The Universe Exists on Quantum Space inside a 4D Black Hole

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Abstract Cosmological constant Λ 1.1056E-52 m2 is the universe quantization unit, and the quantized time unit of universe is calculated as 10.053 BY from $1/c\sqrt{\Lambda}$. From this and Planck unit system, the current dark matter in the universe is calculated as 11.035E53 kg. From Schwarzschild formula, the mass of universe black hole is also calculated as 11.036E53 kg. Therefore, it is proven that the universe exists on quantum space inside a 4D black hole.

1. Planck Star & 4D Black Hole

1.1 Planck Data 2018

In Fig. 1, the values of Planck data 2018 are presented.

1.2 Cosmological constant problem

In Fig. 6(a) of the previous study [1], the cosmological constant problem $l_P^2 \cdot \Lambda$ was proved. Its value is the ratio of the 0D neutrino mass v_0 to the 3D neutrino mass v_3. Cosmological constant Λ means the quantization unit of 3D universe. The core formula is $l_{P3}^2 \cdot \Lambda_3 = 1$.

1.3 Planck time on 3D universe

From the formula of Fig. 1, the Planck time t_{P3} of 3D universe is calculated as 10.053 BY. This is the time unit that the universe is quantized.

1.4 Dark matter of Planck time 10.053 BY

The mass of ordinary matter is estimated to be 1.5__E53 kg in physics. Therefore, the dark mass is 8.0__E53 kg. The 3D Planck mass m_{P3} is calculated as 1.281E53 kg. In previous study [1], it was emphasized that antiparticle is 2π times heavier than particle. Multiplying the value by 2π, its value is 8.047E53 kg. The above two values are the same. From this, the mass of dark matter 8.0__E53 kg is determined to be the time of 10.050 BY.

1.5 Dark matter of Current time 13.787 BY

Multiply the above value by 13.787 / 10.053, the current dark mass is calculated as 11.0__E53 kg or 11.035E53 kg.

1.6 Universe black hole of Current time 13.787 BY

According to Schwarzschild radius formula, the mass m_B of the universe black hole at the current time 13.787 BY is calculated as 8.782E52 kg. Multiplying this value by 2·2π, the value is calculated as 11.036E53 kg.

1.7 Linear proportional time formula

[Planck Data 2018]
Planck Length l_{P0} = 1.61626E-35 m
Cosmological constant **Λ_3 = 1.1056E-52 m2**
Age of Universe t_H = 13.787 BY
Dark energy : Dark matter : Ordinary matter = 68.89% : 26.19% : 4.92%

[Cosmological Constant Problem]
$l_{P0}^2 \cdot \Lambda_3$ = 1.61626E-35^2 · 1.1056E-52 = **1E-121.5394**
v_0 / v_3 = See Fig.8(a) in Ref. [1]. 1E-121.5326
※ *Therefore,* $l_{P3}^2 \cdot \Lambda_3 = v_3 / v_3 = 1$

[Planck Time on 3D Universe]
$l_{P3} = 1 / \sqrt{\Lambda_3}$ = 1 / √1.1056E-52 = 9.5104E25 m
$t_{P3} = l_{P3} / c$ = 9.5104E25 / (2.9979E8·60·60·24·365.24) = **10.053 BY**
※ $\Lambda_3 \rightarrow l_{P3} \rightarrow t_{P3}$ = Cosmological Quantizing Time Unit

[Dark Matter of Planck Time]
Ordinary Matter immutability? 0 ~ 13.787 ~ (?) 1.5__ E53 kg
Dark Matter 1.5E53 · 26.19% / 4.92% = 13.787 (X) 8.0__E53 kg
3D Planck Mass $m_{P3} = \sqrt{(c \cdot \hbar_3 / G)}$ & $\hbar_3 = l_{P3}^2 \cdot c^3 / G$

$m_{P3} = c^2 \cdot l_{P3} / G$ = 2.9979E8^2 · 9.5104E25 / 6.6743E-11 = 1.281E53 kg
2π x 3D Planck Mass $2\pi \cdot m_{P3}$ = 10.053 (O) 8.047E53 kg

[Dark Matter of Current Time]
m_H^D = D.M. · t_H / t_{P3} = 8.0__E53 · 13.787 / 10.053 = **11.0__E53 kg**
$m_H^D = 2\pi \cdot m_{P3} \cdot t_H / t_{P3}$ = 8.047E53 · 13.787 / 10.053 = **11.035E53 kg**

[Universe Black Hole of Current Time] $r_H = 2 \cdot G \cdot m_B / c^2$
r_H = 13.787E9·2.9979E8·60·60·24·365.24 = 1.3043E26 m m_B = 8.782E52 kg
1.3043E26 = 2·6.6743E-11· m_B / 2.9979E8^2 $2 \cdot 2\pi \cdot m_B$ = **11.036E53 kg**
※ The Universe exists on quantum space inside a 4D black hole
※ Dark matter grows at constant velocity. 0.000_E53 kg at Big Bang

[Inside of Supermassive Black Hole]
※ Planck unit is the standard for measurements of our universe
$m'_{P2} = m_{P2} \cdot t_{P2} / t_{P3}$ = 4.362E44 · 34.24 / 10.050E9 = 1.486E36 kg
Solar Mass m_θ = 1.988E30 kg 7.474E5 m_θ
Unit of quantizing mass m_{B2} = $2\pi \cdot m'_{P2} = 2 \cdot 2\pi \cdot m_{B2}$ 373.7E3 m_θ
Speed of light $c_2 = c \cdot t_{P2} / t_{P3}$ = 2.998E8 · 34.24 / 10.050E9 = 1.021 m/s
※ Our space brane of linear 3D and quantum 3D is sucked into supermassive black hole, and the universe of linear 2D and quantum 4D is being created.

