New Standard Model

Deokjin Kim

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

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Abstract All things are composed of six fundamental particles: electron neutrino 0.1524 eV, muon neutrino 169.06 keV, tau neutrino 15.408 MeV, graviton 2.506E-10 eV, photon 0.1609 eV, and gluon 115.32 eV. All the other particles are the combined particles. They operate as logarithmic elliptic equations, which satisfy super symmetry, gauge symmetry, renormalization, spontaneous symmetry breaking, hierarchical problem, and fine-tuning universe. From this, a new standard model is drawn. In this paper, the core of previous research is summarized, previous errors are corrected, and new contents are described. The language of physics should be drawing. Various unsolved problems can be solved when the shape of every particle is accurately drawn. The core is two. 1) The compressive strength of three-dimensional quantum space formed as log-elliptic equation gives the particle mass. 2) The brane of quantum space is composed of dipoles of a total of 6 components: three generation neutrinos, graviton, photon, and gluon. Based on this, all problems in physics will be solved.

1. Introduction

In the previous study [1], the shape and mass of various particles were calculated in detail. The study was calculated with a total of 8 input variables. This study is calculated with a total of 6 input variables. In the previous study [2], a new diagram of standard model was proposed. Such as in previous studies [3], the calculation scope of this content is very wide. Therefore, the purpose of this study is to summarize the core of the above extensive research, to fix previous errors, and to add new important contents.

2. New Standard Model

2.1 Current Standard Model

The standard model of particle physics is shown in Fig. 1. It consists of a total of 17 elementary particles and graviton.

2.2 New Standard Model

A new standard model is proposed in Fig. 2. This is some improved in Fig. 2 of Ref [2].

2.3 Six fundamental particles

In Fig. 2, all things are composed of six fundamental particles: electron neutrino ν_e^n, muon neutrino ν_μ^n, tau neutrino ν_τ^n, graviton ρ_e^n, photon ρ_μ^n, and gluon ρ_τ^n. Their shapes are shown in Fig. 3(a).

2.4 Combined particles

All the other particles are the combined particles. Fig. 3(b) is the shape of weak force, electromagnetic force, and strong force, and Fig. 3(d) is the shape of electron, muon, and tau.

2.5 Log-elliptic equation

The mass of particles and the change of the universe follow logarithmic elliptic equation with midpoint 6.00107D and vertex 0D. Since two of the four variables for solving elliptic equation have been identified, given two unknowns, the elliptic equation is drawn.

2.6 Kinetic state, Steady state, Combined state

Particle has the kinetic state rest mass of Fig. 4 and 5 and the steady state rest mass of Fig. 6 and 7. The change of the universe operates as the combined state of Fig. 8 and 9.

2.7 Particle and Antiparticle

Particle is red n and anti-particle is blue s. In fermion, the mass of antiparticle s is 2π times heavier than that of particle n. In boson, the mass of ns is $(1+2\pi)^2 \cdot \sqrt{n}$. That is, if the mass of particle n is known, the mass of antiparticle s is automatically calculated.

2.8 Normal and Oscillation

Lowercase n and s means normal mass, and uppercase N and S means oscillating mass. In Figs. 4-9, (a) is normal mass, and (b-d) is oscillating mass. The shape of the oscillating particle is shown in Fig. 3(c), and its oscillating mass is calculated in Figs. 4-9(e).

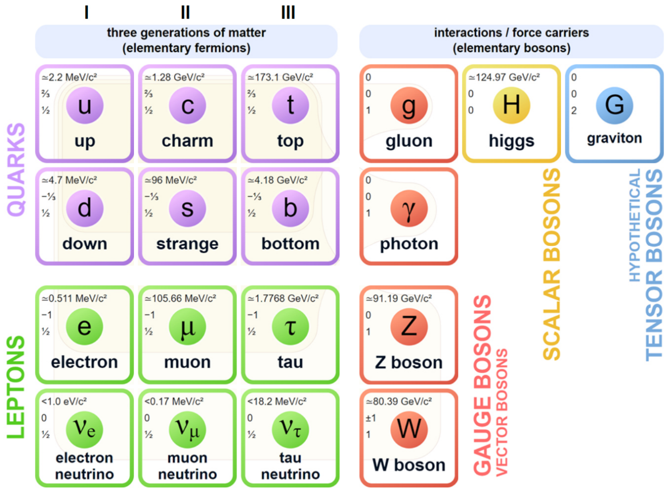


Fig. 1 Current Standard Model

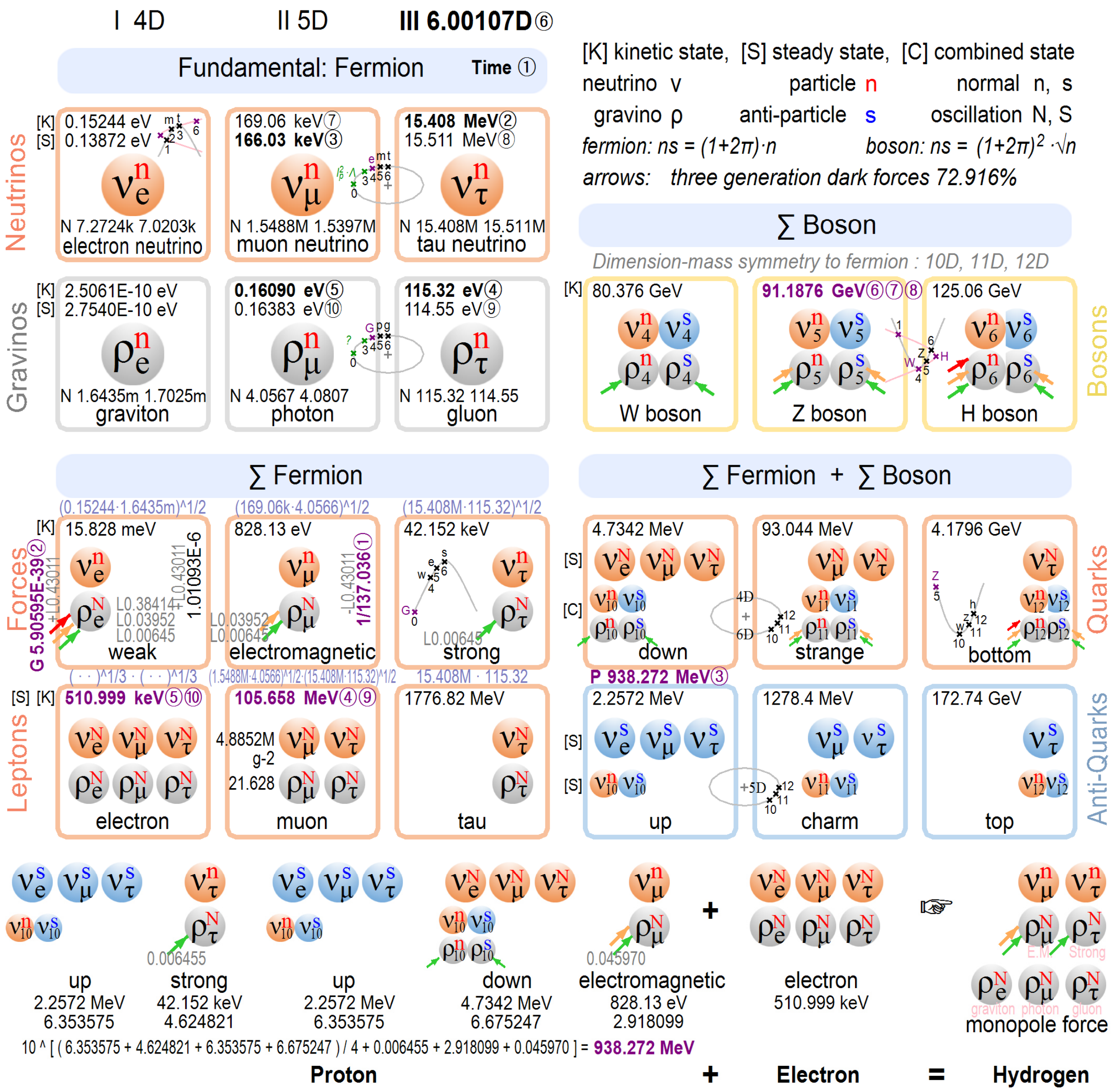


Fig. 2 New Standard Model

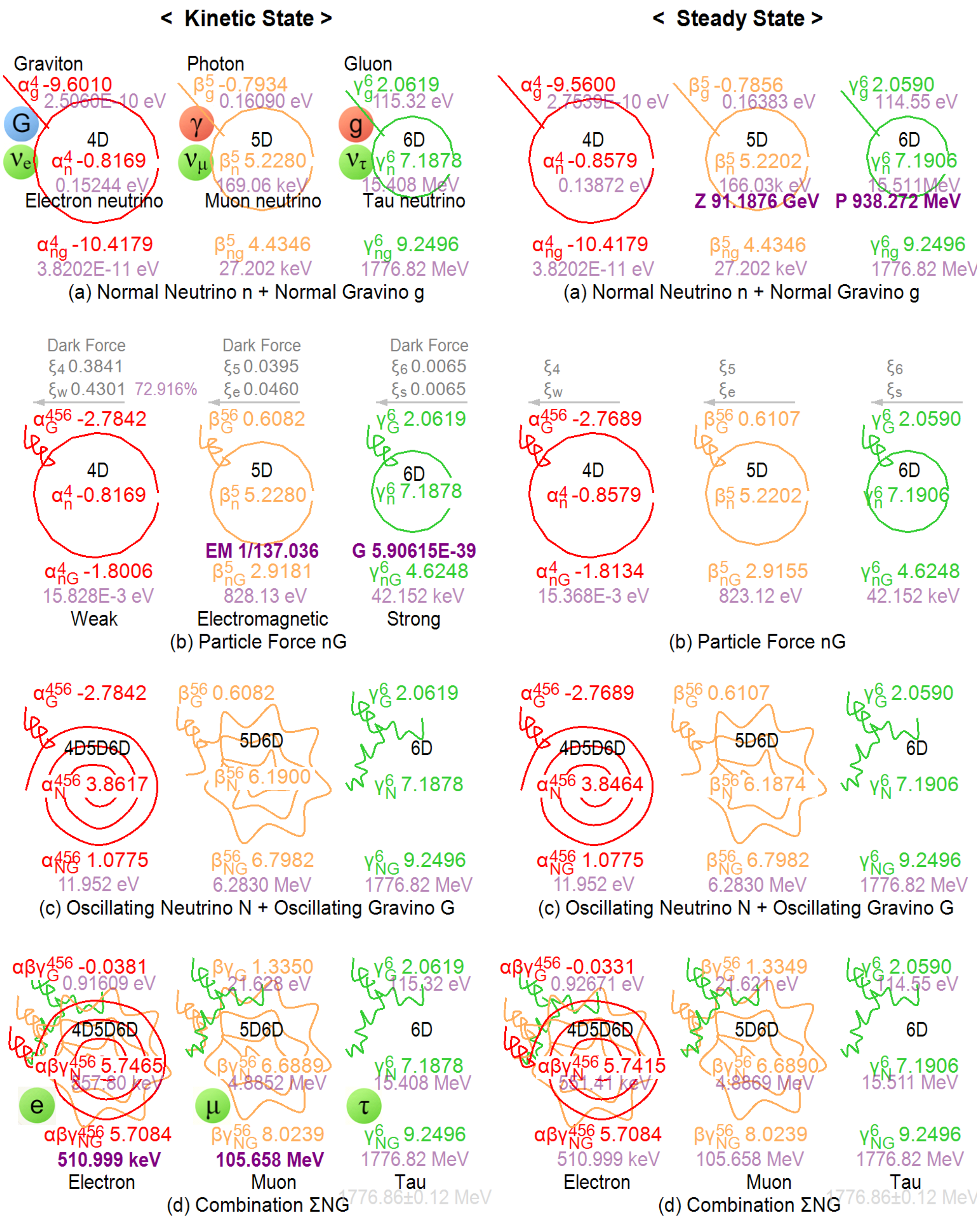
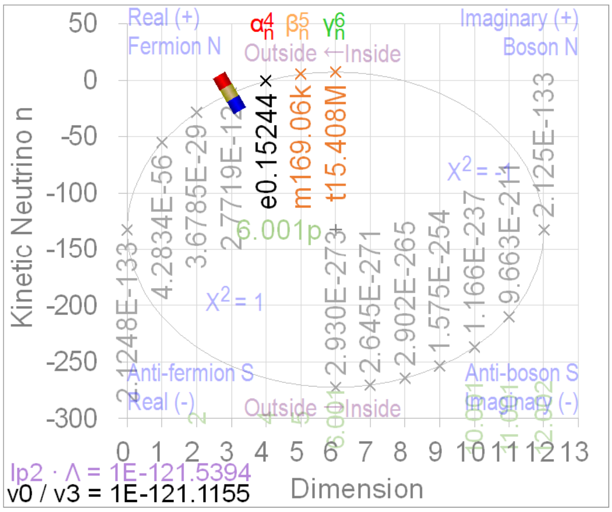
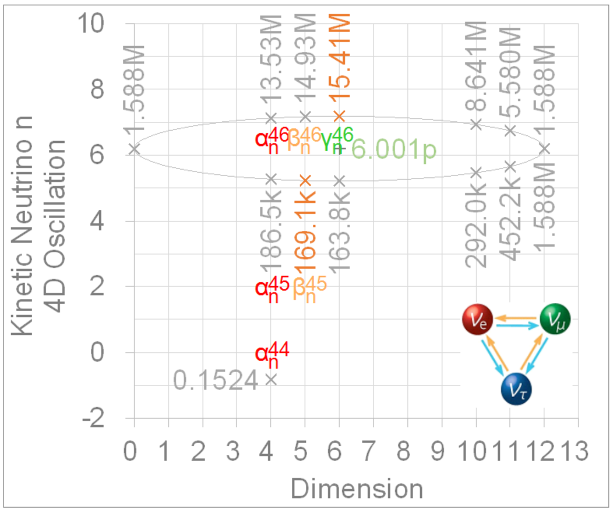


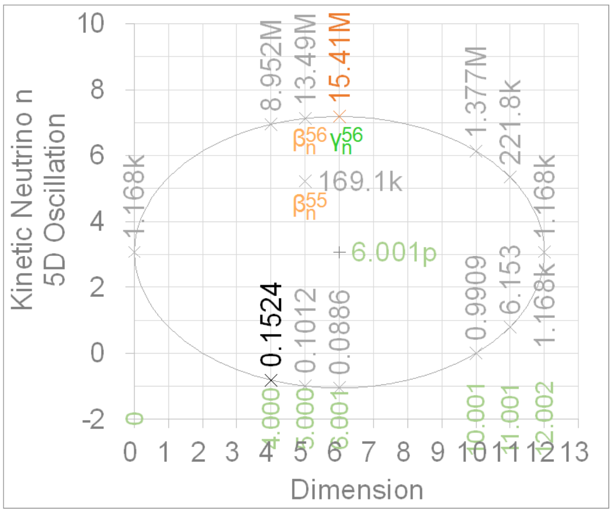
Fig. 3 Particle shape and log-mass



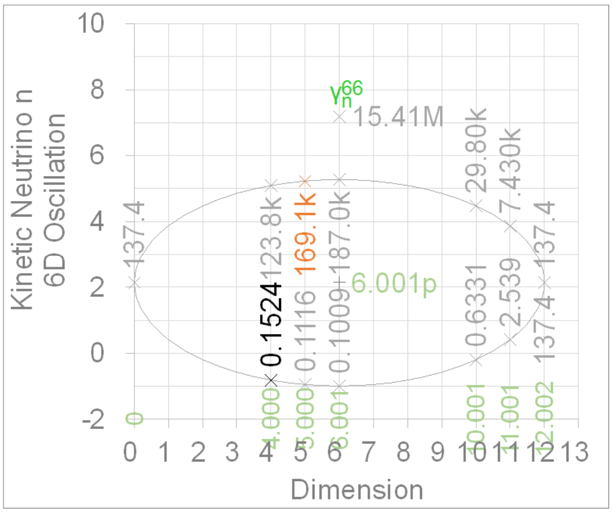
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Kinetic		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**7.18775**	7.13127	7.17392	**7.18775**	6.95193	7.13001	**7.18775**			**7.18775**
middle	5		**5.22803**		5.27068	**5.22803**	5.21421		**5.22803**		5.09257	**5.22803**	5.27195
low	4	**-0.81691**			**-0.81691**			**-0.81691**	-0.99499	-1.05273	**-0.81691**	-0.95237	-0.99629
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93658	6.74666	6.20098	6.13899	5.34598	3.06751			
middle	5				5.46538	5.65530	6.20098				4.47420	3.87098	2.13783
low	4							-0.00397	0.78904	3.06751	-0.19854	0.40468	2.13783

