Sixty Solutions to the Unsolved Problems in Physics

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Abstract   There is a list of unsolved problems in physics on Internet Wikipedia. In this paper, sixty unsolved problems were calculated or explained through simple mathematics. The main results are as follows. (1) Generations of matter: Fourth generation particle does not exist. (2) Extra dimensions: The space of the universe has six dimensions. (3) Neutrino mass: The mass of electron neutrino is calculated to be 0.15 eV. (4) Neutrino oscillation: The 0.15 eV oscillates to 187.5 keV and 13.61 MeV. (6) Arrow of time: Our universe is 3D, and the quantization proceeds from 4D to 2D direction. (11) Dark matter: Something grows our universe by quantizing 4D space into 3D. (16) Origin of mass of most elementary particles: Extremely compressed three generation quantum spaces give mass to three generation particles. (24) Hierarchy problem: Elliptic equation must have a largest value and a smallest value. (28) Cosmological constant problem: The 10^120 is the ratio of 0D and 3D neutrino masses. (33) Supersymmetry: Elliptic equation is up & down symmetry and left & right symmetry. (38) Quantum gravity: Gravity is the Planck force of strong, electromagnetic, and weak forces. (40) Dark energy: There is a dark force greater than strong force. (41) Quantum chromodynamics: The mass of strong force is 42.15 keV, which is the root of tau mass 1776.86 MeV. (44) Hubble tension: CMB's 67.66 km/s/Mpc and Redshift's 73 km/s/Mpc are both right answers. (59) Fine-tuned universe: All universes change according to logarithmic elliptic equation, and all forces follow logarithmic parabolic equation. (60) Theory of everything: Since quantum space has a logarithmic characteristic, quantum particle must be calculated as logarithmic value.

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1. Introduction

In previous studies [1, 2], the author has precisely calculated various unsolved problems in Standard Model of particle physics and Standard Model of cosmology. However, since the scope of previous studies is very wide, the core of the study is not clear. In this study, the core of the author's argument is clearly described, focusing on sixty of the unsolved problems in physics introduced in Wikipedia [3]. For convenience of understanding, since this calculation was performed macroscopically. there is a slight error between this calculation results and the correct answers. In this paper, gravinos refers to graviton, photon, and gluon.

2. Sixty Solutions to Unsolved Problems

2.1 Generations of matter

The masses of electron, muon, and tau neutrino are known as each <0.12 eV (normal), <170 keV, and <15.5 MeV. Fig. 1 is a chart drawing the parabolic equation after plotting above logarithmic mass values on ① 4D, ② 5D, and ③ 6D. There is an insistence that the mass of fourth generation neutrino would be <45 GeV. When the logarithmic value of 45 GeV is plotted on 7D and the cubic equation is drawn, it is judged that the trend is not natural. Since symmetry is very important in physics, the parabolic equation drawn in Fig. 1 is considered reasonable. Therefore, it can

be determined that 4th generation particle does not exist.

2.2 Extra dimensions

In Fig. 5, the α (electron neutrino & graviton), β (muon neutrino & photon), and γ (tau neutrino & gluon) particles are born from the cosmic brane of 4D A, 5D B, and 6D C. Three generation neutrinos make the shape of particle, and three generation gravinos impart force to particle.

In Fig. 1, The vertex of parabola is calculated to be 5.97D, and since the above six particles are the origin of everything, spaces can be determined as six dimensions. From the viewpoint of theory of relativity, the origin of everything is the 6-dimensional linear brane XYZABC(6L). Linear space ABC is transformed into quantum space abc, and quantum particles αβγ are born from brane ABC. From the viewpoint of quantum mechanics, the origin of everything is the 6-dimensional quantum particles φψωαβγ(6Q). Quantum space abc is transformed into linear space ABC, and brane ABC are born from quantum particles αβγ. The sum of the linear dimension L and the quantum dimension Q is always six dimensions.

