Three Generation Black Holes and Birth of Universe by Q-theory

Deokjin Kim

EnTEs Institute, Korea. E-mail: entes@outlook.kr

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Abstract Neutron star is graviton black hole that collapses gravitational force, stellar black hole is photon black hole that collapses electromagnetic force, and intermediate-mass black hole is gluon black hole that collapses strong force. Supermassive black hole is not black hole but quantum hole that quantize height Z dimension. In this study, their structure shape and minimum mass were calculated by logarithmic elliptic equation. Quasar is a photon black hole in 4D universe. This falls into our space and creates a galaxy with big bang. In the same way, it is our universe that a gluon black hole of 5D universe fell into 4D universe and was created with big bang.

1. Introduction

In previous studies, the mass of H boson was calculated easily from logarithmic parabolic equation relationship of W boson and Z boson[1], the characteristics of logarithmic elliptic equation and the principle of universal change were described[2], the dimension of our space was calculated as 6.00108 from the masses of electron, muon, and tau[3], the standard masses and oscillating masses of three generation neutrinos and gravinos were calculated[4], the mass of up quark was calculated [5], four fundamental forces were unified by logarithmic parabolic equation[6], the masses of proton and neutron were calculated[7], the masses of up, charm, down, and strange quarks were calculated[8], and the cosmological constant problem was solved and the six generation Planck units were calculated[9].

The purpose of this study is to calculate the masses of stellar black hole, intermediate-mass black hole, and supermassive black hole, and to explain the birth of universe.

2. Three generation black holes

2.1 Three generation quantum spaces

Three generation quantum spaces[1] are shown in Fig. 1. Our space is composed of the linear spaces of XYZ and the quantized space of abc. Since the space a has weak compressive strength, the α particles have weak masses. Since the space b has medium compressive strength, the β particles have medium masses. Since the space c has strong compressive strength, the γ particles have strong masses.

2.2 Three generation particles

In Fig. 2, the shapes of electron, muon, tau[3], up, charm, top[5], down, strange, and bottom[8] quarks are shown, and the structure explanation and mass calculation were described in detail in the previous studies.

Where, α, β, and γ mean each 1st, 2nd, and 3rd generation fundamental particles, subscript n, s, g, and t mean each neutrino, anti-neutrino, gravino, and anti-gravino, small letter and capital letter mean standard and oscillation, and superscript f and b mean fermion and boson. Therefore, α_n, β_n, and γ_n are each electron neutrino, muon neutrino, and tau neutrino, and α_g, β_g, and γ_g is each graviton, photon, and gluon. Above, gravino is a word coined by the author, and means graviton, photon, and gluon.