$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3$ = (-0.81691 + 5.27068 + 7.13127) / 3 = 3.86168 **7.27244 keV**

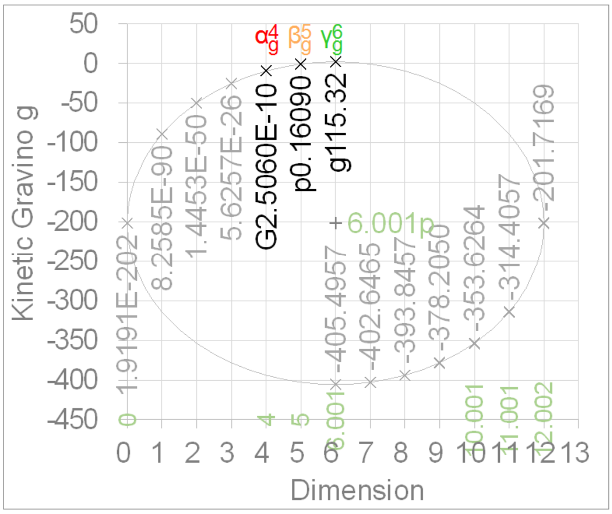
$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4$ = (5.22803 + 7.13001 + 7.17392 + 5.22803) / 4 = 6.19000 **1.54882 MeV**

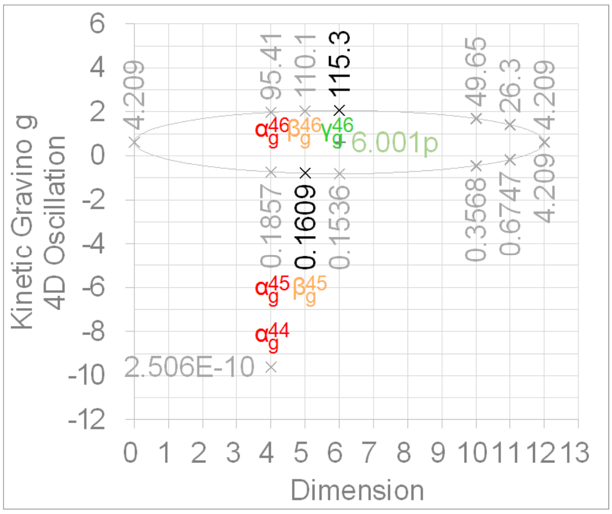
$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3$ = (7.18775 + 7.18775 + 7.18775) / 3 = 7.18775 **15.4080 MeV**

$\alpha\beta\gamma_N^{456}$ = (α_N^{456} + β_N^{56} + γ_N^{6}) / 3 = 5.74648 $\beta\gamma_N^{56}$ = (β_N^{56} + γ_N^{6}) / 2 = 6.68887 γ_N^{6} = 7.18775

(e) Log values

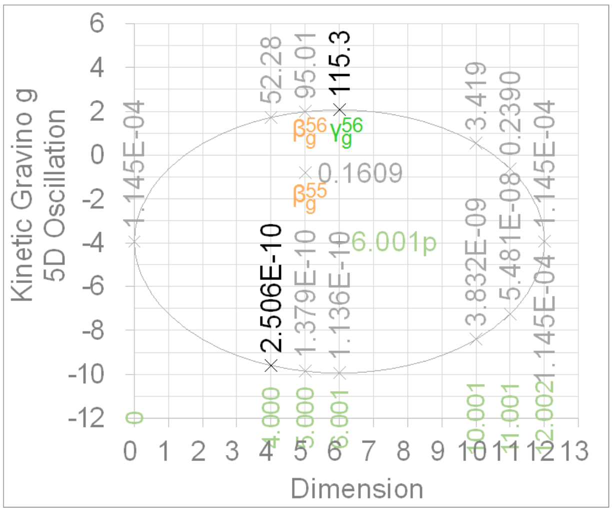
Fig. 4 Mass of neutrinos – Kinetic state

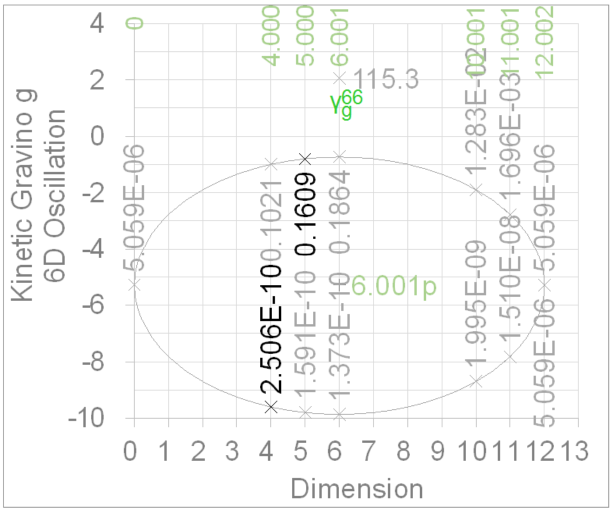




(a) Normal mass

(b) 4D oscillation mass





(c) 5D oscillation mass

(d) 6D oscillation mass

Kinetic		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**2.06190**	1.97961	2.04175	**2.06190**	1.71831	1.97778	**2.06190**			**2.06190**
middle	5		**-0.79343**		-0.73129	**-0.79343**	-0.81358		**-0.79343**		-0.99080	**-0.79343**	-0.72945
low	4	**-9.60100**			**-9.60100**			**-9.60100**	-9.86047	-9.94458	**-9.60100**	-9.79837	-9.86235
Gravino		graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon
high	6				1.69594	1.41922	0.62416	0.53385	-0.62158	-3.94134			
middle	5				-0.44762	-0.17090	0.62416				-1.89178	-2.77067	-5.29590
low	4							-8.41654	-7.26111	-3.94134	-8.70002	-7.82113	-5.29590

$\alpha_G^{456} = (\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46})\,/\,3$ = (-9.60100 + -0.73129 + 1.97961) / 3 = -2.78423 **1.64351 meV**

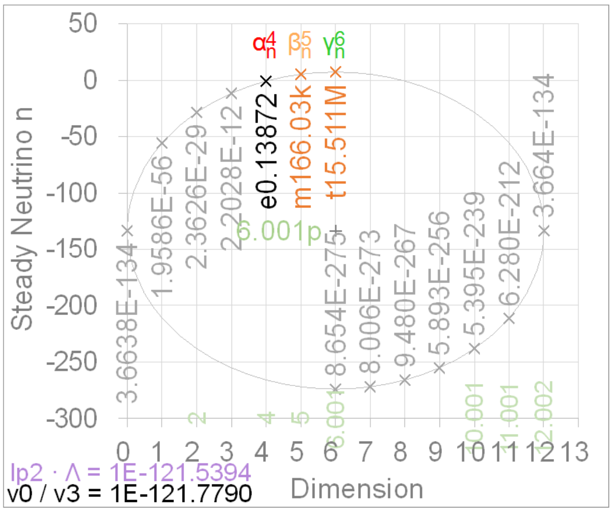
$\beta_G^{56} = (\beta_g^{55} + \beta_g^{56} + \beta_g^{45} + \beta_g^{46})\,/\,4$ = (-0.79343 + 1.97778 + 2.04175 + -0.79343) / 4 = 0.60817 **4.05663 eV**

$\gamma_G^{6} = (\gamma_g^{66} + \gamma_g^{56} + \gamma_g^{46})\,/\,3$ = (2.06190 + 2.06190 + 2.06190) / 3 = 2.06190 **115.318 eV**

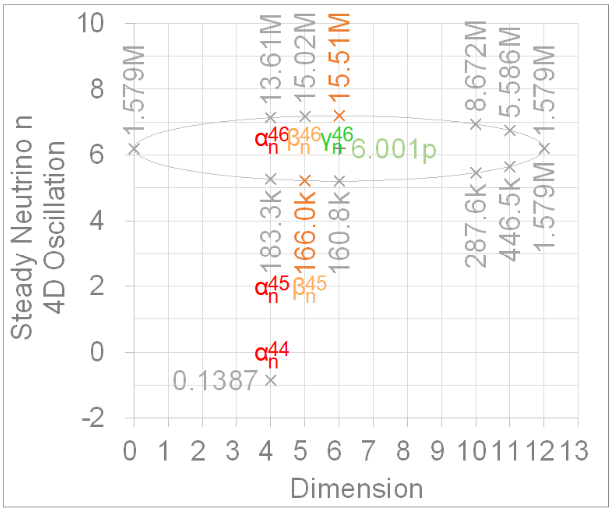
$\alpha\beta\gamma_G^{456}$ = (α_G^{456} + β_G^{56} + γ_G^{6}) / 3 = -0.03806 $\beta\gamma_G^{56}$ = (β_G^{56} + γ_G^{6}) / 2 = 1.33503 γ_G^{6} = 2.06190

(e) Log values

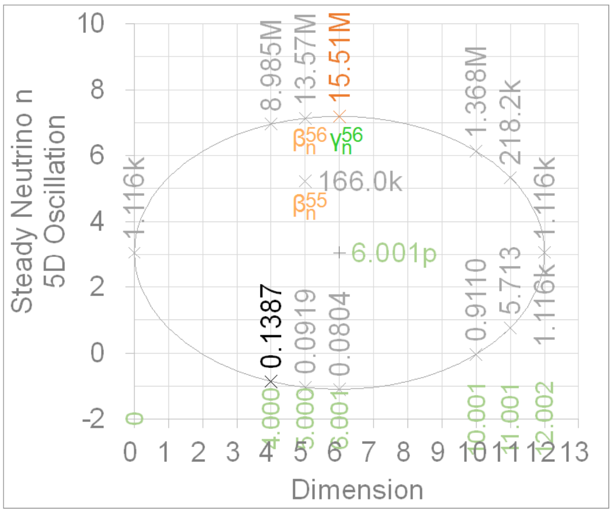
Fig. 5 Mass of graviton, photon, gluon – Kinetic state



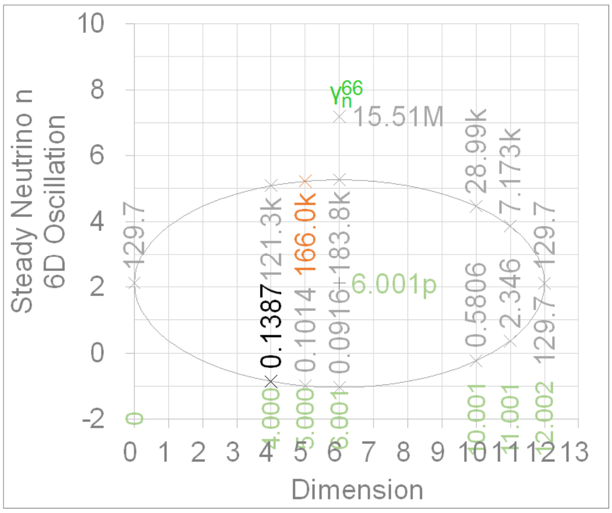
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Steady		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**7.19065**	7.13386	7.17674	**7.19065**	6.95354	7.13260	**7.19065**			**7.19065**
middle	5		**5.22020**		5.26308	**5.22020**	5.20629		**5.22020**		5.08399	**5.22020**	5.26435
low	4	**-0.85787**			**-0.85787**			**-0.85787**	-1.03693	-1.09498	**-0.85787**	-0.99407	-1.03823
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93810	6.74714	6.19847	6.13615	5.33879	3.04784			
middle	5				5.45884	5.64980	6.19847				4.46223	3.85571	2.11306
low	4							-0.04048	0.75688	3.04784	-0.23610	0.37041	2.11306

$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3$ = (-0.85787 + 5.26308 + 7.13386) / 3 = 3.84636 **7.02031 keV**

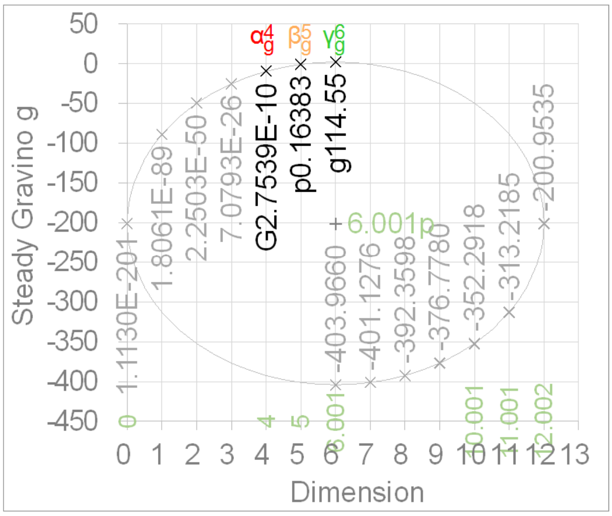
$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4$ = (5.22020 + 7.13260 + 7.17674 + 5.220209) / 4 = 6.18743 **1.53969 MeV**

$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3$ = (7.19065 + 7.19065 + 7.19065) / 3 = 7.19065 **15.5112 MeV**

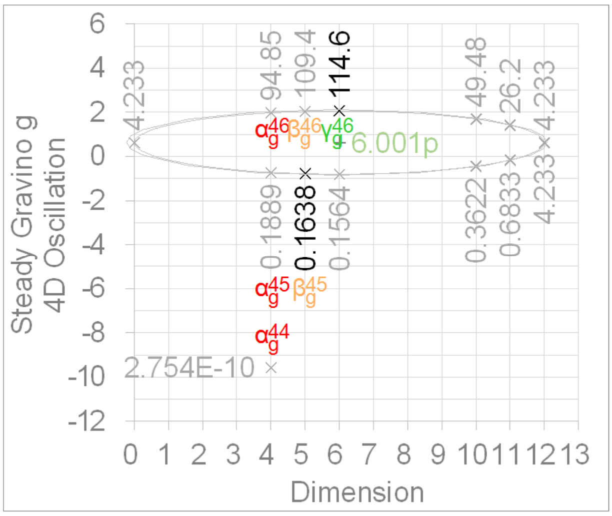
$\alpha\beta\gamma_N^{456}$ = (α_N^{456} + β_N^{56} + γ_N^{6}) / 3 = 5.74148 $\beta\gamma_N^{56}$ = (β_N^{56} + γ_N^{6}) / 2 = 6.68904 γ_N^{6} = 7.19065