In the picture of ant in Fig. 5, the XY is 2D linear where X and Y are straight lines, and the XYz is 2D space where the straight-line Z was transformed into quantum z. That is, XY is the world of mathematics, and XYz is the world of physics. When a particle is located on XYz, it has mass by the compressed z. XY is our linear space, and z is the quantum space of 4D, 5D, and 6D. The XY can never understand the
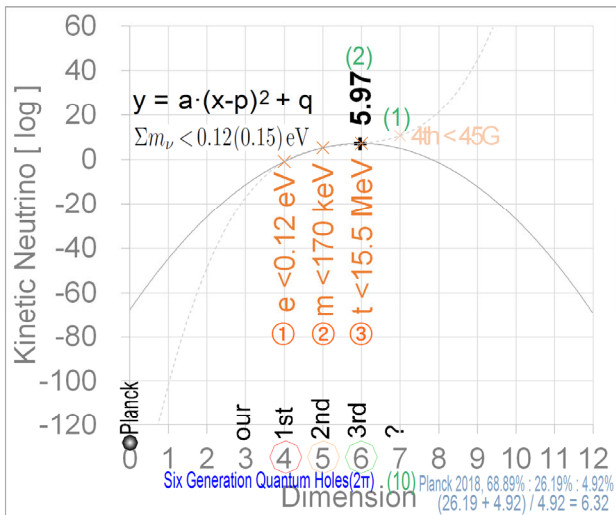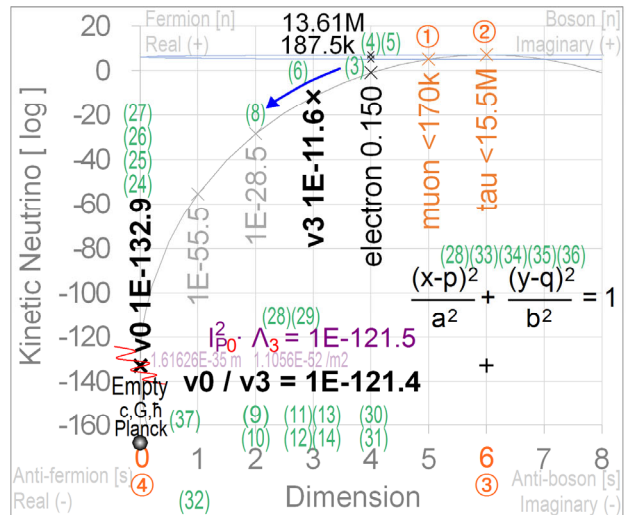
Fig. 1 Three generation neutrinos