Star is composed of three generation particles of α, β, and

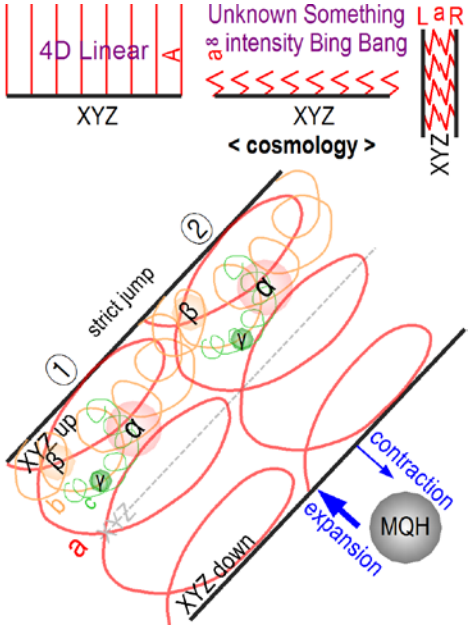


Fig. 1 Three generation quantum spaces

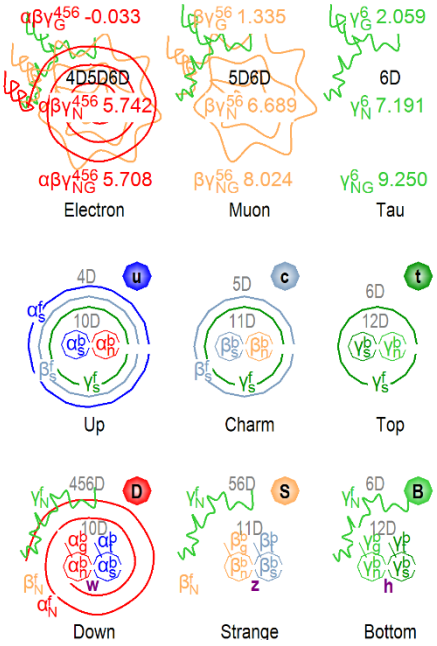


Fig. 2 Three generation particles

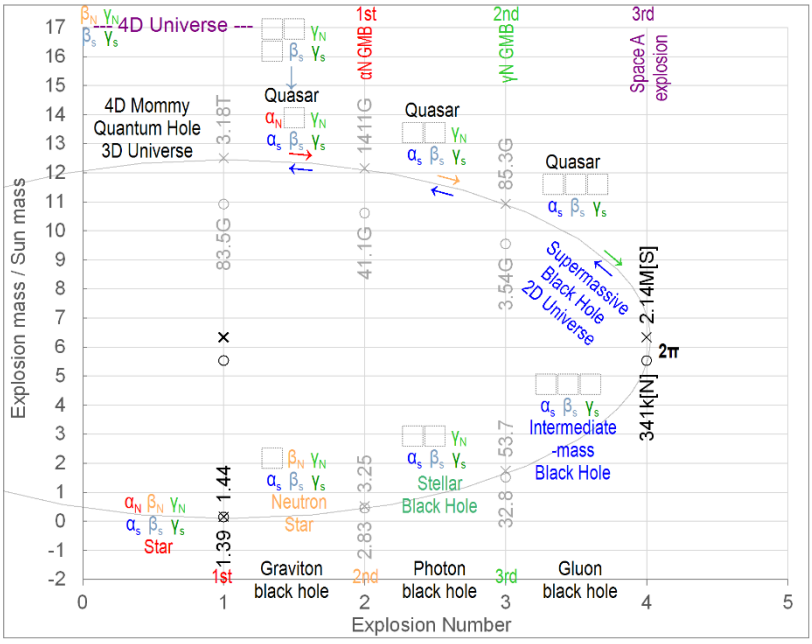


Fig. 3 Three generation black holes

γ in Fig. 2[4], and weak force in quantum space induces gravity toward the empty space of 4D direction[7]. Our universe is quantized with a red brane, and simulation universe is quantized with a blue brane[2]. The simulation universe is 2π times heavier and stronger than our universe[5].

2.3 Graviton black hole = Neutron star

When the mass of star becomes heavier than the space size of the star, the quantum space a in Fig. 1 is further compressed. When that limit is reached, the quantum space a explodes, and the electron neutrino α_N and the graviton α_G bounce out of the quantum space a. Due to this, in Fig. 2, electrons and down quarks in the star change into muons and strange quarks, and it evolves to a neutron star. Neutron star is graviton black hole. At the border of it in Fig. 3, a gravitational horizon that electrons and gravitons cannot penetrate is unfolded. Up quark is anti-particle, and it may jump to simulation universe[2].

2.4 Photon black hole = Stellar black hole

When the mass of neutron star becomes heavier than the space size, the quantum space b in Fig. 1 is further compressed. When that limit is reached, the quantum space b explodes, and the muon neutrino β_N and the photon β_G bounce out of the quantum space b. Due to this, in Fig. 2, muons and strange quarks in the neutron star change into taus and bottom quarks, and it evolves to a stellar black hole. Stellar black hole is photon black hole. At the border of it in Fig. 3, a light horizon that muons and photons cannot penetrate is unfolded. Charm quark is anti-particle, and it may jump to simulation universe.

2.5 Gluon black hole = intermediate-mass black hole

When the mass of stellar black hole becomes heavier than the space size, the quantum space c in Fig. 1 is further compressed. When that limit is reached, the quantum space c explodes, and the tau neutrino γ_N and the gluon γ_G bounce out of the quantum space c. Due to this, in Fig. 2, taus and top quarks in the stellar black hole are disappeared. Intermediate-mass black hole is gluon black hole. At the border of it in Fig. 3, a dimensional horizon that taus and gluons cannot penetrate is unfolded. Top quark is anti-particle, and it may jump to simulation universe.

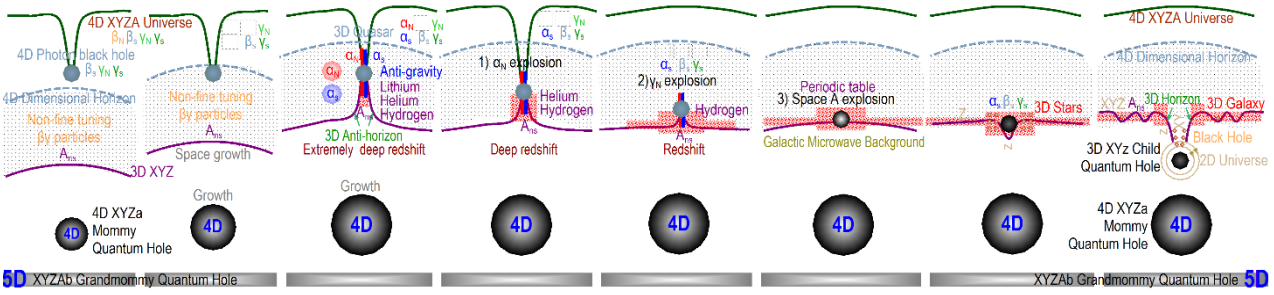
The three generation quantum spaces a, b, and c all collapsed. As the result, the height Z of linear space XYZ changes to semi-quantum space z'. This makes it impossible to understand intermediate-mass black hole. According to intermediate-mass black hole grows, it is guessed that intermediate-mass black hole will gradually be pushed out of the galaxy. Satellite galaxy orbiting outside galaxy may be this.