(e) Log values

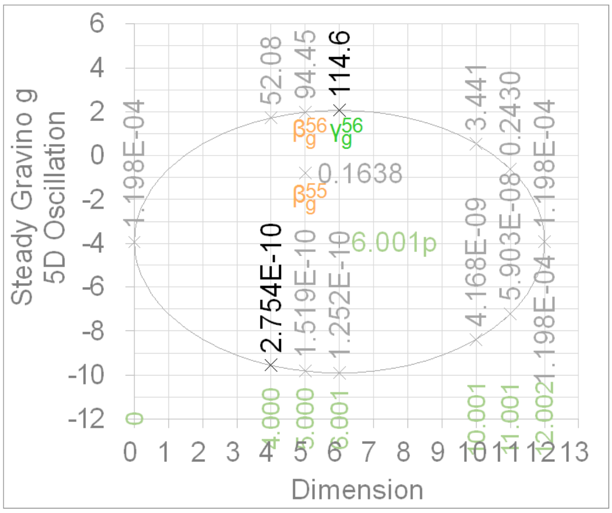
Fig. 6 Mass of neutrinos – Steady state



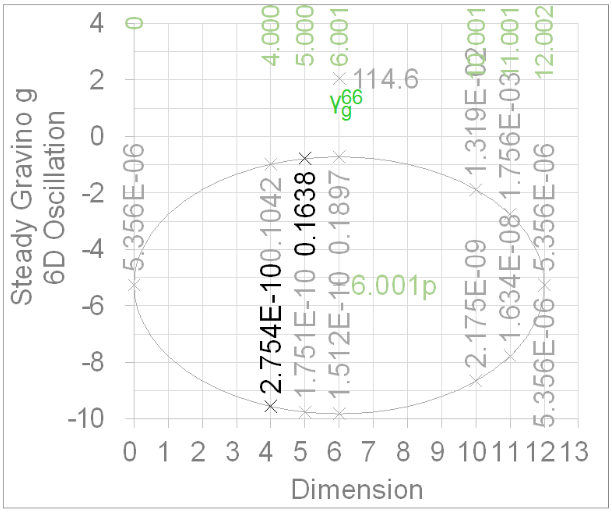
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
Steady													
high	6			**2.05900**	1.97702	2.03893	**2.05900**	1.71670	1.97520	**2.05900**			**2.05900**
middle	5		**-0.78560**		-0.72369	**-0.78560**	-0.80567		**-0.78560**		-0.98222	**-0.78560**	-0.72185
low	4	**-9.56004**			**-9.56004**			**-9.56004**	-9.81853	-9.90233	**-9.56004**	-9.75667	-9.82041
Gravino		graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon
high	6				1.69441	1.41874	0.62667	0.53669	-0.61439	-3.92167			
middle	5				-0.44108	-0.16541	0.62667				-1.87981	-2.75540	-5.27113
low	4							-8.38003	-7.22895	-3.92167	-8.66245	-7.78686	-5.27113

$\alpha_G^{456} = \left(\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46}\right) / 3$ = (-9.56004 + -0.72369 + 1.97702) / 3 = -2.76890 **1.70253 meV**

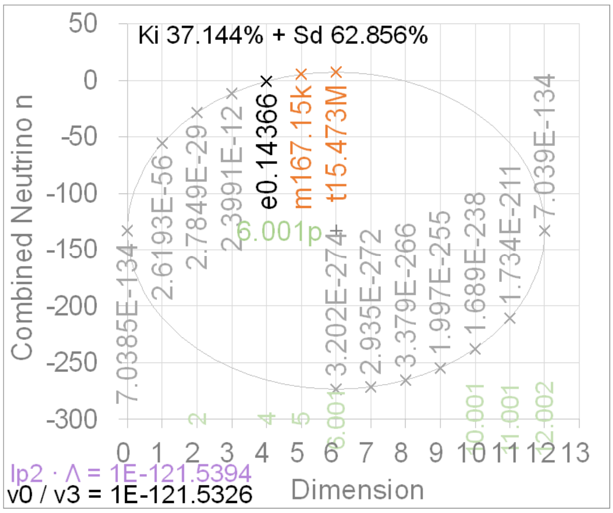
$\beta_G^{56} = \left(\beta_g^{55} + \beta_g^{56} + \beta_g^{45} + \beta_g^{46}\right) / 4$ = (-0.78560 + 1.97520 + 2.03893 + -0.78560) / 4 = 0.61073 **4.08068 eV**

$\gamma_G^{6} = \left(\gamma_g^{66} + \gamma_g^{56} + \gamma_g^{46}\right) / 3$ = (2.05900 + 2.05900 + 2.05900) / 3 = 2.05900 **114.550 eV**

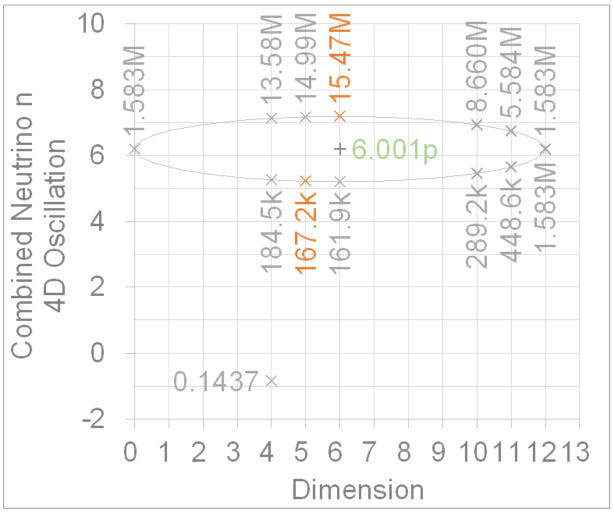
$\alpha\beta\gamma_G^{456}$ = (α_G^{456} + β_G^{56} + γ_G^{6}) / 3 = -0.03306 $\beta\gamma_G^{56}$ = (β_G^{56} + γ_G^{6}) / 2 = 1.33486 γ_G^{6} = 2.05900

(e) Log values

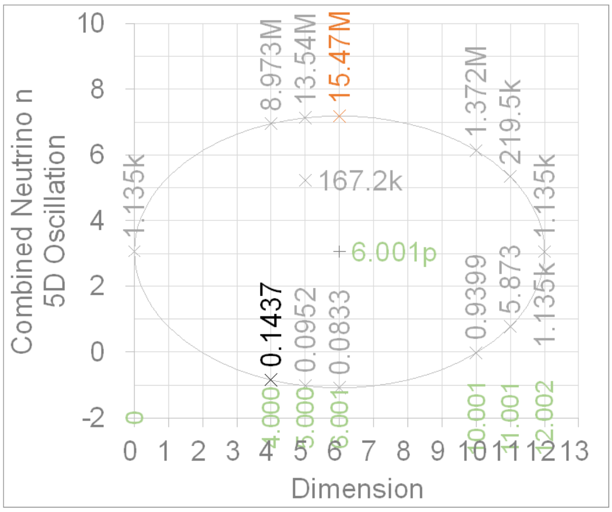
Fig. 7 Mass of graviton, photon, gluon – Steady state



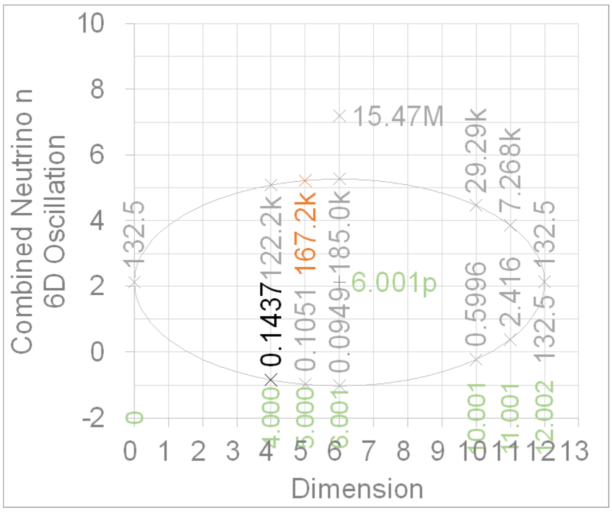
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Combined		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**7.18957**	7.13290	7.17570	**7.18957**	6.95294	7.13164	**7.18957**			**7.18957**
middle	5		**5.22311**		5.26590	**5.22311**	5.20923		**5.22311**		5.08718	**5.22311**	5.26717
low	4	**-0.84266**			**-0.84266**			**-0.84266**	-1.02135	-1.07928	**-0.84266**	-0.97858	-1.02265
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93753	6.74696	6.19940	6.13720	5.34146	3.05514			
middle	5				5.46127	5.65184	6.19940				4.46668	3.86138	2.12226
low	4							-0.02692	0.76882	3.05514	-0.22215	0.38314	2.12226

$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3 = (-0.84266 + 5.26590 + 7.13290) / 3 = 3.85205$ **7.11293 keV**

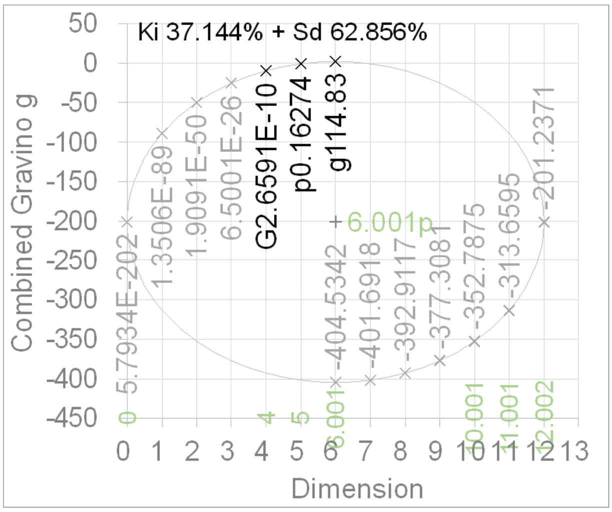
$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4 = (5.22311 + 7.13164 + 7.17570 + 5.22311) / 4 = 6.18839$ **1.54307 MeV**

$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3 = (7.18957 + 7.18957 + 7.18957) / 3 = 7.18957$ **15.4728 MeV**

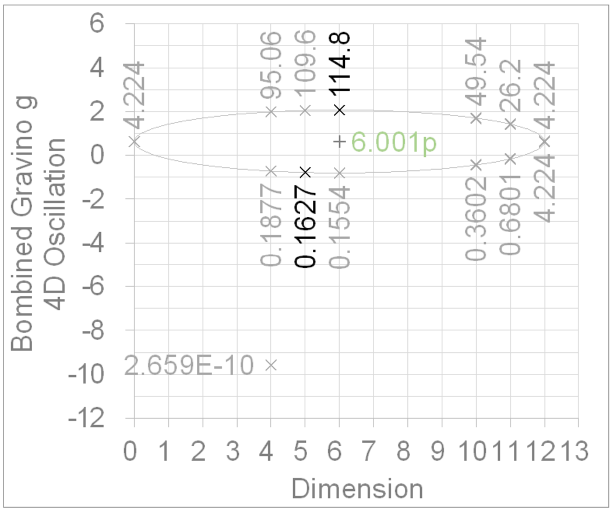
$\alpha\beta\gamma_N^{456} = (\alpha_N^{456} + \beta_N^{56} + \gamma_N^{6}) / 3 = 5.74333$ $\quad \beta\gamma_N^{56} = (\beta_N^{56} + \gamma_N^{6}) / 2 = 6.68898$ $\quad \gamma_N^{6} = 7.18957$

(e) Log values

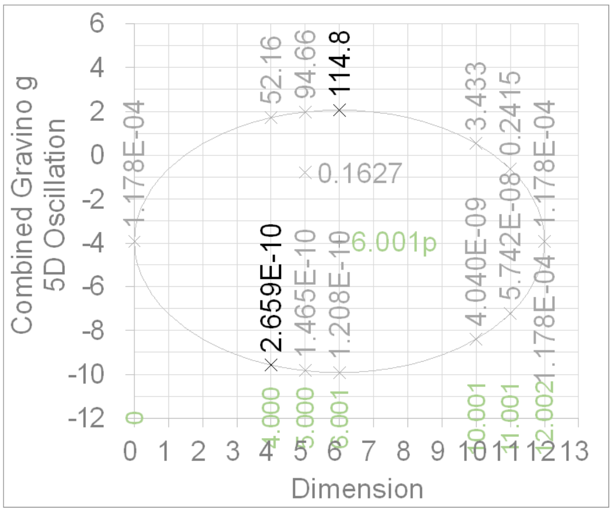
Fig. 8 Mass of neutrinos – Combined state



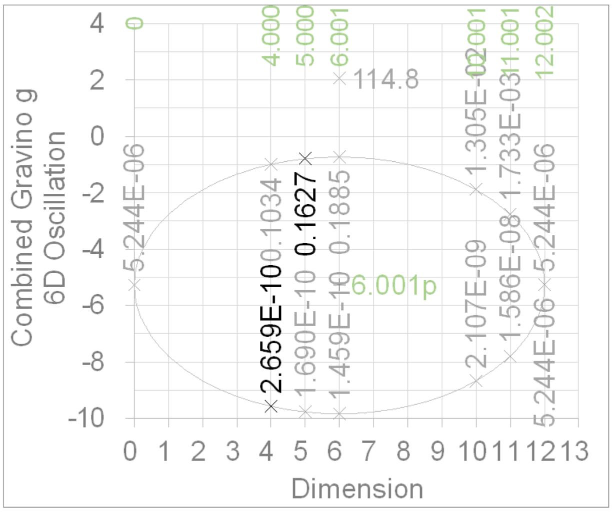
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Combined		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**2.06007**	1.97798	2.03998	**2.06007**	1.71730	1.97615	**2.06007**			**2.06007**
middle	5		**-0.78851**		-0.72651	**-0.78851**	-0.80861		**-0.78851**		-0.98541	**-0.78851**	-0.72467
low	4	**-9.57526**			**-9.57526**			**-9.57526**	-9.83411	-9.91803	**-9.57526**	-9.77216	-9.83599
Gravino		graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon
high	6				1.69498	1.41892	0.62573	0.53564	-0.61706	-3.92898			
middle	5				-0.44351	-0.16745	0.62573				-1.88426	-2.76107	-5.28033
low	4							-8.39359	-7.24090	-3.92898	-8.67641	-7.79959	-5.28033

$\alpha_G^{456} = (\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46})\,/\,3 = (-9.57526 + -0.72651 + 1.97798) / 3 = -2.77460$ **1.68035 meV**

$\beta_G^{56} = (\beta_g^{55} + \beta_g^{56} + \beta_g^{45} + \beta_g^{46})\,/\,4 = (-0.78851 + 1.97615 + 2.03998 + -0.78851) / 4 = 0.60978$ **4.07173 eV**

$\gamma_G^{6} = (\gamma_g^{66} + \gamma_g^{56} + \gamma_g^{46})\,/\,3 = (2.06007 + 2.06007 + 2.06007) / 3 = 2.06007$ **114.835 eV**

$\alpha\beta\gamma_G^{456} = (\alpha_G^{456} + \beta_G^{56} + \gamma_G^{6}) / 3 = -0.03491$ $\beta\gamma_G^{56} = (\beta_G^{56} + \gamma_G^{6}) / 2 = 1.33493$ $\gamma_G^{6} = 2.06007$