Fig. 2 Logarithmic elliptic equation
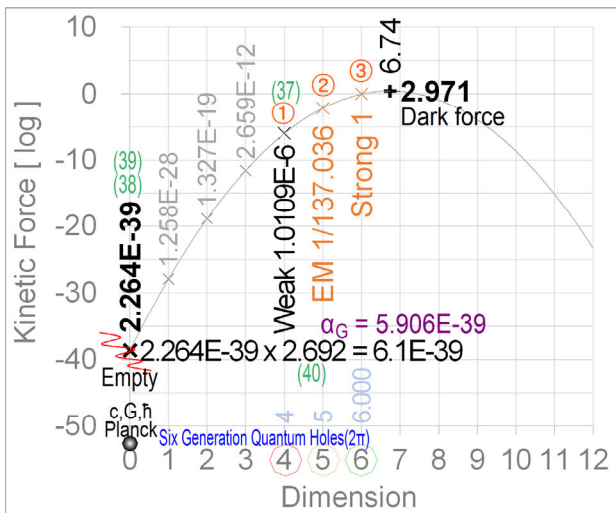

Fig. 3 Integration of four fundamental forces

< Wikipedia: List of Unsolved Problems in Physics >

(1) Generations of matter   (2) Extra dimensions   (3) Neutrino mass
(4) Neutrino oscillation   (5) Solar neutrino problem   (6) Arrow of time
(7) Law of increasing entropy (8) Origin and future of the universe
(9) Supermassive black holes (10) Galaxy rotation problem (11) Dark matter
(12) Shape of the universe   (13) Horizon problem   (14) Size of universe
(15) Are voids in space empty (16) Origin of mass   (17) Ultra-high-energy cosmic ray
(18) Magnetic monopoles (19) Neutron star, Stellar black hole, Intermediate-mass black hole
(20) THe Cosmic censorship hypothesis   (21) Dark flow (22) Largest structures
(23) Problem of time   (24) Hierarchy problem (25) Cosmic inflation
(26) Interpretation of quantum mechanics(27) String theory
(28) Cosmological constant problem (29) Vacuum catastrophe (30) Nature of quasars
(31) The lithium problem (32) Holographic principle (33) Supersymmetry
(34) Mu problem (35) Cosmological principle (36) Quantum field theory
(37) Proton radius puzzle (38) Quantum gravity (39) Locality (40) Dark energy
(41) Quantum chromodynamics (42) Dimensionless physical constants
(43) Higgs boson and electroweak symmetry breaking (44) Hubble tension
(45) Accelerated expansion (46) Neutron lifetime puzzle (47) Reactor antineutrino anomaly
(48) Koide formula (49) Number of parameters (50) Anomalous magnetic dipole moment
(51) Yang-Mills theory (52) Proton decay (53) Color confinement (54) Strong CP problem
(55) Baryon asymmetry (56) Existence of pentaquarks(57) Strangelets
(58) Nuclei and nuclear astrophysics (59) Fine-tuned universe (60) Theory of everything

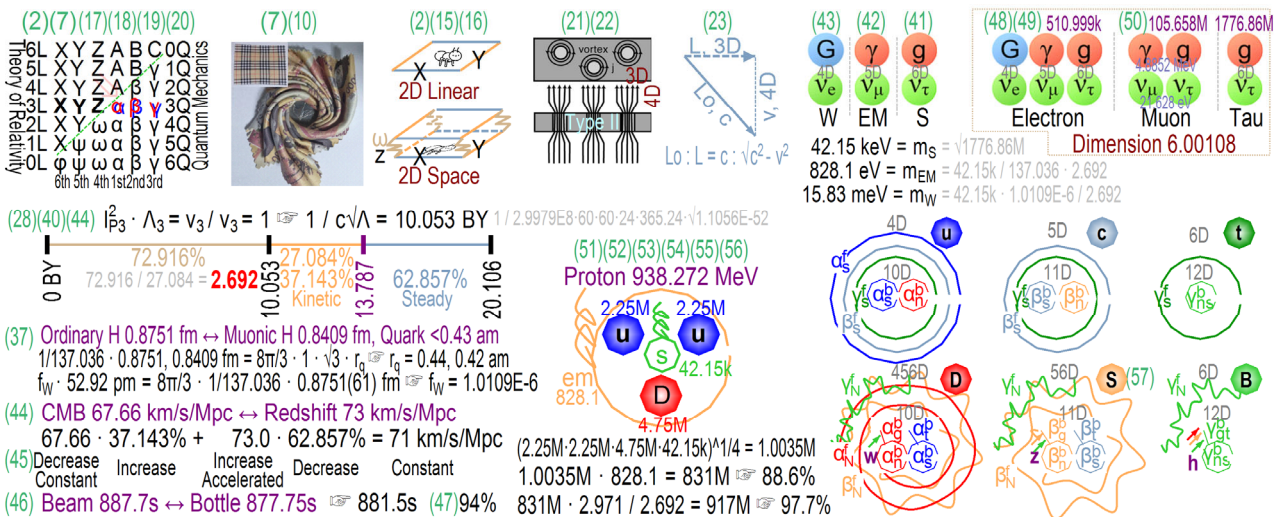**Fig. 4** Sixty unsolved problems in Physics

Fig. 5 Supplementary Figures

z. On 2D Linear, since the ant is a 3D object, the ant can be calculated physically. However, since the height Z is quantized as z in 2D Space and the ant becomes a 2D object, the ant cannot be calculated physically. Our 4D, 5D, and 6D spaces are quantized, and three generation quantum particles are located there.

2.3 Neutrino mass

Fig. 2 is a logarithmic elliptic equation with ① muon neutrino mass 170 keV on 5D, ② tau neutrino mass 15.5 MeV on 6D, ③ center 6D, and ④ vertex 0D. Since four condicions are given, the elliptic equation is drawn, and the value on 4D is calculated to be 0.15 eV. The masses according to the author's precise calculation [Fig. 4, 5 in Ref. 2] are as follows: electron neutrino 0.15244 eV, muon neutrino 169.06 keV, tau neutrino 15.408 MeV, its 0D mass 2.1239E-133 (Neutrino Planck mass), graviton 2.5061E-10 eV, photon 0.16090 eV, gluon 115.32 eV, its 0D mass 1.9193E-202 eV (Gravino Planck Mass).