2.6 Supermassive black hole in our space

When the intermediate-mass black hole grows to the explosion number 4 of Fig. 3, the height Z space is quantized and evolved into a supermassive black hole by the process shown in the top of Fig. 1. Inside of it, a universe of XY linear space and four generation particles unfolds.

2.7 Logarithmic ellipse equation

It is known that the mass of supermassive black hole ranges from hundreds of thousands of times to tens of billions of times of solar mass $m_{\odot}$.



(a) (b) (c) (d) (e) (f) (g) (h)

Fig. 4 Birth process of supermassive black hole

$$m_{P4}\ 3.163\text{E}58\ :\ \text{m}_{P3}\ 1.291\text{E}53\ =\ m_{sbh}\ :\ 1.39m_{\odot} \quad (1)$$

Where, m_{P4} on 4D and m_{P3} on 3D are the Planck masses shown in Fig. 7 of reference[9], m_{sbh} is the mass of supermassive black hole in Fig. 3, and $1.39m_{\odot}$ is the minimum solar mass times to become a neutron star. From Eq. (1), m_{sbh} is calculated as 341 k$m_{\odot}$. Fig. 3 shows the logarithmic elliptic equation applied to the above two masses. The minimum mass of stellar black hole is calculated as $2.83m_{\odot}$, and that of intermediate-mass black hole is calculated as $32.8m_{\odot}$.

Chandrasekhar limit $1.44m_{\odot}$ will be correct. And anti-particle s is 2π times heavier than particle n. That is, the actual minimum mass of supermassive black hole consisting only of antiparticle s is 2π times of 341k. Fig. 3 shows the logarithmic elliptic equation applied to the above two masses. The minimum mass of stellar black hole is calculated as $3.25m_{\odot}$ and that of intermediate-mass black hole is calculated as $53.7m_{\odot}$.

3. Child quantum hole

3.1 4D star in 4D universe

The upper area in Fig. 3 is the birth process of supermassive black hole in the center of galaxy. In Fig. 4(a), The 4D star of 4D XYZA universe is composed of two generation particles with β_N, β_s, γ_N, and γ_s.That is, only muon, tau, charm, top, strange, and bottom exist in Fig. 2. The combination of the particles is the similar to neutron star in Fig. 3.

3.2 4D photon black hole

When β_N of the star bursts, it becomes a 4D photon black hole with β_s, γ_N, and γ_s. The combination of the particles is similar to stellar black hole in Fig. 3.

3.3 Non-fine tuning particles

Between our 3D XYZ space and the 4D dimensional horizon, there are numerous β and γ particles that have not yet been fine-tuned.

3.4 Quasar

The XYZ space of our universe expands from (a) to (b). Due to this, the 4D photon black hole enters our universe. This is the start of quasar.

3.5 Anti-gravity

The quasar composed of β and γ is falling into our XYZ space. There are no α particles in the quasar. Thus, the quasar strongly attracts the straight brane A_{ns} of our space such as (c). This is anti-gravity.

3.6 Quantizing A_{ns} into α_N and α_s

In (c), the quasar quantizes the brane A_{ns} into α_N and α_s. The α particle is finely tuned with the βγ particles around the brane, which creates the particles of Fig. 2.

3.7 Lithium, Helium, Hydrogen

From (c) to (e), lithium, helium, and hydrogen are produced. The particles flow down by gravity, and the quasar turn into α_N, α_s, β_s, γ_N, and γ_s.

3.8 Extremely deep red shift

The light generated in (e) is a general red shift. However, the light in (c) is that starts from the extreme deep space that we cannot understand.

3.9 Explosion = Three Big Bang

In (c), quasar continuously absorbs α particles. In (d), the supersaturated α_N explodes. In (e), the 4D XYZA falls from A_{ns} and γ_N explodes. In (f), A_{ns} explodes and all the elements of the periodic table are formed. Such as above, quasar has three explosions in a very short time.

3.10 Birth of stars

Due to the three explosions, a lot of stars appear in a short time, such as (g).