(e) Log values

Fig. 9 Mass of graviton, photon, gluon – Combined state

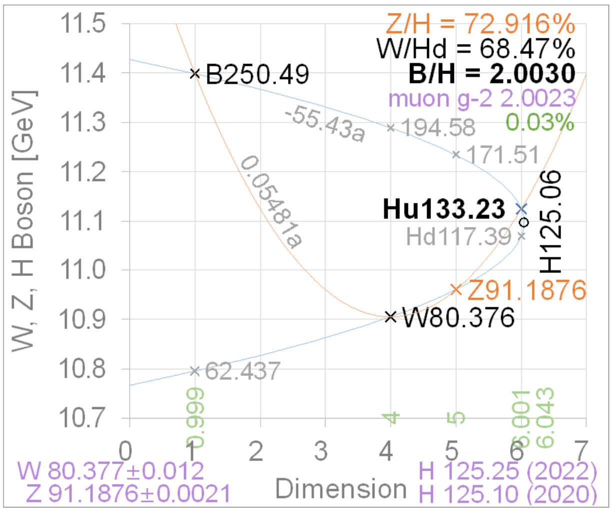


Fig. 10 Calculation of W and H boson

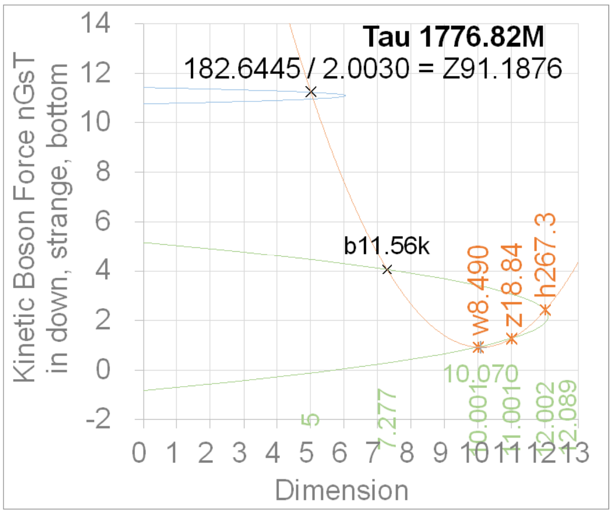


Fig. 11 Collapse of quarks

2.9 Three generation dark forces

There is dark time, not dark energy, and it causes the three generation dark forces. The red arrow is 4D dark force, the orange arrow is 5D dark force, and the green arrow is 6D dark force. They are calculated from the four forces in Fig. 16. At the chart, 2.6922 is calculated. The value of 2.6922 / (1 + 2.6922) is 72.916% and the value of 1 / 2.6922 is 37.144%. These values are very important.

2.10 Weak, Electromagnetic, Strong forces, Time

Gravino is a word coined by author, and it means graviton, photon, and gluon. The shapes of forces in Fig. 2 are shown in Fig. 3(b). Force is the combination particle of one normal neutrino and one oscillating gravino. They are always kinetic state particle forces. Weak force causes gravity. Here, weak force acts on quantum space, but gravitational force acts toward 4D empty space. Three generation dark forces are affecting above particle forces. The result is the four fundamental physical forces. The first-generation dark force is dark energy, from which current time is calculated.

2.11 Electron, Muon, Tau

The shapes of electron, muon, and tau in Fig. 2 are shown in Fig. 3(d). They are the combination particle of oscillating neutrinos and oscillating gravinos.

2.12 Fermion and Boson

Fermion particles located on the left side of Figs. 4-9 make up our universe, and boson particles located on the right side are hidden in quarks. When the masses of fermion particles are known, the masses of boson particles are calculated with the super-gauge symmetry of the elliptic equation. The fermion branes constitute dimensional multiverse with a size close to infinity, and the boson branes are a near-zero universe hidden in quarks. After 1.89E111 years, this reverse.

2.13 W, Z, H Bosons

The shapes of W, Z, and H bosons are equal to Fig. 3(a). Here, the masses of the normal bosons are calculated from super-gauge symmetry of oscillating fermions. When Z boson is 91.1876 GeV, from Fig. 10, W and H bosons are calculated as 80.376 GeV and 125.06 GeV. In Fig. 11, the w, z, h bosons are hidden in quarks. When the quark collapses, a boson pops out into the 5D quantum space of our world. It is Z boson. Fig. 8.2 of the previous study [1] was changed to above Fig. 11.

2.14 Down, Strange, Bottom

In Fig. 12, the shell of down, strange, and bottom quarks is the oscillating neutrinos of steady state, and the inside is the particle and anti-particle normal neutrino and gravino

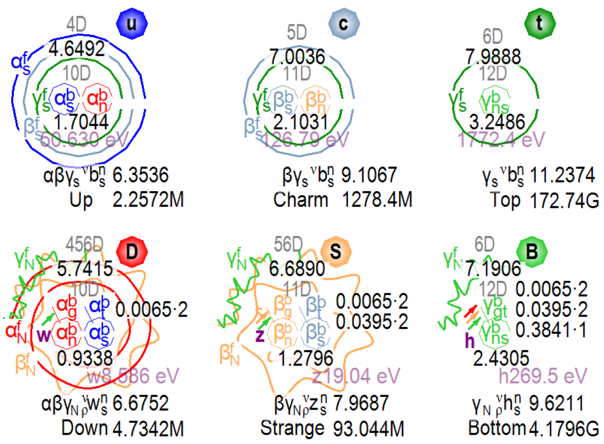


Fig. 12 Shape of quarks

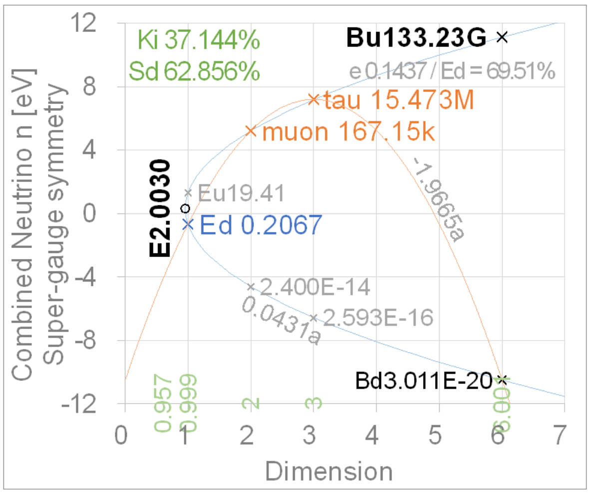


Fig. 13 Supergauge symmetry of combined Neutrinos

bosons of combined state. The boson particle in quark is lowercase w, z, or h with very little mass of Fig. 11. When the quark collapse, the w, z, h boson of the combined state change to kinetic state of Fig. 11 (See Table 4), and they transform into uppercase W, Z, or H with very large mass. The color of down, strange, and bottom is red. Therefore, they are matter.

2.15 Up, Charm, Top

In Fig. 12, the shell of up, charm, and top quarks is the normal anti-neutrinos of steady state, and the inside is the particle and antiparticle normal neutrino bosons of steady state. The boson mass of lowercase b is located in quark. When a quark collapse, it transforms into uppercase B with large mass. The color of up, charm, top is blue. Therefore, they are anti-matter.

3. New Interpretation

3.1 Too many input constants

As shown in Fig. 2, a total of 10 variables are needed to solve the problem. Here, 4 variables are resolved internally. Therefore, the total independent variables are 6. If six exact values are given, everything is calculated accurately as

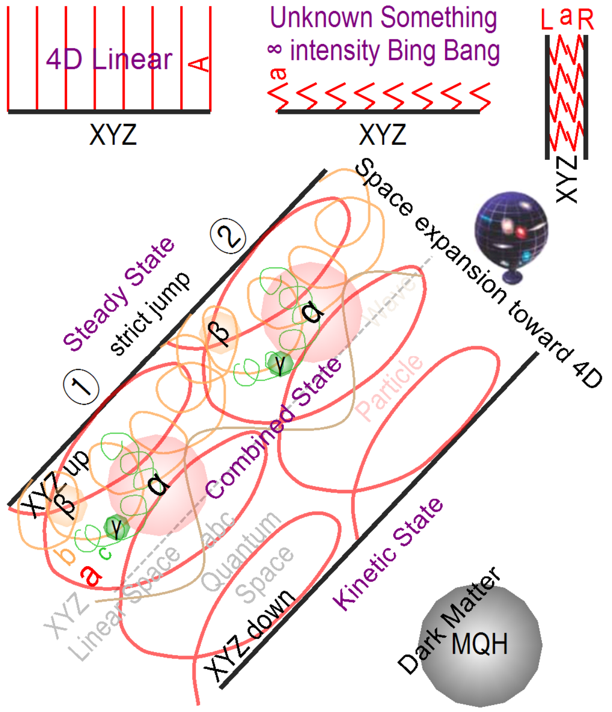


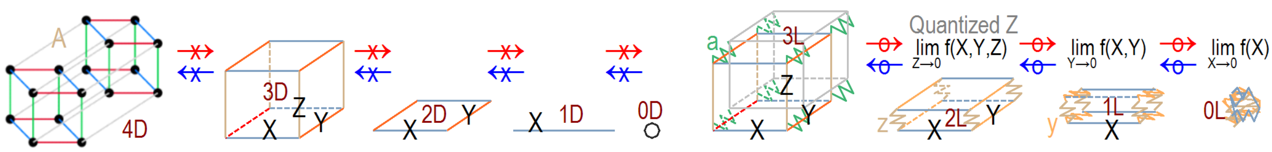
Fig. 14 Shape of quantum space of universe

shown in Fig. 23. In Fig. 3(a), the n + g mass in kinetic state and the n + g mass in steady state are the same. From this, two masses are calculated internally. In Ref. [1], the following calculations are not explained. In the W Z H mass of Fig. 10, the value of B/H is 2.0030 and the value of Hu is 133.23 GeV. Fig. 13 shows the combined state mass of Fig. 8(a). Two internal variables can be calculated from the E 2.0030 and the Bu 133.23 GeV.

3.2 Why are particles three generations?

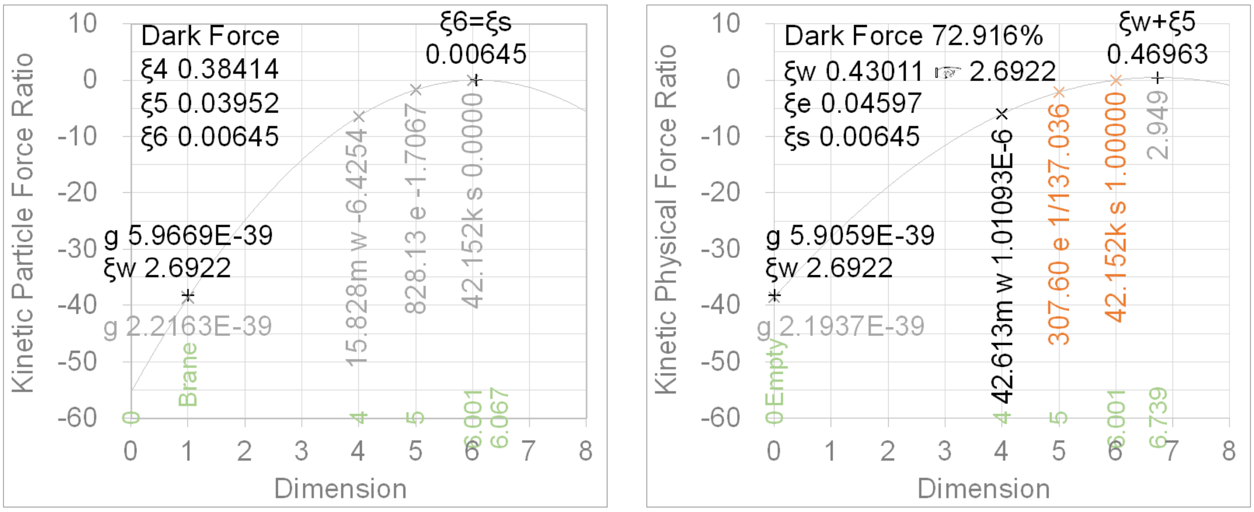
As shown in Fig. 14, all particles are classified into three generations because three generation quantum spaces of a, b, and c dimensions exist. The calculated quantum dimensions are 4D, 5D and 6.00107D. In Fig. 15, (a) is the shape of dimension defined in classical mechanics. The space in quantum mechanics has the shape of (b). Quantum space is extremely compressed region due to dimensional collapse.

3.3 What is Gravity?



(a) Dimension, Classical mechanics (b) Space, Quantum mechanics

Fig. 15 Relation of Dimension and Space



(a) Particle force mass

(b) Physical Forces Affected by Dark Forces

Fig. 16 Unification of four fundamental forces

Gravity is easily calculated from Fig. 16. (a) is the relative mass of the force particles, and (b) is the physical force affected by the dark force. Strong force is on 6D, electromagnetic force is on 5D, weak force is on 4D, and gravitational force is on 0D. The 0D is empty, not quantum space. The 3D position is the space that we usually perceive.

3.4 What is the origin of mass?

As shown in Fig. 14, the compressive strength of three generation quantum space imparts a mass to quantum particle. That is, quantum particles do not have proper mass. In Fig. 17, the combination of 3 kg and 4 kg in quantum space is not addition 7 kg but multiplication 12 kg. In muon of Fig 2 or Fig. 3(d), the value of 4.8852 MeV x 21.628 eV is the muon mass of 105.658 MeV. There is a photon in the shape of muon. This is the cause of muon g-2 problem.

3.5 Is the mass of neutrino 0 eV?

There masses are calculated in Fig. 4, 6, 8(a).

3.6 Is the mass of gravino 0 eV?

There masses are calculated in Fig. 5, 7, 9(a).

3.7 What is Oscillation?

Three generation neutrinos and three generation gravinos constantly jump through three generation quantum space of Fig. 14. Due to this, their masses always change to three generation masses. This is oscillation phenomenon. The oscillating masses are calculated in Figs. 4-9(b-c).

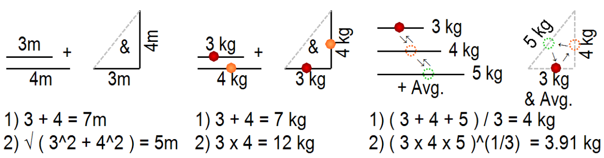


Fig. 17 Calculation of quantum particle mass

3.8 Does antineutrino also oscillate?

In Fig. 12, the red neutrino has oscillation, and the blue anti-neutrino has no oscillation.

3.9 Why is everything a particle?

The origin of particle is an extremely compressed universal brane. Part of brane breaks and turns into particle. Therefore, a particle is a very long line. When the line is placed in quantum space, it turns into a particle that has heavy mass.

3.10 Is particle correct? Is wave correct?

From the quantum space abc of Fig. 14, when the particle appears on our space XYZ, it turns into a wave line that has almost close 0 eV. This is because the compressive strength of our linear space is almost 0 eV. The mass of photon located in quantum space is 0.1609 eV. However, when it appears on our space, it turns into light with almost close 0 eV. See Fig. 3. Not particle, not wave, open particle is the correct answer.

3.11 Do hypothetical particles exist?

All particles are a combination of six fundamental particles. The mass of all particles can be calculated with the values in Figs. 4-9 and the dark forces in Fig. 16.