2.4 Neutrino oscillation

Since elliptic equation is square formula, the very narrow ellipse in Fig. 2 is also calculated. On 4D, the mass of electron neutrino is calculated to be 0.150 eV of standard mass, 187.5 keV similar to muon mass, and 13.61 MeV similar to tau mass, and all are exact answer. This is oscillation phenomenon, and it occurs in all three generation neutrinos and gravinos.

2.5 Solar neutrino problem

That is, electron neutrino does not change into muon neutrino or tau neutrino, but the mass of electron neutrino has one of 0.150 eV, 187.5 keV, and 13.61 MeV.

2.6 Arrow of time

The elliptic equation in Fig. 2 should be drawn from 6D to 0D direction. This is the flow direction of change. Our universe exists on 3D and is changing from 4D to 2D direction. We understand it as the flow of time.

2.7 Law of increasing entropy

In Fig. 5, the straight space continues to be entangled, and it turns into particles. That is, our entire universe is changing from order to disorder. Gravity turns a local disorder into a local order. Therefore, adding the disorder of space and the order of gravity, the entire universe is disorder.

2.8 Origin and future of the universe

Since space is six-dimensional, the entire universe becomes six-dimensional multiverses. Our 3D universe was born when something in 4D exploded in Big Bang. From Fig. 2, it is understood that our 3D universe will be quantized into a 2D universe after countless times.

2.9 Supermassive black holes

In Fig. 2, what quantizes 3D space into 2D is supermassive black hole. It should be called 2D quantum hole.

2.10 Galaxy rotation problem

In previous study, it has been proven that antiparticle is 2π times heavier than particle [2]. Supermassive black hole is antiparticles, and antiparticle is 2π times heavier than particle. Such as Fig. 5, it swallows the 3D space of the galaxy and quantizes it into 2D space. As the result, 2D quantization characteristics occur in the 3D galaxy. It's effect on galaxy is 6.48 (= 2π) times. In Planck data 2018 of Fig. 1, dark matter is 26.19%, ordinary matter is 4.92%, and the value of (26.19 + 4.92) / 4.92 is 6.32. The above two values are similar to each other.

2.11 Dark matter

Since supermassive black hole dominates its galaxy, the dark matter of galaxy is 2D quantum hole. The dark matter that dominates our universe is the 3D quantum hole that caused Big Bang. Since 3D quantum hole grows by absorbing 4D quantum hole, our entire space expands naturally. 2D quantum hole also grows by absorbing 3D quantum hole. Since our space is spread out on the surface of 3D quantum hole, we cannot observe cosmic dark matter.

2.12 Shape of the universe

Since 3D quantum hole is a sphere, the shape of our universe is also an absolute sphere. 3D quantum hole is judged to grow at the speed of light in 4D directions, and our space will also expand at the speed of light. Because of the above two phenomena, the universe seems to be observed flat.

2.13 Horizon problem

The surface of 4D sphere is macroscopically uniform. Since there are no absolutes on the surface, everything is interpreted in a relative perspective.

2.14 Size of universe

Our universe is a 4D sphere. Therefore, the size of our universe is the radius of 4D sphere. In previous study [4], the value was calculated as 9.749 BY.

2.15 Are voids in space empty?

As can be understood from Fig. 5, the quantum space of abc is compressed with extreme force in the vertical direction of our linear space XYZ. From the abc quantum brane, three generations of neutrinos and three generations of gravinos are still being generated.

2.16 Origin of mass of most elementary particles

In Fig. 2, the mass of each neutrino is determined by the elliptic equation. This means that the mass is given by the strength of logarithmically compressed quantum space. Since neutrinos and gravinos are the origin of all things, it can be judged that the characteristics of quantum space determine everything. In Fig. 5, the 2D ant do not exist in XY, but at z in XY. The quantum space z is what gives ant their 2D mass. The origin of quantum mass is the compression force of quantum space, and the compression force is the same as the compression ratio characteristic of thermodynamics. Therefore, combining quantum particle α and quantum particle β, their mass becomes $m_\alpha \cdot m_\beta$ or $\sqrt{m_\alpha \cdot m_\beta}$. This is the core of quantum mechanics. Because this was not discovered in current physics, physics is currently in confusion.

