. Therefore, the Moon could never revolve around Earth. If the size of our universe had been smaller than now, the inertial force would have been larger than now. According to the Big Bang theory [3, 6], our universe size of 3.5 billion years ago was smaller than now. The ratio of the inertial force of 3.5 billion years ago to the present inertial force is 1.8 times [7]. Therefore, our earth of 3.5 billion years ago revolved around the sun near the position of the present Mercury because the centrifugal force to now was 1.8 times. However, it was confirmed with the fossils that Cyanobacteria of 3.5 billion years ago lived on earth [8]. If the Big Bang theory is correct, it is meaning that Cyanobacteria of 3.5 billion years ago lived near the position of the present Mercury. Therefore, it was reported that the Big Bang theory was contradicted by Cyanobacteria [7].

2.2 Relation between Inertial Force Coefficient and Kinetic Energy

Similarly, when a mass (m) moves with a speed (v), the kinetic energy (Ek) is

$$Ek = \frac{mv^2}{2} \quad (17)$$

However, the kinetic energy can never exist without inertial force, too. According to Equation (17), the kinetic energy can exist without inertial force. Therefore, the inertial force coefficient (δ) must be added to Equation (17), too. The correct kinetic energy equation (cEk) is

$$cEk = \frac{\delta mv^2}{2} \quad (18)$$

2.2.1 Relation between Kinetic Energy and Crater's Diameter

It was reported that the crater's diameter correlates with the kinetic energy of the colliding celestial body [9]. However, there is no factor of the collision time in it. This author could not confirm any relation between the crater's diameter and the created time. According to the Big Bang theory, the old kinetic energy was greater than it is now. Therefore, each diameter of the old craters must be larger than that of the craters created these days. However, there is no evidence that the current kinetic energy is less than it is in the past. Therefore, the relation between the kinetic energy and the crater's diameter can never become a complete proof of the Big Bang theory.

3 Results

Because the magnitude of the inertial force changes with the size of our universe, the inertial force coefficient is required in the Big Bang theory. And the centrifugal force and the kinetic energy equations must be corrected with it.

According to the corrected centrifugal force equation, our earth of 3.5 billion years ago revolved around the sun near the position of the present Mercury if the Big Bang theory is correct. Because Cyanobacteria were confirmed with the fossils of 3.5 billion years ago, the Big Bang theory is contradicted.

According to the corrected kinetic energy equation, the relation between the crater's diameter and the kinetic energy of the colliding celestial body must change over time if the Big Bang theory is correct. However, there is no evidence that the current kinetic energy is less than it was in the past. Therefore, the Big Bang theory will be contradicted by the relation between the crater's diameter and the created time.

4 Discussion

When the size of our universe does not change, this report is not required. However, this is required to people believing the Big Bang theory.

If the Big Bang theory is correct, our earth of 3.5 billion years ago existed near the position of the present Mercury because the centrifugal force was larger than now [7]. Did Cyanobacteria live on near the position of the present Mercury? And did the relation between the crater's diameter and the kinetic energy of the colliding celestial body change over time? According to the corrected kinetic energy equation, the new relation between the mass, the speed, the created time and the crater's diameter will be researched. This author supposes that the created time will not relate to the crater's diameter. Therefore, the Big Bang theory will be contradicted by the relation between the crater's diameter and its kinetic energy. Of course, the Big Bang theory must be corrected [7]. And this report is not required in the constant universe.

5 Conclusions

The centrifugal force and the kinetic energy can never exist without inertial force. The inertial force is determined by the cumulative gravitational forces exerted by all celestial bodies in our universe. Therefore, the centrifugal force and the kinetic energy equations must be corrected with the inertial force coefficient if the size of our universe changes.

If the Big Bang theory is correct, Cyanobacteria of 3.5 billion years ago lived on near the position of the present Mercury. According to the corrected centrifugal force equation, the Big Bang theory is contradicted by Cyanobacteria. And there is no evidence that the current kinetic energy is less than it was in the past in the observed crater. According to the corrected kinetic energy equation, the Big Bang theory will be contradicted by the relation between the crater's diameter and the created time.

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Author Contributions:

This author alone thought this article.

Sources of Funding

This author has no conflicts of interest to declare that are relevant to the content of this article.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

This article is the work of Hideaki Yanagisawa alone.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

Conflict of Interest

The authors have no conflict of interest to declare.

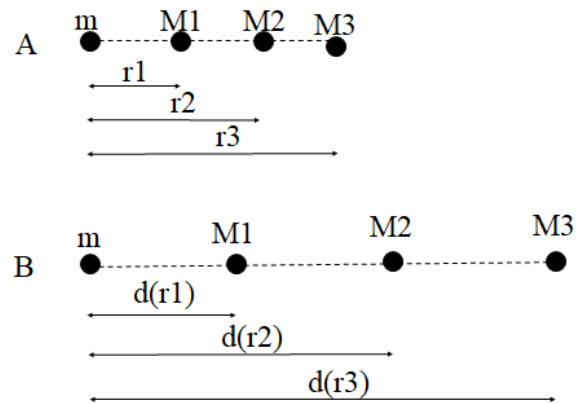


Figure 1: Relation between the magnitude of the inertial force and the radius of the universe

In the upper side A and the lower side B, each radius of the universe is r_3 and $d(r_3)$.

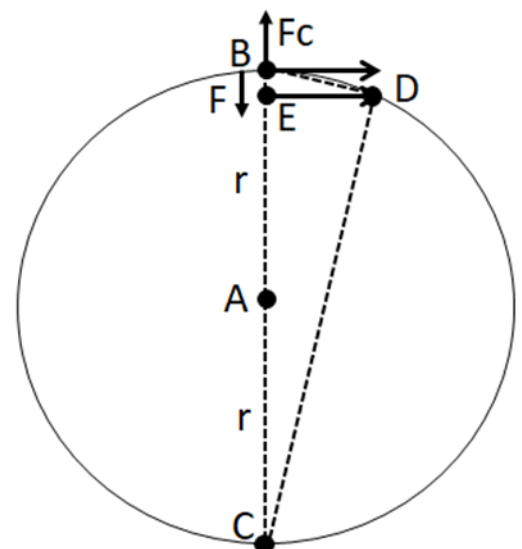


Figure 2: A mathematical method calculating centrifugal force