3.12 Is super-symmetry correct?

In Fig. 4, the left side of ellipse is the real fermion universe,

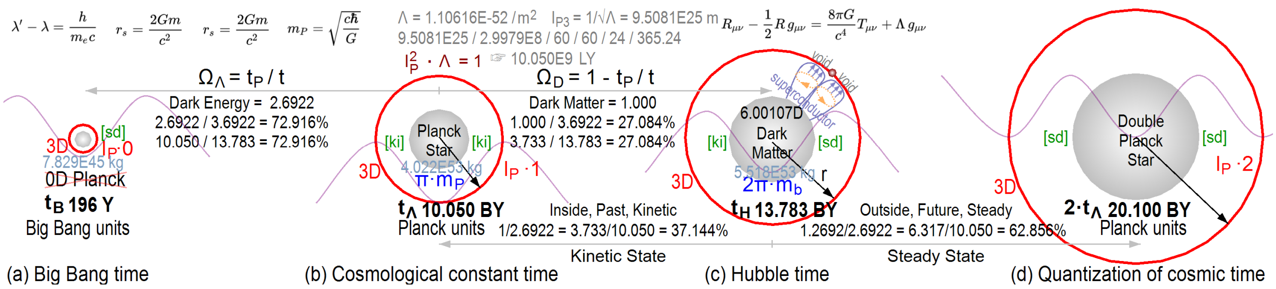


Fig. 18 Dark energy and dark matter

and the right side is the imaginary boson universe. The upper part is a positive universe, and the lower part is a negative universe. They have perfect super-gauge symmetry.

3.13 Will proton decay?

The three generation quantum spaces of Fig. 14 dominate everything. If quantum space were forever stable, proton would not decay by themselves.

3.14 Where is antimatter?

In Fig. 12, down, strange, and bottom are matter, and up, charm, and top are anti-matter. That is, they exist exactly in equal numbers in the universe. The below of Fig. 2 is hydrogen. The red particles and blue antiparticles are equal numbers, and only the red monopole force particles remain. The force particles cause various chemical reactions.

3.15 What is consciousness?

In the below of Fig. 2, there is only the red forces. The red and blue forces must be equal numbers. Where is the blue force? There is no blue force in inanimate objects.

3.16 Where is Dark Matter?

In Fig. 18, the object inside of the 3D universe is dark matter or Planck star. The object is composed of antiparticles, and antiparticle is 2π times more massive than particle. That is, dark matter cannot be observed in space.

3.17 Is Bing Bang theory correct?

In Fig. 18, (a) is Big Bang time, (b) is cosmological constant time, (c) is Hubble time, and (d) is double cosmological constant time. The standard for the interpretation of the universe is not Planck time 5.4E-44 seconds, but the cosmological constant time of 10.050 billion years. Big bang theory adopts the value on 0D in Fig. 3. The Big Bang, past, present, and future of our universe are all in 3D.

3.18 Why is it inconsistent with ΛCDM model?

Planck length l_P is 1.61626E-35m, and the cosmological constant Λ in Planck 2018 data is 1.1056E-52 /m2. Therefore, the value of $l_P^2 \cdot \Lambda$ is 1E-121.5394. In Fig. 8(a), the value of ν_0/ν_3 is 1E-121.5327. This means that l_P is 0D value and Λ is 3D value. It can be understood that there are N-D Planck length l_{PN} and N-D cosmological constant Λ_N.

3.19 What is dark energy?

The value of $l_{P3}^2 \cdot \Lambda_3$ is ν_3/ν_3 = 1. Therefore, the 3D Planck time t_{P3} is $1/c\sqrt{\Lambda_3}$ = 1 / (2.9979E8 · 60 · 60 · 24 · 365.24 · $\sqrt{\Lambda_3}$) = 10.053 BY. In Fig. 18(b), the calculated value of this paper is 10.048 BY. In Plank 2018 data, the current time is 13.787 BY. The value of 10.053 / (13.787 – 10.053) is 2.6923. In Fig. 16(b), the calculated value of this paper is 2.6922. The value of 10.053 / 13.787 is 72.915%, and this value is not dark energy but time ratio. In Plank 2018 data, the ratio of dark energy, dark matter, and ordinary matter is 68.89% : 26.19% : 4.92%. In Fig.18, our universe is an absolute 4D sphere. Its overall shape has nothing to do with the amount of ordinary matter.

3.20 What is the origin of force?

The shapes of force are drawn in Fig. 3(b). From Fig. 16(a), electromagnetic force is 10^-1.7067 / 2.6922 = 1/137.036, and weak force is 10^-6.4254 x 2.6922 = 1.01093E6. When plotting log parabola, the value of 0D is 2.1937E-39, and multiplying 2.6922, the value is calculated as 5.90595E-39. The 2.6922 is equally affecting above three forces. The 2.6922 is 10.050 / (13.783 - 10.050). Here 10.050 BY is constant and 13.783 is time flow variable. When time is around 10.050 BY, its value becomes infinity. This is very difficult to understand.

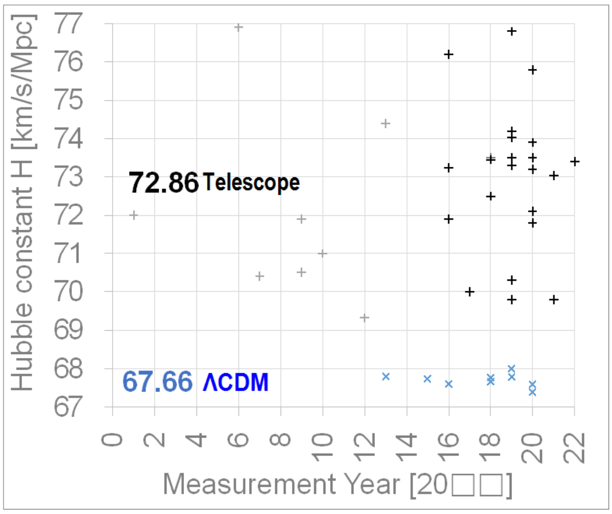
3.21 Arrow of time

In Fig. 4(a), our universe is on 3D. The change goes towards 2D. The reverse is impossible.

3.22 Dimensionless physical constant

Dimensionless constants are relative values. Absolute values have been calculated for all of this paper.

3.23 Fine-tuned universe



Planck 2018 **Λ 1.10560E-52** **13.787 BY**

1 Mpc = 3.08568E19 km

3.08568E19 / (60·60·24·365.24) / 13.787 BY = **H 70.92**

1 / c√Λ = 1 / (2.9979E8·60·60·24·365.24·√Λ) = 10.053 BY

10.053 BY / 13.787 BY = 72.915%

Kinetic State (13.787 - 10.053) / 10.053 = 37.143%

Steady State (10.053·2 - 13.787) / 10.053 = 62.857%

67.66 · KS 37.143% + 72.86 · SS 62.857% = **H 70.93**

Fig. 19 Combined Hubble Constant

Everything is calculated from 6 input variables. It is the dark matter in Fig. 18 that fine-tunes our universe.

3.24 Cosmic inflation

In Fig. 18, (b) is the 3D cosmological constant time, which is 3D Planck unit. Big Bang must be reinterpreted.

3.25 Supermassive black hole

The universe of 2D physics is spread out in it.

3.26 Galaxy rotation problem

Supermassive black hole is rotating galactic space and swallowing it. Against swallowing is Newton's law. The rotating galactic space is compressed such as convex lens, and it causes gravitational lensing.

3.27 Void, Filament, Supercluster, Great wall

As shown in Fig. 18(c), universe is a supergiant monopole superconductor. This forms the peculiar structure of galaxies.

3.28 Distinction between past and future

In Fig. 18(c), the left side is the past of kinetic state, and the right side is the future of steady state. (c) itself is the mixture of past 37.144% and future 62.856%. This is present.

3.29 Generation of hydrogen

Particles that did not exist are being generated in galaxies. All universes are open system.

3.30 Parallel universe, Holographic universe, Etc.

In Fig. 3(a), our universe is located on 3D. After countless times, our universe turns into unimaginable strange universe.

In Fig. 18, (a) is integer 0, (b) is integer 1, and (d) is integer 2. That is, integers continue to occur every 10.050 BY. What does that integer mean?

3.31 Hubble Tension

In Planck 2018 Result, as shown in Fig. 19, the cosmological constant Λ and the universe age are given as 1.10560E-52 /m2 and 13.787 BY. From the universe age, in case of constant velocity expansion universe, H is calculated as 70.92 km/s/Mpc = 3.08568E19 / (60 · 60 · 24 · 365.24) / 13.787 BY. The cosmological constant time 1 / c√Λ is calculated as 10.053 BY = 1 / (2.9979E8 · 60 · 60 · 24 · 365.24 · √1.10560E-52). The kinetic state time is calculated as 37.143% = (13.787 - 10.053) / 10.053, and the steady state time is calculated as 62.857% = (10.053·2 - 13.787) / 10.053. The H of ΛCDM is 67.66 km/s/Mpc, and the average H of astronomical observations since 2016 is about 72.86 km/s/Mpc. Therefore, the combined Hubble constant is calculated as 70.93 km/s/Mpc = 67.66 · 37.143% + 72.86 · 62.857%.

3.32 Expansion velocity of the universe

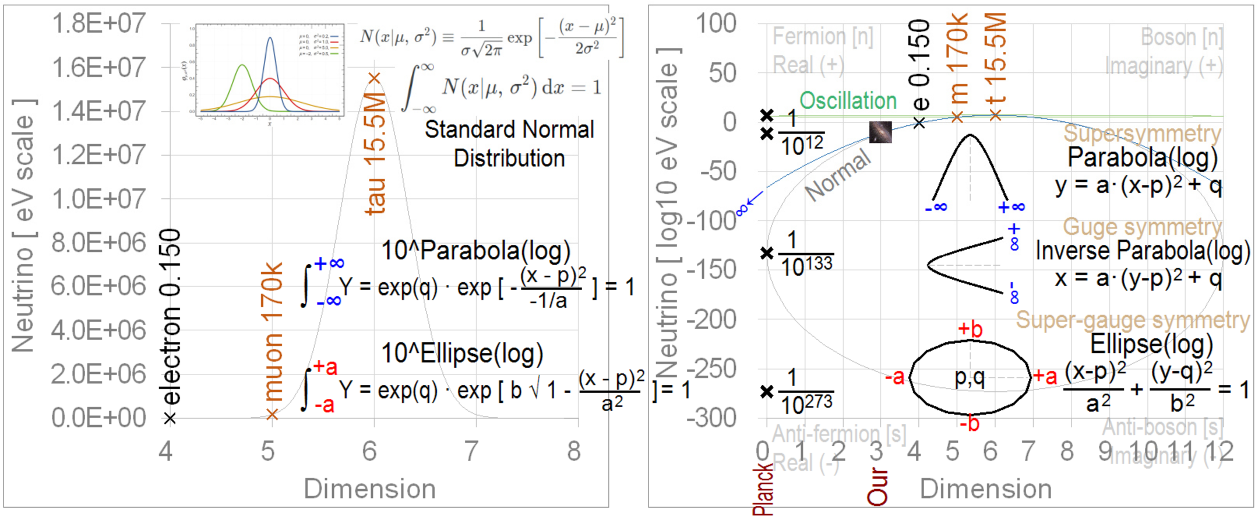
The constant velocity expansion H is 70.92 km/s/Mpc, and the combined H is 70.93 km/s/Mpc. This means that the universe is expanding at constant velocity, and it is the speed of light toward 4D direction as shown in Fig. 18.

3.33 Proton radius puzzle

0.8751 fm is the radius in steady state, and 0.8409 fm is the radius in kinetic state.

3.34 Neutron lifetime puzzle

The 888 seconds of beam is the neutron in kinetic state, and the 879.4 seconds of bottle is the neutron in steady state.



(a) Mass scale of neutrinos (b) Log mass scale of neutrinos

Fig. 20 Characteristics of log-elliptic equation

If these values are 887.7s and 877.75s, the neutron lifetime of universe is 881.4s = 887.7 · 37.143% + 877.75 · 62.857%.

3.35 Yang–Mills existence and mass gap

The ellipse of infinity size is parabola. Since ellipse is necessarily less than infinity, it has a mass larger than zero.

3.36 Black hole information paradox

First generation is star, second generation is neutron star, and third generation is stellar black hole. Its constituent particles are shown in Fig.12. In stellar black hole, tau neutrino and gluon are ejected. There is a fake 2D universe in medium-mass black hole, and a real 2D universe spreads in super-massive black hole.

3.37 Three Problems of Big Bang Theory

The fundamental reason why this occurs is that the calculation of physics starts from (a) of Fig. 18. Based on cosmological constant time (b), the big bang (a) and present (c) should be calculated.

3.38 Planck particles

The Planck particles of physical formula are located at 0D of ellipse, and the shape of universe is shown in Fig. 24(h). However, everything on ellipse is N-dimensional Planck particles. The result of multiplying the 0D Planck length by the 3D cosmological constant is the cosmological constant problem. Our entire universe is a 3D Planck particle. In Fig. 16, the gravitational force located on 0D is parabola. Therefore, it means empty space, not particle.

3.39 Superstring theory

The interpretation of 0D Planck particles is superstring theory. Because of 0D, all results of string theory are either extremely small or extremely large. Our universe is composed of a total of six dimensions: linear space X Y Z and quantum space a, b, and c.

3.40 Quantum chromodynamics

According to this paper, quantum chromodynamics can only calculate 90% of proton mass. It can never calculate the remaining 10%.

3.41 Great Unification Theory

In the force chart of the Great Unification Theory, we should consider why the energy eV on the horizontal axis is on logarithmic scale. All calculations in this paper are logarithmic values.

3.42 Lagrangian of Standard Model

Einstein said you do not really know what you know unless you explain it to your grandmother so that she can understand it. Grandmother never understands the Lagrangian of Standard Model. What high school students can calculate is the truth of the universe.

3.43 Theory of Everything

The integration of four fundamental forces is only a part in Fig. 3. It is the true theory of everything that can prove the existence of God with one line.

4. Logarithmic Elliptic Equation

4.1 Normal distribution equation

Normal distribution diagram and equation are shown in the upper of Fig. 20(a).

4.2 Log-parabolic equation

As shown in the left middle of (a), the value of log-parabolic equation is the normal distribution equation.

4.3 Value scale and Log scale

(a) is value scale, and (b) is log scale. They are the same.

4.4 Log-elliptic equation

Log-elliptic equation is drawn in (b).

4.5 Dirac delta function

If the log-ellipse of (b) is again plotted as values, it is (a). That is, log-ellipse satisfies Dirac delta function.

4.6 Super symmetry

In (b), the left and right sides of elliptic equation are symmetrical. The left side is fermion real number universe, and the right side is boson imaginary number universe.

4.7 Gauge symmetry

In (b), the upper and lower sides of elliptic equation are symmetrical. The upper is particle positive universe, and the lower is anti-particle negative universe.

4.8 Renormalization

In (b), the left side of parabola towards -∞, and the right side towards +∞. Eventually, the extreme value become exactly 0 eV. The left end of the ellipse is -a (0D) and the right end is +a (12D).

4.9 Spontaneous symmetry breaking

In (b), elliptic equation has vertices at -a and q-b.

4.10 Hierarchical problem

In (b), The minimum value of the ellipse is 1/E273. This is an extremely small value, but not 0 eV.

4.11 Super-gauge symmetry

The combination of supersymmetry and gauge symmetry is super-gauge symmetry. However, this is no correct.

4.12 Dimension-mass symmetry

In Fig. 4, the values on the upper left are symmetrical to those on the lower right. In Fig. 10, the parabola and the inverse parabola are dimension-mass symmetry. That is, this means that dimension and mass are the same.

4.13 Fine-tuning universe

In (b), the lower part of parabola and the right side of inverse parabola cannot be calculated. However, ellipse can calculate all area.