2.17 Ultra-high-energy cosmic ray

Particles from 4D universe keep hitting the quantum brane abc of our 3D space. When the intensity is very high, a part of the abc is cut off and changed into a quantum particle αβγ. This is the mechanism of particle birth. The hitting energy is the origin of ultra-high-energy cosmic ray.

2.18 Magnetic monopoles

The front side of linear brane is N pole, and the back side is S pole. Since 4D, 5D, and 6D were quantized, they exist as particle N and antiparticle S. This is an electric monopole. Magnetic force is generated from the straight brane XYZ, and the front N and back S are attached each other. Therefore, the magnetic force is always dipolar.

2.19 Neutron star, Stellar black hole, Intermediate-mass black hole

Up quark is made up of antiparticles S, and down quark is made up of particles N. Therefore, matter is composed of $\alpha_{NS}\beta_{NS}\gamma_{NS}$. The explosion of α_N is supernova, and neutron star is composed of $\alpha_S\beta_{NS}\gamma_{NS}$. Therefore, electron neutrino and graviton cannot escape from it. The explosion of β_N is stellar black hole $\alpha_S\beta_S\gamma_{NS}$. Therefore, muon neutrino and photon cannot escape from it. The explosion of γ_N is intermediate-mass black hole $\alpha_S\beta_S\gamma_S$. Therefore, tau neutrino and gluon cannot escape from it.

2.20 The cosmic censorship hypothesis and …

The explosion of α_N is neutron star with weak horizon, the explosion of β_N is stellar black hole with electromagnetic horizon (event horizon), the explosion of γ_N is intermediate-mass black hole with strong horizon, and quasar is supermassive black hole with dimensional horizon. The dimensional horizon is our universe space. That is, we cannot jump beyond our universe space.

2.21 Dark flow

Quantum hole is a most powerful antiparticle superconductor, and it is located inside in the 4D direction of our space. Type I characteristics of superconductor stably form our space, and Type II characteristics make the cosmic voids. Galaxies are driven into the valleys between the voids, and they flow by Type II vortices.

2.22 The largest structures

The rotation directions of Type II vortices are different. If the directions of rotation coincide, they form a large galaxy belt. If not, the galaxies are driven into the place.

2.23 Problem of time

We can only understand the 3D direction, and the space curves towards the 4D direction. The proper length of an object is Lo, and light travels with speed c along the curved space. The object with velocity v curves space in 4D direction, and its length in 3D become L. Therefore, as shown in the figure, the relationship of Lo : L = c : √(c^2-v^2) is established, and the formula of length contraction L = Lo · √(1- v^2/c^2) is derived. The light traveled along Lo, but in our 3D view, the journey is observed as L. Due to this, time is observed to slow down.

2.24 Hierarchy problem

On 0D in Fig. 2, the characteristic value of 1E-132.9 is calculated, and this value is the Planck mass of neutrino. This value is almost close to zero, but not zero. Also, +∞ and -∞ do not exist in Fig. 2. Since quantum space is logarithmic characteristic, both 15.5 MeV on 6D and 1E-132.9 eV on 0D are equally important.

2.25 Cosmic inflation

In the big bang theory, Planck unit system is applied at the beginning of Big Bang. However, the Planck unit system of physics is one-fold unit that the 0D quantum hole quantizes its 0D universe. Planck units are also calculated in dimensions from 0D to 6D such as Fig. 2. The cosmological constant is one of the Planck units of 3D universe, and the beginning of Big Bang was very large, for example about 100 light-years. That is, the Big Bang moment of our universe is not the Planck unit of physics.

2.26 Interpretation of quantum mechanics

The characteristics of quantum space are already determined as shown in Fig. 2. Since our universe is located on 3D, three generation neutrinos are continuously being born from the cosmic brane, and they exist as particles in 4D, 5D, and 6D spaces. When the particles appear in 3D space, they are located on 0D and change into waves with mass 1E-132.9 eV. Particle is open particle. It becomes a particle

when it is located on quantum space, and it becomes a wave when it come out into our space.