3.11 Birth of galaxy

In (h), the galaxy is completed in a very short time. The

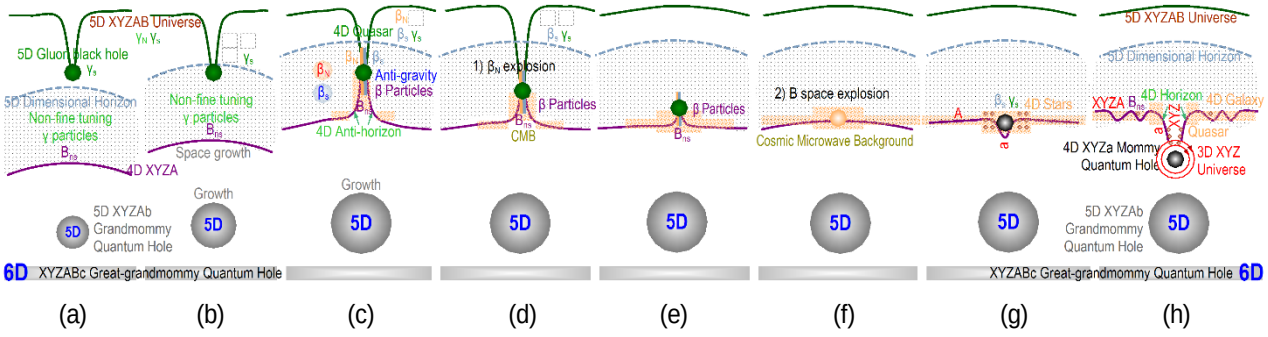


Fig. 6 Birth process of universe

vertical direction Z of XY is quantized to z, and the supermassive black hole is located in it. It is a child quantum hole, and an XY 2D universe unfolds as a sphere on its surface.

3.12 Growth of galaxy

In (h), the rotation of the supermassive black hole begins to curl the galactic space, and an early spiral arm galaxy is formed. The supermassive black hole starts from the explosion number 4 in Fig. 3, and it grows by absorbing the 4D mommy quantum hole and the galactic space. Due to this, the galaxy's quantization proceeds harder, and the galactic space is further quantized with the spiral arm.

3.13 Shape of galaxy

The enlarged drawing of Fig. 4(h) is the cross-sectional drawing of galaxy in Fig. 5. At a short distance such as solar system, XYZ extends in linear space such as ④. However, the entire galaxy ③ has a quantized height z in XY linear space. For this reason, the entire galactic space must be analyzed as a convex lens XYz. Since the central part ② of galaxy is highly quantized, the space has a solid character. Dark matter is supermassive black hole ①, which dominates the entire galactic space. Supermassive black hole is 2π times heavier than the observed mass.

4. Birth of universe

The explanation in Fig. 6 is the same as in Fig. 4.

Fig. 4 shows the birth process of 3D galaxy and 3D child quantum hole from a 3D quasar suddenly appearing in our universe. Fig. 6 shows the birth process of 4D galaxy and 4D mommy quantum hole from a 4D quasar suddenly appearing in 4D universe. In (d), β_N explodes and the cosmic microwave background appears. In (f), the 5D space explodes. The completion of our universe is (h), and at that time, numerous quasars of Fig. 4 are flow into our universe. Due to this, numerous galaxies are completed within a short time after our universe is born.

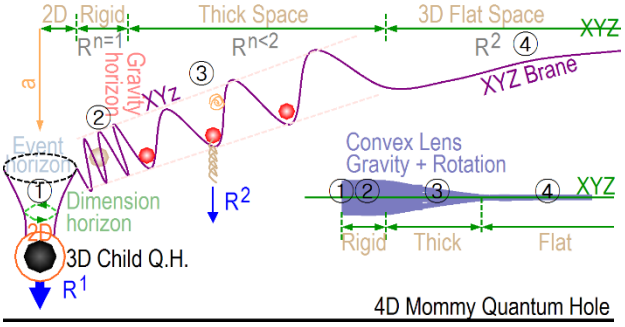


Fig. 5 Shape of galaxy

5. Conclusions

When the minimum mass of neutron star is $1.39m_{\odot}$, the minimum masses of stellar black hole, intermediate-mass black hole, and supermassive black hole were calculated as $2.83m_{\odot}$, $32.8m_{\odot}$, and 341 k$m_{\odot}$. As other values, $3.25m_{\odot}$, $53.7m_{\odot}$, and 2.14M$m_{\odot}$ were calculated.

The beginning of galaxy's birth is a photon black hole, or quasar, in 4D universe. This flows into 3D universe and creates a galaxy with Big Bang. In the same way, the beginning of universe's birth is a gluon black hole in 5D universe. This flows into 4D universe and creates a universe with Big Bang.

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