4.14 Anthropic principle

In (b), our universe is located on upper 3D. Therefore, it can be understood that 6D multiverses exist. The 6D12D universes of down ellipse are the super-gauge symmetry of 0D6D universes of upper ellipse.

5. Result of calculation

5.1 Six input conditions

In Fig. 2, there are a total of 10 independent variables, but 4 are calculated from internal equations. Therefore, there are 6 independent variables. The following six input conditions were substituted. Electromagnetic force 1/137.036, gravitational force 5.90595E-39, proton 938.272 MeV, electron 510.999 keV, muon 105.658 MeV, Z boson 91.1876 GeV.

5.2 Neutrinos and Gravinos

From the six-variable root finding, the masses of neutrinos and gravinos are calculated as Figs. 4-9(a). In Fig. 4(a), the kinetic neutrino mass is 0.15 eV. In (b-d), the average value of 0.1524, 0.1524, 0.1012, 0.0886, 0.1524, 0.01116, and 0.1009 is 0.12 eV. However, 0.12 eV is a meaningless value.

5.3 Oscillation phenomenon

The oscillation masses are calculated as Figs. 4-9(b-d).

5.4 Four forces

Table 1 shows the calculations of particle masses and coupling constants for weak, electromagnetic, and strong forces. The mass of force particle is weak 15.828 meV, electromagnetic 828.13 eV, and strong 42.152 keV. The log value of the calculated electromagnetic force is -1.70672, but the log value of physics is -2.13683. The difference is +0.43011. Adding 0.43011 to the log value of the calculated weak force -6.42539, the value is calculated as -5.99528, which is 1.01093E-6. This is the weak force coupling constant. See log-parabolic line of Fig. 16(b). The value on 0D is calculated as 2.1937E-39. Gravitational force coupling constant is calculated as 5.90595E-39 = 2.1937E-39 · 2.6922. It can be seen that 2.6922 or log value 0.4301 is connected with four fundamental forces. This value is calculated as

Table 1 Calculation for the mass and coupling constant of weak, electromagnetic, and strong forces

Term	Sub.	Kinetic State			Steady State			Unit	Symbol		
NEUTRINO		Electron	Muon	Tau	Electron	Muon	Tau				
normal n	Fig. 4, 6(e)	-0.81691	5.22803	7.18775	-0.85787	5.22020	7.19065	log	α_n^4	β_n^4	γ_n^4
GRAVINO		Graviton	Photon	Gluon	Graviton	Photon	Gluon				
oscillating G	Fig. 5, 7(e)	-2.78423	0.60817	2.06190	-2.76890	0.61073	2.05900	log	α_G^{456}	β_G^{56}	γ_G^6
FORCE		Weak	**E.M.**	Strong	Weak	E.M.	Strong				
(n + G) / 2	Particle	-1.80057	2.91810	4.62482	-1.81339	2.91546	4.62482	log	α_{nG}^4	β_{nG}^4	γ_{nG}^4
		15.828m	828.13	42.152k	15.368m	823.12	42.152k	eV	m_w	m_e	m_s
		-6.42539	-1.70672	0.00000	-6.43821	-1.70936	0.00000	log	$\alpha_{nG}^{4'}$	$\beta_{nG}^{4'}$	$\gamma_{nG}^{4'}$
	Physical	**1.01093E-6**	**1/137.036**	1.00000		?		-	f_w	f_e	f_s
		(2) -5.99528	-2.13683	0.00000				log	f_w'	f_e'	f_s'
DARK	ξ_w	**-0.43011**	**(1) +0.43011**					log			

(1) -1.70672 − -2.13683 = +0.43011 10 ^ 0.43011 = **2.69223**

(2) -6.42539 − -0.43011 = -5.99528 2.69223 / (2.69223 + 1) = **72.916%**

72.916%.

5.5 Three generation dark forces ξ

See Fig. 16. ξ_6 is 0.00645, ξ_w is 0.38414 = ξ_4 + ξ_5 + ξ_6, and ξ_w + ξ_5 is 0.46963. Therefore, ξ_4, ξ_5, ξ_6 is 0.38414, 0.03952, 0.00645. Therefore, ξ_E is 0.04597 = ξ_5 + ξ_6, and ξ_S is 0.00645 = ξ_6. Three generation dark forces of ξ_W, ξ_E, and ξ_S are influencing the masses of weak, electromagnetic, and strong force particles.

5.6 Electron, Muon, Tau

See Fig. 2. Electron mass is 510.999 keV = (7.27258 keV · 1.54884 MeV · 15.4082 MeV)^1/3 x (1.64348 meV · 4.05657 eV · 115.316 eV)^1/3. Muon mass is 105.658 MeV = (1.54884 MeV · 15.4082 MeV)^1/2 x (4.05657 eV · 115.316 eV)^1/2. Tau mass is 1176.82 MeV = (15.4082 MeV)^1/1 x (115.316 eV)^1/1.

5.7 Muon g-2 2.0023318

In Table 2, the value of muon g-2 is 2.0023318. In Fig. 10, the ratio of B / g2 is 125.10 (=250.49 / 2.0023318). Currently, the average measured H boson is 125.25 GeV.

5.8 Muon g-2 problem

In Table 2, the standard model calculation of g-factor is ...3604 or …3620, and the measured value is ...4122. In Fig. 2, the mass of muon 105.658 MeV is the product of neutrinos 4.88517 MeV and gravinos 21.6284 eV. The ratio of the above two is 0.00000 4427. Therefore, the g-factor is calculated as …4120 or …4136. In Fig. 2, electron and gluon in muon affect the magnetic field as 0.0004427%. The same logic occurs at electron and tau.

5.9 W Z H bosons

W and H boson masses are easily calculated in Fig. 10.

5.10 Up, Charm, Top

In Table 3, the masses of up, charm, and top quarks are calculated. The shell of quark is steady state fermion particle on 4D 5D 6D, and the inside of quark is steady state boson particle on 10D 11D 12D. If the shapes of Fig. 2 and Fig. 12 are understood, the calculation of Table 3 will be easy.

5.11 Down, Strange, Bottom

Table 2 Muon g-2 problem

Case	Term	Muon	Equation
Standard Model	g-factor	2.0023318 **3604** 3620	g_S
	a-value	0.0011659 1802 1810	$a_S = (g_S - 2)/2$
Experiment	g-factor	2.0023318 **4122**	g_E
	a-value	0.0011659 2061	$a_E = (g_E - 2)/2$
Our Calculation	Muon	105.658 MeV	m_μ *Given*
	Neutrino	**4.88517 MeV**	m_N *= Fig. 2*
	Gravino	**21.6284 eV**	m_G *= Fig. 2*
	Ratio	0.0004427%	$r = m_G / m_N$
	a-value	0.0011659 2060 2068	$a_E = a_S \cdot (2 + r)/2$
	g-factor	2.0023318 **4120** 4136	$g_E = 2 + 2 \cdot a_E$

Table 3 Mass calculation of Up, Charm, Top quark

Term	Fig.	Kinetic State			Steady State			Unit	Symbol		
Dimension		4D	5D	6.001D	4D	5D	6.001D	-			
n Neutrino	4, 6(a)	0.15244	169.06k	15.408M	0.13872	166.03k	15.511M	eV	α_n^f	β_n^f	γ_n^f
s Neutrino		0.95778	1062.2k	96.812M	0.87158	1043.2k	97.460M	eV	$s = n \cdot 2\pi$		
		-0.0187	6.0262	7.9859	-0.0597	6.0184	7.9888	log	α_s^f	β_s^f	γ_s^f
Shell Fermion	(1)	4.6645	7.0061	7.9859	4.6492	7.0036	7.988	log	$\alpha\beta\gamma_s^f$	$\beta\gamma_s^f$	γ_s^f
		46.182k	10.141M	96.812M	**44.583k**	**10.083M**	**97.460M**	eV			
Dimension		10.001D	11.001D	12.002D	10.001D	11.001D	12.002D	-			
n Neutrino	4, 6(c)	0.9909	6.1523	1168.2	0.9110	5.7132	1116.4	eV	m_{n5}^{10}	m_{n5}^{11}	m_{n5}^{12}
ns Neutrino	(2)	52.803	131.57	1813.0	**50.630**	**126.79**	**1772.4**	eV	m_{ns5}^{10}	m_{ns5}^{11}	m_{ns5}^{12}
Inside Boson		1.7227	2.1192	3.2584	1.7044	2.1031	3.2486	log	α_{ns5}^{10}	β_{ns5}^{11}	γ_{ns5}^{12}
Quarks		Up	Charm	Top	Up	Charm	Top				
Shell+Inside		6.3871	9.1252	11.2443	6.3536	9.1067	11.2374	log	q_u	q_c	q_t
		2.4385M	1334.2M	175.52G	**2.2572M**	**1278.4M**	**172.74G**	eV	m_u	m_c	m_t

(1) $\alpha\beta\gamma_s^f = (\alpha_s^f + \beta_s^f + \gamma_s^f)/3$ $\quad$ $\beta\gamma_s^f = (\beta_s^f + \gamma_s^f)/2$ $\quad$ $\gamma_s^f = \gamma_s^f/1$

(2) $m_{ns5}^{10} = (1+2\pi)^2 \cdot (m_{n5}^{10})^{1/2}$ $\quad$ $m_{ns5}^{11} = (1+2\pi)^2 \cdot (m_{n5}^{11})^{1/2}$ $\quad$ $m_{ns5}^{12} = (1+2\pi)^2 \cdot (m_{n5}^{12})^{1/2}$

Table 4 Mass calculation of Down, Strange, Bottom

Term	Fig.	Kinetic State			Steady State			Unit	Symbol		
			Kinetic			Steady					
FERMION	Dimension	4D	5D	6.001D	4D	5D	6.001D				
Shell	4, 6(e)	5.7465	6.6889	7.1877	5.7415	6.6890	7.1906	log	$\alpha\beta\gamma_N^{456}$	$\beta\gamma_N^{56}$	γ_N^6
		557.80k	4.8851M	15.408M	**551.41k**	**4.8869M**	**15.511M**	eV	m_{d}^s	m_s^s	m_{b}^s
			Kinetic			Combine					
BOSON	Dimension	10.001D	11.001D	12.002D	10.001D	11.001D	12.002D				
n	4, 8(b)	292.0k	452.2k	1.588M	289.2k	448.6k	1.583M	eV	m_{n4}^{10}	m_{n4}^{11}	m_{n4}^{12}
ns	(1)	28.66k	35.67k	66.85k	28.53k	35.53k	66.73k	eV	m_{ns4}^{10}	m_{ns4}^{11}	m_{ns4}^{12}
		4.4573	4.5523	4.8251	4.4553	4.5506	4.8243	log	α_{ns4}^{10}	β_{ns4}^{11}	γ_{ns4}^{12}
g	5, 9(d)	1.995E-09	1.510E-08	5.059E-06	2.107E-9	1.586E-8	5.244E-6	eV	m_{g6}^{10}	m_{g6}^{11}	m_{g6}^{12}
gt	(1)	2.369E-03	6.517E-03	1.193E-01	2.435E-3	6.681E-3	1.215E-1	eV	m_{gt6}^{10}	m_{gt6}^{11}	m_{gt6}^{12}
		-2.6254	-2.1859	-0.9233	-2.6136	-2.1752	-0.9155	log	α_{gt6}^{10}	β_{gt6}^{11}	γ_{gt6}^{12}
Inside	(ns+gt)/2	0.9160	1.1832	1.9509	0.9209	1.1877	1.9544	log	α_{ngst}^{10}	β_{ngst}^{11}	γ_{ngst}^{12}
Dark	16(a)	0.0065	0.0395	0.3841	0.0065	0.0395	0.3841	log	ξ_6	ξ_5	ξ_4
	(2)	0.0129	0.0919	0.4761	0.0129	0.0919	0.4761	log	ξ_{10}	ξ_{11}	ξ_{12}
Force	Inside+Dark	0.9289	1.2751	2.4270	0.9338	1.2796	2.4305	log	f_{10}	f_{11}	f_{12}
		w8.490	**z18.84**	**h267.3**	**w8.586**	**z19.04**	**h269.5**	eV	m_{d}^w	m_s^z	m_{b}^h
QUARK	Sum	Down	Strange	Bottom	Down	Strange	Bottom				
	Shell+Force	6.6754	7.9640	9.6147	6.6752	7.9687	9.6211	log	q_d	q_s	q_b
		4.7355M	92.045M	4.1185G	**4.7342M**	**93.044M**	**4.1796G**	eV	m_d	m_s	m_b

(1) $m_{ns} = (1+2\pi)^2 \cdot (m_n)^{1/2}$ $\quad$ $m_{gt} = (1+2\pi)^2 \cdot (m_g)^{1/2}$

(2) $\xi_{10} = \xi_6 \cdot 2$ $\quad$ $\xi_{11} = \xi_6 \cdot 2 + \xi_5 \cdot 2$ $\quad$ $\xi_{12} = \xi_6 \cdot 2 + \xi_5 \cdot 2 + \xi_4 \cdot 1$

※ [KK] 4.7355M [KC] 5.7465 Fig. 4(e) + w0.9338 = 6.6802 → **4.7890M**

※ [SC] 4.7342M [CC] 5.7433 Fig. 8(e) + w0.9338 = 6.6771 → **4.7545M**

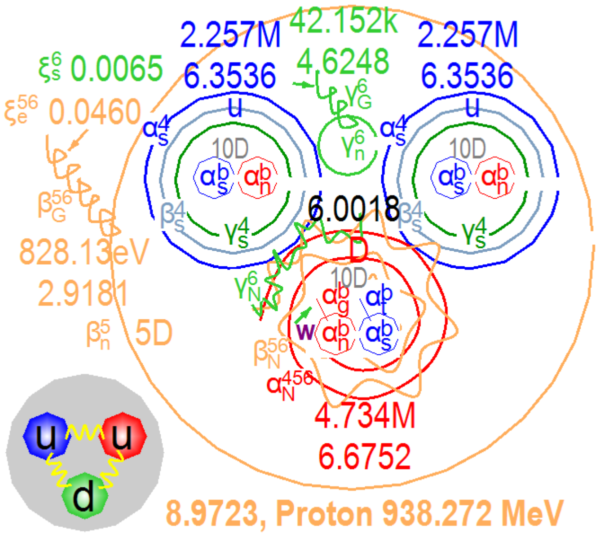


Fig. 21 Shape of proton

In Table 4, the masses of down, strange, and bottom quarks are calculated. The shell of quark is steady state fermion particle on 4D 5D 6D, and the inside of quark is combined state boson particle on 10D 11D 12D. When quark decays, the combined state boson is changed to kinetic state boson, and it goes to 5D along the log-parabola in Fig. 11.

5.12 Proton mass

The shape of proton is drawn in Fig. 21, and the mass of proton is calculated in Table 5. In Case 1), if up quark and down quark masses are 2.25 MeV and 4.75 MeV, the mass is calculated as 88.56% of 938.272 MeV. In Case 2), adding electromagnetic dark force 0.0460, its mass is calculated as 98.45%. In Case 3), adding strong dark force 0.0065, its mass is calculated to be 99.92%. Therefore, it can be understood that the proton mass calculation formula is Case 4). In Table 3, the mass of up quark is calculated as 2.2572 MeV (6.3536), so for the mass of proton as 938.272 MeV, down quark is calculated as 4.7342 MeV (6.6752). Such as Case 5-7), the mass of quarks changes according to the state as shown in Tables 3 and 4. The front of the symbol is the state of up quark, and the back of the symbol is the state of down quark.