2.27 String theory

Planck units in physics are calculations of the physical properties of 0D quantum hole. Our universe is dominated by 3D quantum hole.

2.28 Cosmological constant problem

In Fig. 2, the square of Planck length l_p 1.61626E-35 m multiplied by cosmological constant Λ 1.1056E-52 /m^2 is calculated to be 1E-121.5. The value of 1E-132.9 on 0D divided by the value of 1E-11.6 on 3D is calculated to be 1E-121.4. The probability that the above two values are almost the same is close to zero. Since the cosmological constant problem is a fundamental challenge in physics, it can be judged that neutrinos are the origin of everything.

In Fig. 5, since the value of ν_3/ν_3 is $l_{P3}^2 \cdot \Lambda_3 = 1$. The new length of $l_{P3} = \sqrt{\Lambda_3}$ is 9.5104E25 m, and the new light time of $t_{P3} = l_{P3}/c$ is 10.053 BY. The age of the universe is currently known to be 13.787 BY. Therefore, based on 10.053 BY, the time ratio on the left is 72.916%, the time ratio on the right is 27.084%, and the ratio of the above two is calculated as 2.692. From this, it can be understood that the cosmological constant refers to the quantization time unit of the universe.

2.29 Vacuum catastrophe

The Planck units in physics are the value of 0D universe, and the cosmological constant is the value of 3D universe. The Big Bang of our universe is not 0D Planck unit. Based on the cosmological constant, the Big Bang phenomenon must be newly calculated.

2.30 Nature of quasars

After Big Bang, time passes and giant stars from 4D universe fell into our 3D universe. This is quasar. After three explosions, the quasar grows into a galaxy with gravity.

2.31 The lithium problem

Anti-gravity occurs around quasar, and hydrogen, helium, and lithium are generated from the quasar.

2.32 Holographic principle

In Fig. 2, our universe is located on above 3D, where the light spreads itself. When countless times pass along the elliptic equation and change to the below 3D, it becomes a holographic universe in which light gathers itself. The above is the universe of black holes, and the below is the universe of white holes. The connection between the above two is wormhole, but this is the error of time flow direction. There cannot be black holes and white holes at the same time in one universe.

2.33 Supersymmetry

Elliptic equation of Fig. 2 is up & down symmetry and left & right symmetry. The left side is the real universe dominated by fermions, and the right side is the imaginary universe dominated by bosons. The top is a positive universe dominated by particles, and the bottom is a negative universe dominated by antiparticles. Therefore, our universe is a positive universe dominated by fermions on the upper left corner. By the two symmetries, the particles in the lower right must exist in our universe. These are thoroughly hidden inside three generation quarks. In Fig. 2, the 2nd and 4th quadrants are a pair, and after almost infinite time passes, it changes to the 3rd and 1st quadrants. Six-dimensional universes have no beginning and no ending because they rotate the elliptic equation of Fig. 2. From this, one ultimate question exists. Where does the ellipse of Fig. 2 start?

2.34 Mu problem

Fig. 2 is not related to the Mu problem of supersymmetric theory.

2.35 Cosmological principle

The above descriptions are a new cosmological principle.

2.36 Quantum field theory

The above descriptions are a new quantum field theory.

2.37 Proton radius puzzle

QCD suggests that the radius of quark r_q is <0.43 am. Since there are 3 quarks in one proton ($\pi r_Q^2 = 3\pi r_q^2$), The r_Q is $\sqrt{3}r_q$. From the formula in Fig. 5, the radius of quark is calculated to be 0.44 am or 0.42 am, and this value is almost identical to the value of QCD. Therefore, the formula can be said to have very high rationality.

The radius of proton in ordinary hydrogen is measured at 0.8751 fm, and the radius of proton in muonic hydrogen is measured at 0.8409 fm, and physics currently adopts the latter as the standard. However, proton radius in kinetic state is 0.8751 fm, and proton radius in steady state is 0.8409 fm. That is, both values are correct. Substituting weak force f_W, Boch radius 52.92 pm, electromagnetic force 1/137.036, and proton radius 0.8751 fm in kinetic state into the formula, the weak force f_W is calculated as 1.0109E-6. It should be noted that all of the above values are kinetic states.