Fig. 1 Calculation

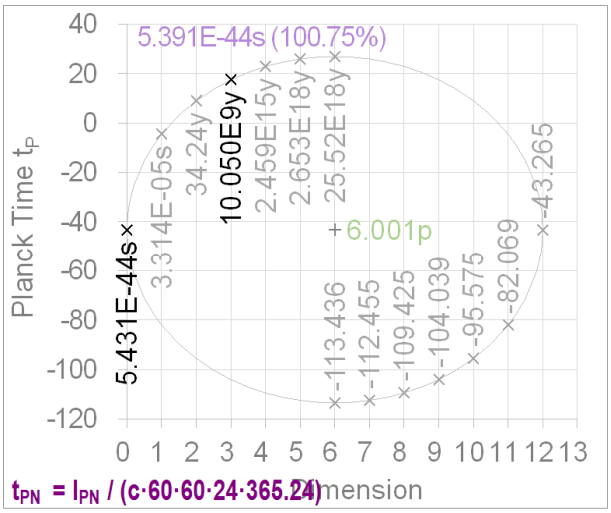

Fig. 2 Six-dimensional Planck Time

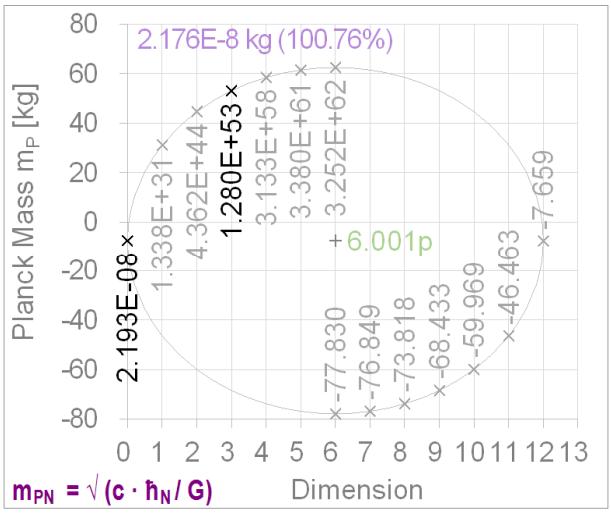

Fig. 3 Six-dimensional Planck Mass

The dark matter mass of 11.035E53 kg was calculated by linear proportional formula 13.787 / 10.053 according to time flow. The universe black hole mass of 11.036E53 kg is also linear proportional value according to time flow. It is a reasonable result that universe black holes expand at constant velocity. Therefore, the mass of Big Bang is 0.000_E53 kg.

1.8 Dark energy : Dark matter = 72.45% : 27.55%

Even if there are many iron marbles on a balloon, the overall shape of the balloon does not change. If the universe exists on a 4D black hole, the shape of our space is also a 4D sphere. Ordinary matter cannot affect the overall shape of 4D sphere space. Therefore, the ratio of dark energy 68.89% and dark matter 26.19% is recalculated as 72.45% and 27.55%. This value is slightly imprecise. The ratio of 10.053 BY and 13.787 BY is 72.92%, and this is 3D Planck time ratio.

2. Supermassive Black Hole

2.1 Six-dimensional Planck Unit

Fig. 2 and 3 were calculated at Fig. 25 of previous study [1]. Our universe is composed of a three-dimensional linear space and a three-dimensional quantum space. Our universe is located on 3D in above Figure. However, Planck unit of physics is the value of 0D. The zero-dimensional space consists of zero linear spaces and six quantum space.

2.2 Standard of interpretation

Physical units such as 1 meter, 1 second, and 1 kilogram are values based on our universe. Therefore, the standard for the interpretation will be 10.050E9 year in Fig. 2.

2.3 2D Planck mass

In Fig. 3, the 2D Planck mass was calculated as 4.362E44 kg. Its base would be 10.050E9 years, so when adjusted to 34.24 years, as shown in Fig. 1, its mass is calculated as 1.486E36 kg. The mass of the sun is 1.988E30 kg, so this value is 7.474E5 m_θ.

2.4 Unit of quantizing mass

Dividing this value by 2, the value is calculated as 373.7E3 m_θ. This value would be the unit of quantizing mass of supermassive black hole.

2.5 Speed of light in 2D universe

Inside the black hole, time is said to be stopped. This means that there is no change inside the black hole. It is a difficult phenomenon to understand. Does this mean that all matter continues to accumulate only on the event horizon? The speed of light inside a black hole would be 1.021 m/s.

2.6 2D Universe & 4 generation particles

Inside of supermassive black hole, a 2D universe would exist. Its physics is the four generations of particle physics.

3. Conclusions

The mass of dark matter 11.035E53 kg and the mass of universe black hole 11.036E53 kg are the same values. Therefore, it is proved that our universe is on quantum space inside 4D black hole. Since this is linear proportional equation, the dark matter was 0.000_E53 kg at Big Bang.

References

[1] D. Kim, 2022, New Standard Model, https://vixra.org/abs/2207.0003