5.13 Proton radius puzzle

As shown in Fig. 22(a), hydrogen radius is 52.918 pm, weak force is 1.01093E-6, and electromagnetic force is 1/137.036. From the equation, one proton radius and one quark radius are calculated as 0.87506 fm and 0.4401 am. Extending this logic, the acting radius of gravity is calculated as 12.70 BY. This is steady state radius. The mass of quarks in muonic hydrogen is changed. Substituting 975.223 MeV calculated in Table 5, 0.8419 fm and 0.4234 am is calculated, and substituting 976.265 MeV, it is calculated as 0.8410 fm and 0.4229. Since the measured radius is 0.8409±0.0004 fm, the mass of proton in muonic hydrogen is considered as 976.265 MeV.

5.14 Cosmological constant problem

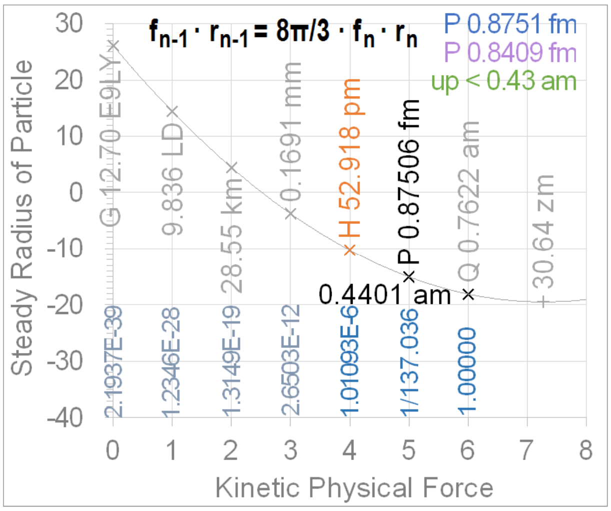
The present universe is the mixture of 37.144% kinetic state and 62.856% steady state. The mass of the neutrino in the combined state is calculated in Fig. 8(a). The value of ν_0/ν_3 = 1E-121.5326. The cosmological constant problem is 1E-121.5394.

5.15 Planck length l_P

Planck length is 1.61626E-35 m. This is considered the steady state length. The kinetic state Planck length would be 1.64865E-35 = 1.61626E-35 x (0.87506 fm / 0.84101 fm)^1/2. Therefore, the Planck length of the mixture with 37.144% and 62.856% is l_P = 1.62829E-35. This value needs to be verified.

Table 5 Calculation of proton mass 938.272 MeV

Particle Term	Symbol	Case eV	1) Log	2) log	3) log	4) log	5) log	6) log	7) log	Ref.
Up	u	2.25M	6.3522	6.3522	6.3522	u6.3536	6.3871	6.3871	6.3871	Table 3
Up	u	2.25M	6.3522	6.3522	6.3522	u6.3536	6.3871	6.3871	6.3871	
Down	D	4.75M	6.6767	6.6767	6.6767	**D6.6752**	6.6752	6.6771	6.6802	Table 4
S.F.	γ_{nG}	42.15k	4.6248	4.6248	4.6248	4.6248	4.6248	4.6248	4.6248	Table 1
Avg.		∑ / 4	6.0015	6.0015	6.0015	avg.	6.0186	6.0190	6.0198	
S.D.F.	ξ_s	log	-	-	0.0065	0.0065	0.0065	0.0065	0.0065	Fig. 16(b)
E.F.	β_{nG}	828.1	2.9181	2.9181	2.9181	2.9181	2.9181	2.9181	2.9181	Table 1
E.D.F.	ξ_e	log	-	0.0460	0.0460	0.0460	0.0460	0.0460	0.0460	Fig. 16(b)
Sum		∑	8.9196	8.9655	8.9720	8.9723	8.9891	8.9896	8.9904	
Proton	Mass	MeV	830.939	923.718	937.550	938.272	975.223	976.265	978.032	
Error			88.56%	98.45%	99.92%	SS.SC	KK.SC	KK.CC	KK.KC	



(a) Steady state radius and force

$1.01093E\text{-}6 \cdot 52.918\ \text{pm} = 1/137.036 \cdot 8\pi/3 \cdot r_P$

※ $\mathbf{r_P = 0.87506\ fm}$ **SS.SC**

$1/137.036 \cdot 0.87506\ \text{fm} = 1 \cdot 8\pi/3 \cdot r_Q \rightarrow 0.7622\ \text{am}$

※ $\mathbf{r_q = 0.4401\ am}$ $\pi \cdot r_q^2 \times 3 = \pi \cdot r_Q^2$

Proton	KK.SC	**KK.CC**	KK.KC	KK.KK
Table 10.1	975.223	976.265	978.032	975.291
Radius	0.84190	**0.84101**	0.83949	0.84185
	938.272 / Mass x 0.87506			
Quark	0.7333	0.7326	0.7312	0.7312
	$1/137.036 \cdot 0.87506\ \text{fm} = 1 \cdot 8\pi/3 \cdot r_Q$			
quark	0.4234	**0.4229**	0.4222	0.4222
	$\pi \cdot r_q^2 \times 3 = \pi \cdot r_Q^2$			

(b) Proton radius in muonic hydrogen

Fig. 22 Proton radius puzzle

5.16 Cosmological constant Λ

The $l_P^2 \cdot \Lambda$ is 1E-121.5326. Therefore, the Λ is calculated as 1.10616E-52. The value of 1 / c√Λ is 10.050 BY = 1 / (2.9979E8 · 60 · 60 · 24 · 365.2422 · √Λ).

5.17 Current Time

10.050 BY / 72.916% is 13.783 BY. If the Planck length is 1.61626E-35m, the current time is calculated as 13.681 BY.

5.18 Hubble constant H

977.813 / 13.783 is 70.942 km/s/Mpc.

5.19 Calculation flow

Figs. 12.1 and 2 of the previous study [1] were calculated with muon neutrino 170.00 keV and tau 17768.6 GeV as input conditions. In this paper, two conditions were added: B/H 2.0030 and Hu 133.23 GeV in Fig. 10 are the same as E and Bu in Fig. 13. The new calculation results are shown in Fig. 23. The blue values are 6 independent variables, and the red values are 6 input conditions.

6. Dimension 6.00107

6.1 Dimension 6.00000D

If the calculation is performed again with 6D, the tau mass is calculated as 1771.71 MeV. This has an error of 0.29% from the measured value of 1776.86±0.12 MeV.

6.2 Calculation according to dimension change

However, why 4D, 5D, 6.00107D? It may be 4.00XXXD, 5D, 6D, or 4.00XXX, 5.00XXX, 6D, and so on. That is, combinations of various dimensions occur. In Table 6, the result values according to the change of dimension are presented. There are various combinations, but about 5 representatives are presented. ΔD is the calculated offset dimension value. p left means the midpoint of the left ellipse, and p right means the midpoint of the right ellipse. 4D to 12D are the input values of dimensional combination.

6.3 Correct answer 6.00107D

In Table 6, the minimum error is Case 2) of 4D, 5D, and 6.00107D. This is determined at the cosmological constant (Hubble constant, current time). In Fig. 24, the comparison between the measured values of physics and the calculated values is shown.

6.4 What does 6.00107D mean?

From 6.00107D, the shape of universe can be inferred. Six-dimensional space exists, and a strange phenomenon occurred in 6D as much as 0.00107D. Since this value is not a special number, it changes according to time flow. However, since 6D space changes are nearly infinitely slower than our 3D space, it can be treated as a constant.

6.5 Our universe

As shown in Fig. 25(e), the space of our universe consists of three quantum spaces and three linear spaces. Our universe (e) changes from (d) to (f). This is the reason of the law of increasing entropy.

6.6 Dimensional multi-universe

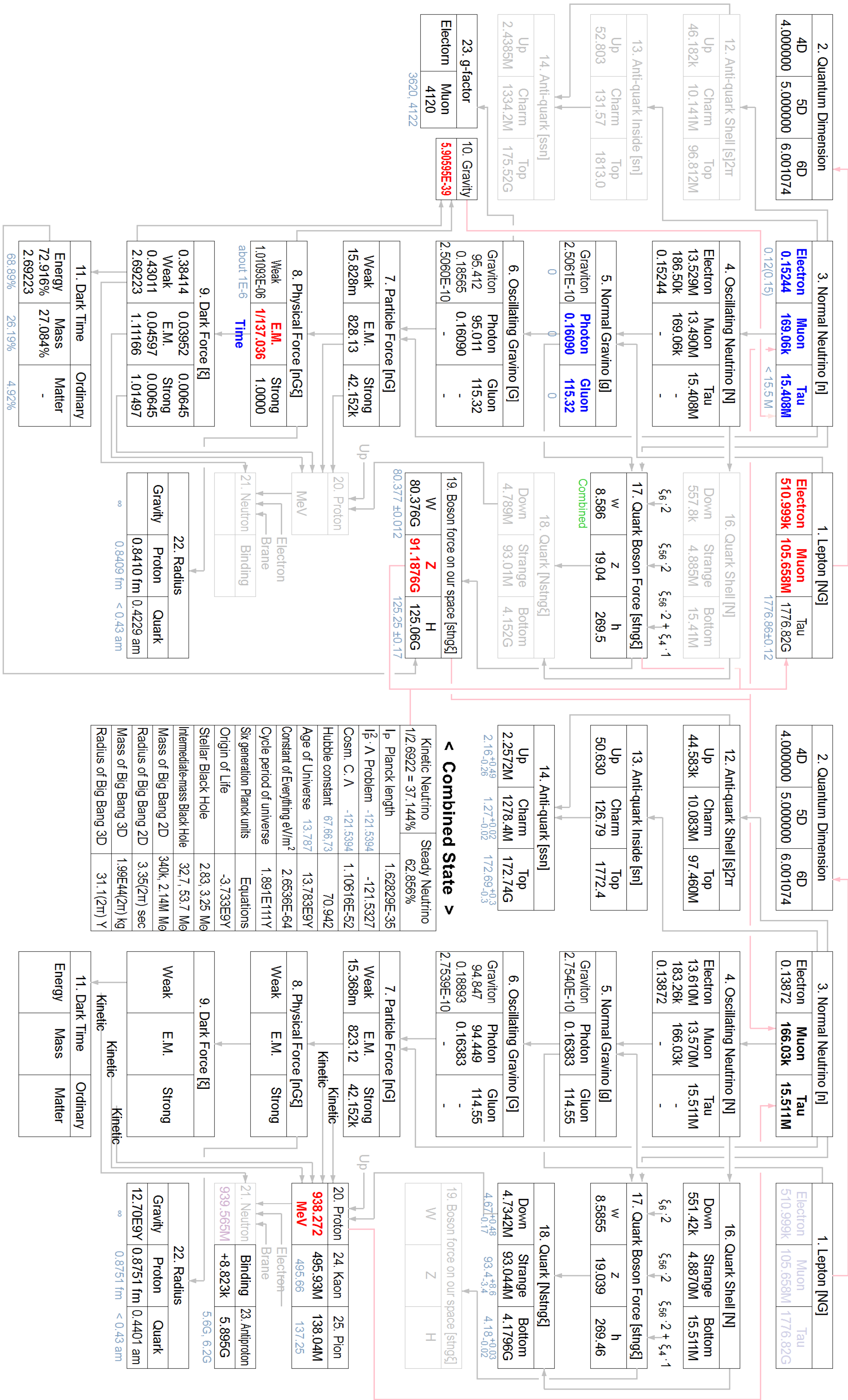


Fig. 23 Calculation Flow

Table 6 Calculation according to the change of dimension

Case	Unit	Physics	1)	**2)**	3)	4)	5)
ΔD			-0.00044	0.0010734	0.00243	-0.00134	0.00046
4D			4.00000	4.0000000	4.00000	3.99866	4.00046
5D			5.00000	5.0000000	5.00243	5.00000	5.00046
6D			6.00000	**6.0010734**	6.00243	6.00000	6.00046
p left			5.99956	6.0010734	6.00243	6.00000	6.00000
p right			6.00044	6.0010734	6.00243	6.00000	6.00000
10D			10.00000	10.0010734	10.00243	9.99866	10.00046
11D			11.00000	11.0010734	11.00486	11.00000	11.00046
12D			12.00000	12.0021468	12.00486	12.00000	12.00000
Kinetic n4	eV	0.12(0.15)	0.14311	0.15244(0.120)	0.13606	0.13608	0.14456
Kinetic n5	keV	<170	162.90	169.06	167.07	161.86	164.30
Kinetic n6	MeV	<15.5	14.838	15.408	15.406	14.871	14.958
Kinetic g4	eV	0	2.648E-10	2.506E-10	2.756E-10	2.771E-10	2.622E-10
Kinetic g5	eV	0	0.16895	0.16090	0.16738	0.17128	0.16752
Kinetic g6	eV	0	119.26	115.32	114.25	118.71	118.30
Steady n4	eV	-	0.13425	0.13872	0.13676	0.13457	0.13466
Steady n5	keV	-	168.01	166.03	167.94	168.63	167.64
Steady n6	MeV	-	15.780	15.511	15.486	15.757	15.719
Steady g4	eV	-	2.823E-10	2.754E-10	2.742E-10	2.803E-10	2.814E-10
Steady g5	eV	-	0.16381	0.16383	0.16651	0.16440	0.16418
Steady g6	eV	-	112.14	114.55	113.66	112.04	112.57
Tau	MeV	**1776.86±0.12**	1769.59	**1776.82**	1760.18	1765.35	1769.52
Weak Force	-	≈1E-6	1.0085E-06	1.0109E-6	9.8633E-07	9.9396E-07	1.0093E-06
Proton Radius	fm	**0.8751,0.8409**	0.8730,0.8691	**0.8751,0.8410**	0.8538,0.8575	0.8604,0.8758	0.8737,0.8630
Quark Radius	am	< 0.43	0.4390,0.4371	0.4401,0.4229	0.4294,0.4312	0.4327,0.4404	0.4394,0.4340
Dark Energy	%	68.89	72.999	72.916	73.045	73.005	73.002
W	GeV	**80.377±0.012**	80.401	**80.376**	80.397	80.390	80.403
H	GeV	**125.25±0.17**	124.92	**125.06**	124.84	124.91	124.91
Cos.C.Problem	-	-121.539	-121.940	-121.533	-121.739	-121.844	-121.923
Cosmo. C.	/m2	1.1056E-52	4.3377E-53	1.1062E-52	6.9456E-53	5.4413E-53	4.5035E-53
Hubble C.	km/s/Mpc	67.66, ≈73	44.475	70.942	56.314	49.817	45.319
Current Time	B.Y.	13.787	21.986	13.783	17.364	19.628	21.576
Up	MeV	$2.16^{+0.49}_{-0.26}$	2.2249	2.2572	2.2375	2.2277	2.2264
Charm	MeV	$1.27^{+0.02}_{-0.02}$	1284.0	1.2784	1279.0	1286.1	1282.1
Top	GeV	**172.69**±0.3	175.01	**172.74**	171.74	174.76	174.31
Down	MeV	$4.67^{+0.48}_{-0.17}$	4.816	4.734	4.773	4.829	4.801
Strange	MeV	$93.4^{+8.6}_{-3.4}$	95.54	93.04	94.42	95.73	95.23
Bottom	GeV	$4.18^{+0.03}_{-0.02}$	4.301	4.180	4.239	4.305	4.284
Antiproton	GeV	5.6, 6.2	5.895	5.895	5.895	5.895	5.895
Kaon	MeV	493.68, 497.61	491.91	495.93	493.17	491.69	492.20
Pion	MeV	134.98, 139.57	137.10	138.04	137.57	137.06	137.19