2.38 Quantum gravity

Fig. 3 is a chart drawing the logarithmic parabolic equation at ① weak force 1.0109E-6 on 4D, ② electromagnetic force 1/137.036 on 5D, and ③ strong force 1 on 6D. As the

result, the value on 0D is calculated to be 2.264E-39. The exact value of gravitational coupling constant is 5.906E-39. It can be judged that four fundamental forces will be connected by the logarithmic parabolic equation. In Fig. 3, the gravity located on 0D is the Planck coupling constant of three generation forces and exists as a wave. The Planck force in physics is the force of 0D quantum hole.

2.39 Locality

The graviton on 4D in electron goes in the direction of proton, and escapes in the 4D direction, and then turn into a wave on 0D. Because of this, graviton cannot be observed in our space. Graviton causes weak force on 4D in the scope of quantum mechanics, and causes gravity on 0D in the scope of general relativity.

2.40 Dark energy

When the 0D value of 2.264E-39 in Fig. 3 is multiplied by the newly value 2.692, the value is calculated as 6.1E-39. This value is very similar to the correct answer 5.906E-39. In Fig. 5, it can be seen that gravity is affected by 2.692 at 10.053 BY. This value is 72.916%, and this is dark energy ratio. However, this is not dark energy but dark force. There are also three generations of dark forces.

2.41 Quantum chromodynamics

Such as Fig. 5, force is a combination particle of one oscillating gravino and one normal neutrino, and the mass of strong particle force is 42.15 keV that is the root of tau mass 1776.82 MeV.

2.42 Dimensionless physical constants

The mass of electromagnetic particle force is 828.13 eV, and the mass of weak particle force is 15.83 meV. Here, three generation dark forces act on the three generation particle forces, and they appear as the physical forces.

2.43 Higgs boson and electroweak symmetry breaking

Lowercase h boson is a very low-mass particle located on 12D hidden in bottom quark. When bottom quark explodes, the h boson on 12D turns into a very heavy H boson on 6D. W boson is first generation, Z boson is second generation, and H boson is only third generation. Since they are composed of one normal gravino and one normal neutrino, they are similar to force particles.

2.44 Hubble tension

The 67.66 km/s/Mpc observed from CMB is kinetic state value, and the about 73 km/s/Mpc observed from supernova is steady state value. Both values are right answers. Here, our universe operates on the combined state of above two values. Present is the mixture of the past kinetic state 37.143%

= (13.787 - 10.053) / 10.053 and the future steady state 62.857%. Therefore, the 67.66 x 37.143% + 73 x 62.857% is calculated to be 71.0 km/s/Mpc [4]. If the universe is expanding at a constant speed, the Hubble constant is 70.92 km/s/Mpc, which is very similar to the above calculation.

2.45 Accelerated expansion

In Fig. 5, as time goes by, the 37.143% on the left increases and the 62.857% on the right decreases. Since the universe is expanding at constant velocity, the 71 km/s/Mpc is constant. Therefore, If the CMB value decreases, the Redshift value increases, and if the CMB value is constant, the Redshift value accelerates [4].

2.46 Neutron lifetime puzzle

The lifetime of 887.7 seconds in beam is in kinetic state, and the lifetime of 877.75 seconds in bottle is in steady state. Both values are right answers. The value of the combined state is calculated as 881.5 seconds (= 887.7 x 37.143% + 877.75 x 62.857%).

2.47 Reactor antineutrino anomaly

This is that the antineutrino flux value measured in nuclear reactor around the world is about 94% of the theoretical value. In the proton radius problem, the ratio of 0.8409 fm and 0.8751 fm is 96%, and in the Hubble tension, the ratio of 67.66 km/s/Mpc and 73 km/s/Mpc is 93%. This is the evidence that neutrino also has kinetic mass and steady mass. Since neutrinos and gravinos are the origin of all things, all things must be calculated and interpreted by distinguishing between kinetic state and steady state.

2.48 Koide formula

The core of Koide formula is to explain why the root exists in the denominator. In (16), the combined mass of the quantum particle is described as $m_\alpha \cdot m_\beta$ or $\sqrt{m_\alpha \cdot m_\beta}$. The root means that the combination of particles is reversible and optimized. Electron is the combination of $v_e G\, v_\mu \gamma\, v_\tau g$, muon is the combination of $v_\mu \gamma\, v_\tau g$, and tau is the combination of $v_\tau g$. These are the mixed particles of Neutrino and Gravino, and the Koide formula means that above two particles are reversible and optimized [5]. Since the mass of particle is caused by quantum space, it can be seen that the entire quantum space of universe itself is reversible and optimized.

2.49 Number of parameters

The origin of all particles is third generation of neutrinos, third generation of gravinos, and the current time. Here, one unknown is automatically calculated from the dimensional calculation. Therefore, the total number of unknowns needed is 5 + 1. That is, the mass of all particles can be calculated if only 6 are known.

2.50 Anomalous magnetic dipole moment

Muon is a combination particle of muon & tau neutrino 4.8852 MeV, and photon & gluon 21.628 eV [Table 3 in Ref. 2]. The product of the above two is muon 105.658 MeV, and the ratio is 0.000 004 427. The anomalous magnetic moment of experiment is 0.000 004 4. That is, the photon & gluon in muon is influencing the magnetic field very minutely.

The Koide value is 0.666 661, and the difference from 2/3 is 0.000 005. This value is similar to the value above.

2.51 Yang–Mills theory

Inside of proton is composed of two up quarks of about 2.25 MeV, one down quark of about 4.75 MeV, one strong particle force 42.15 keV. The product of the above four values to the power of 1/4 is 1.0035 MeV. One electromagnetic particle force of 828.1 eV surrounds them. The product of the above two is calculated to be 88.6% of proton mass 938.272 MeV. In Fig. 3, multiplying the ratio of the vertex 2.971 and the dark energy 2.692, the value is calculated to be 97.7%. This calculation is approximate. If calculated more precisely, the value is calculated to be 99.92% [Table 6 in Ref. 2].

2.52 Proton decay and spin crisis

Quantum hole creates quantum space, which governs the characteristics of all particles. The core is not quantum particle, but quantum space.

2.53 Color confinement

Inside of proton, there are two up quarks composed of three generation antineutrinos, and one down quark composed of three generation neutrinos. Neutrino is red color and antineutrino is blue color. There is no green color.

2.54 Strong CP problem

This is a problem in quantum chromodynamics.

2.55 Baryon asymmetry

The electron is made up of three generation neutrinos. Therefore, there are equal numbers of neutrinos and anti-neutrinos in hydrogen.

2.56 Existence of pentaquarks

1 proton + 1 electron has the same number of neutrinos and antineutrinos. From this rule, the proton could be uuD + uD. But this picture is shown strangely.

2.57 Strangelets

When the combination of particle exists in all 4D, 5D, and 6D quantum spaces, the particle becomes stable. These are electron, up quark, and down quark. The rest particles are very unstable.

2.58 Nuclei and nuclear astrophysics

Particle physics and the Standard Model will need to be redefined.

2.59 Fine-tuned universe

The birth of the universe has nothing to do with probability or the anthropic principle. The physics values of all multi-verses are exactly equal to Fig. 2 and Fig. 3. The probability of the birth of all multiverses are 100%.

2.60 Theory of everything

The cosmological constant problem in Fig. 2 and the quantum gravity in Fig. 3 are the most important items that integrate general relativity and quantum mechanics. If the above two things were proven, it can be said that the theory of everything almost was revealed. In this paper, from three charts, sixty unsolved problems in physics have been calculated and explained. This means that the contents of this paper are closest to the theory of everything.

3. Conclusions

In this paper, sixty unsolved problems in physics were macroscopically calculated or explained from three generation neutrino masses and three generation force coupling constants. The compressed three generation quantum spaces give mass to the three generation particles. This is the core. Compression is accomplished by multiplication, and multiplication is calculated as logarithmic sum. There is no mathematical formula that can turn addition into multiplication. This is why physics theories and formulas become more and more complex as time goes on.

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