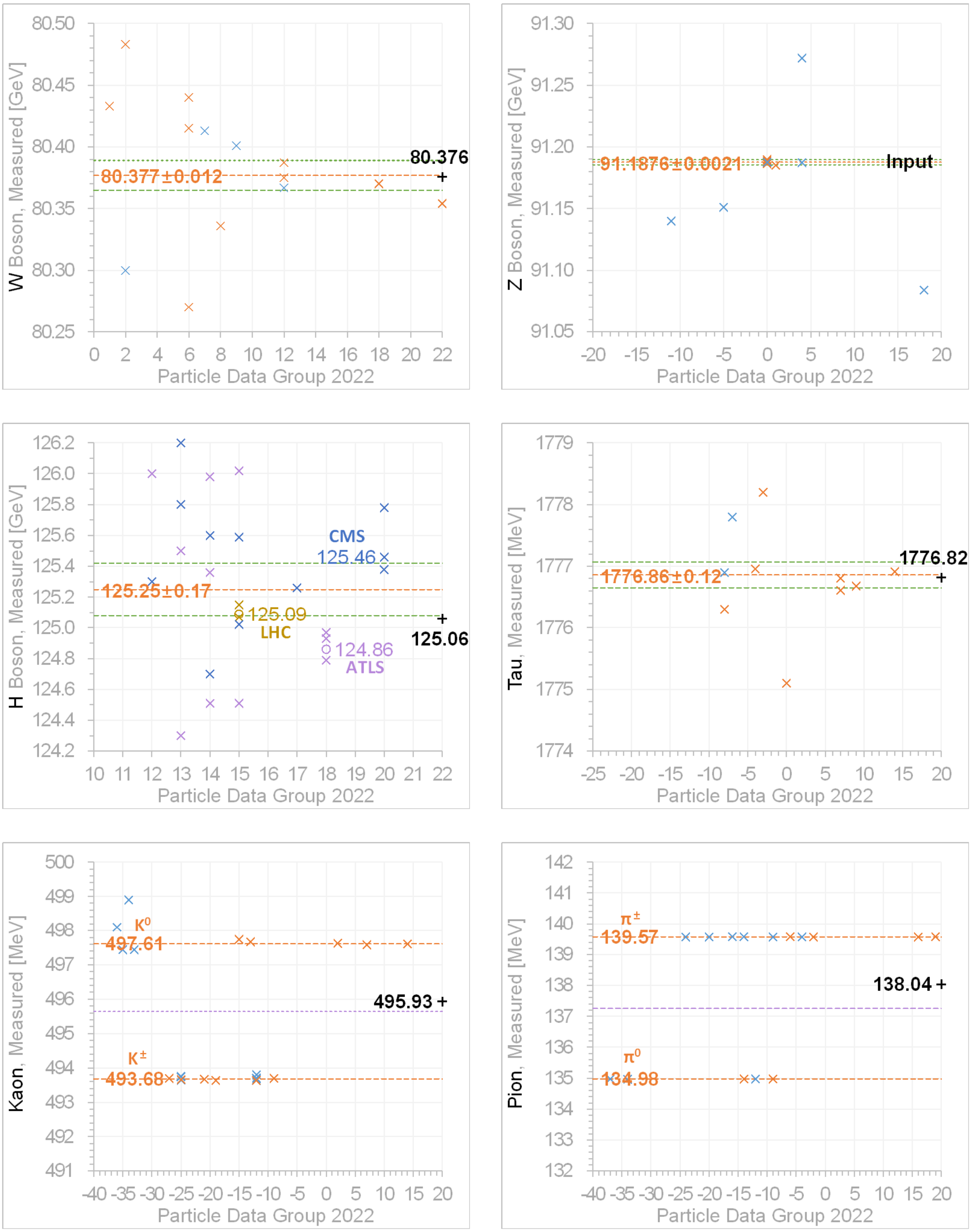


Fig. 24 Comparison with the measured values of physics

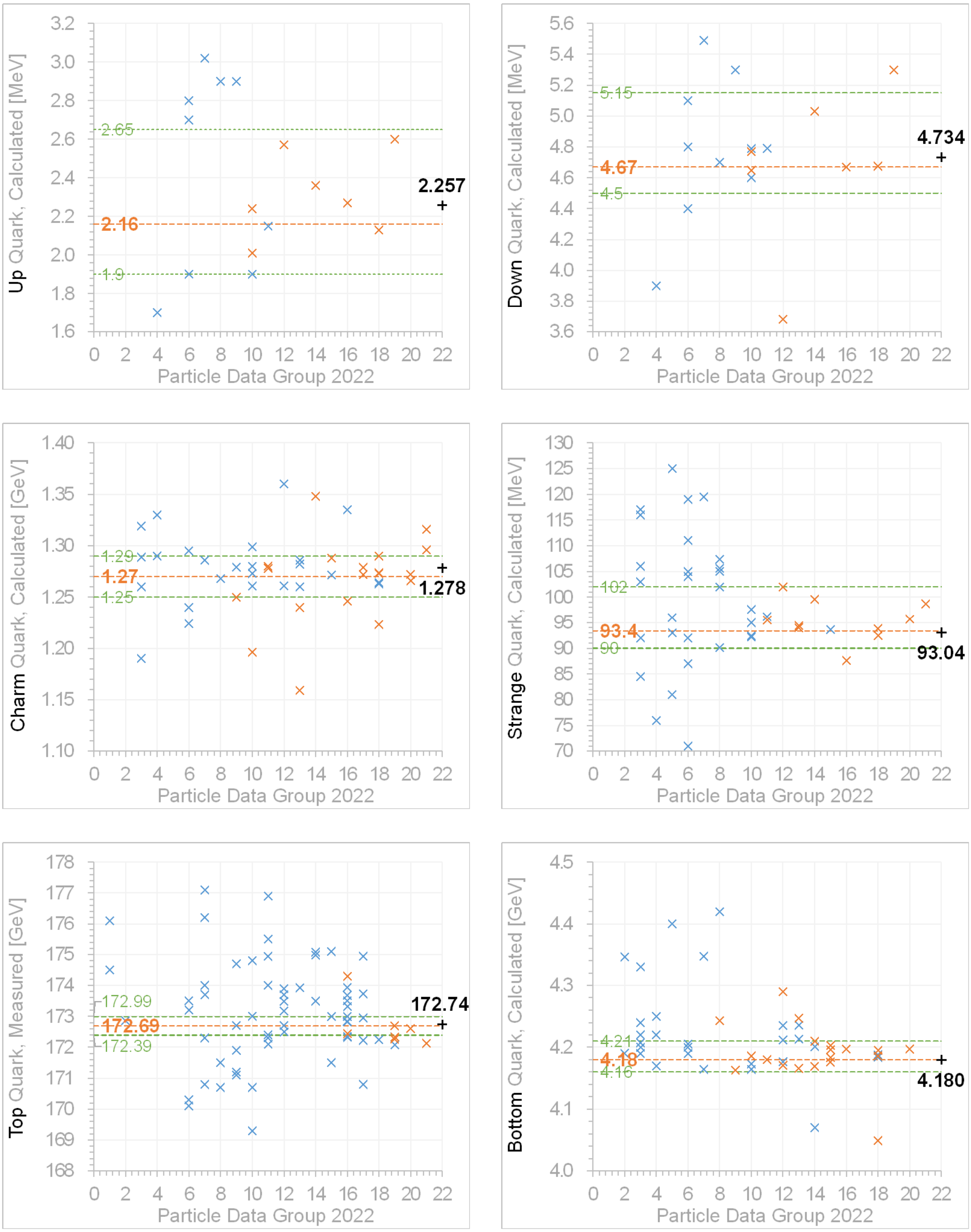
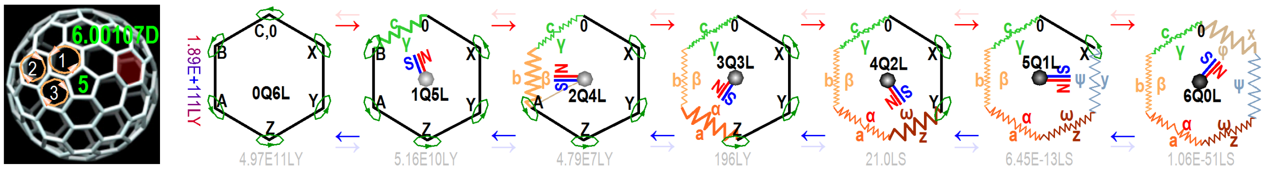


Fig. 24 Comparison with the measured values of physics



(a) (b) 0Q + 6L (c) 1Q + 5L (d) 2Q + 4L (e) 3Q + 3L (f) 4Q + 2L (g) 5Q + 1L (h) 6Q + 0L

Fig. 25 Change of six-dimensional universe

Fig. 25 is dimensional multi-universe. (b) is one. (c) are born a few. (d) are born a lot. (e) are born very much. Therefore, (h) can be said to be an almost infinite number. The universe of (f) is spread out in the supermassive black hole at the center of galaxy.

6.7 Origin universe

Our universe (e) begins at (d) and ends at (f). However, in whole Fig. 25, since this rotates, there is no beginning and no ending. Here, (b) is the maximum universe and (h) is the minimum universe. The Planck unit system is the universe (h). Our universe is (e). The cosmological constant problem is the difference between (e) and (h). The beginning of the origin universe does not exist, but it can be called (b).

6.8 Super origin universe

The origin universe (b) is not 6D but 6.00107D. This means that something outside of (b) is affecting as much as 0.00107D. (a) is a super origin universe. To the beginning and ending of that do not exist, it must be a sphere such as (a). One of hexagons in (a) is (b). Let's assume that a super origin universe occurred. Universes of unknown dimensions compete for power with each other. As time passes, all become six-dimensional universe that is fair to all. If everything turned into perfect 6D universes, then everything will no longer change. However, if (a) is a super-sphere, a five-dimensional universe must exist. It forever changes the super origin universe. Therefore, it can be understood that the universe of exactly 6D cannot exist.

6.9 Origin of particles

The outer shell of super-sphere (a) is fermion brane, and the inner particle is boson brane. They are unique brane in (b). 6D particles are born in (c), 5D particles are born in (d), and 4D particles are born in (e). This is the origin of particles. After 1.89E111 LY / 2 passes, the outside brane and the inside brane are turned into inside and outside. This is represented by thin color arrows. Fig. 25 is connected to the logarithmic ellipse of Fig. 4(a).

7. Universe change according to time flow

7.1 Total of 6 input variables

As explained in Fig. 2 and Fig. 23, if only 6 input variables are given, our universe is analyzed.

7.2 Time flow → Change of dark force

In Fig. 18, the current dark force ξw is 2.6922 = 10.050 / (13.783 - 10.050). Therefore, the dark force according to time flow is 10.050 / (time - 10.050). When time is near 10.050 BY, the dark force becomes infinity. It is an incomprehensible phenomenon.

7.3 Five absolute constants

Five absolute constants are required to perform calculations according to time flow. The cosmological constant is absolute constant. It is clear that the cosmological constant is absolute constant. However, it is included as 10.050 BY in the time variable. There are various combinations of five absolute constants. In this paper, ΔD 0.00107, photon kg5 0.16090 eV of kinetic state, gluon kg6 115.32 eV of kinetic state, muon neutrino sn5 166.03 keV, and tau neutrino sn6 15.511 MeV were calculated as five constants.

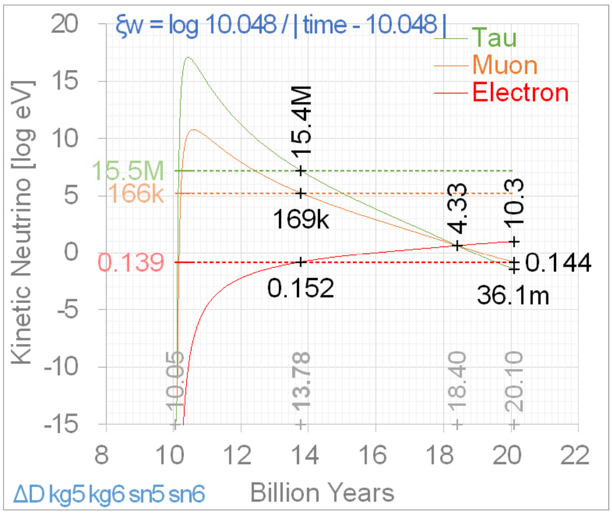
7.4 Changes according to time flow

The changes of the universe are shown in Fig. 26. Its characteristics are that the values towards -∞ at 10.050 BY and the neutrino masses are reversed at 18.40 BY in (a). At 13.78 BY in (a), the masses of kinetic state and steady state are almost identical. However, it is completely different at other times. It may be wrong. In (h), it is found that the calculated Planck length is wrong. Therefore, Fig. 26 is judged to be incorrect. What are the five absolute constants that do not change according to time flow? Various combinations were tried, but none of them yielded valid results.

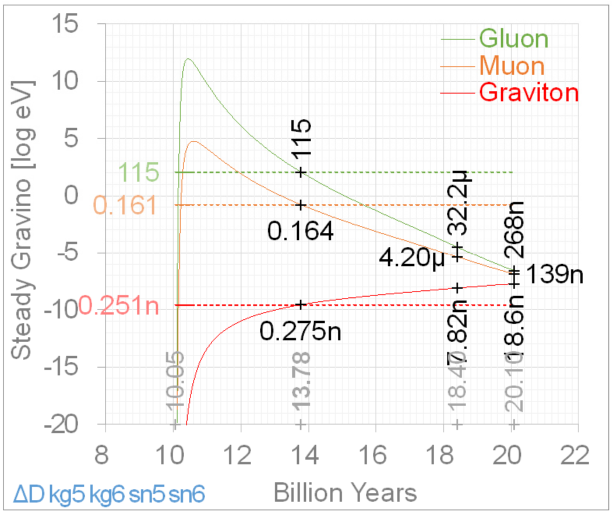
7.5 Negative absolute temperature

In any combination, because of the dark force ξw formula, all values are directed towards -∞ at 10.050 BY. Is this a possible phenomenon? Absolute temperature is 0K. It has been experimentally proven that there is negative absolute temperature, which is expressed as T/K: +0 → +∞ → −∞ → −0. The above phenomenon is thought to occur at the cosmic age of 10.048 BY.

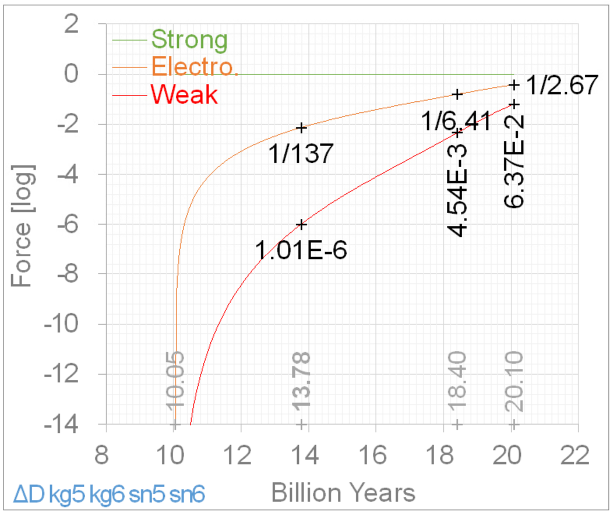
7.6 Birth of life



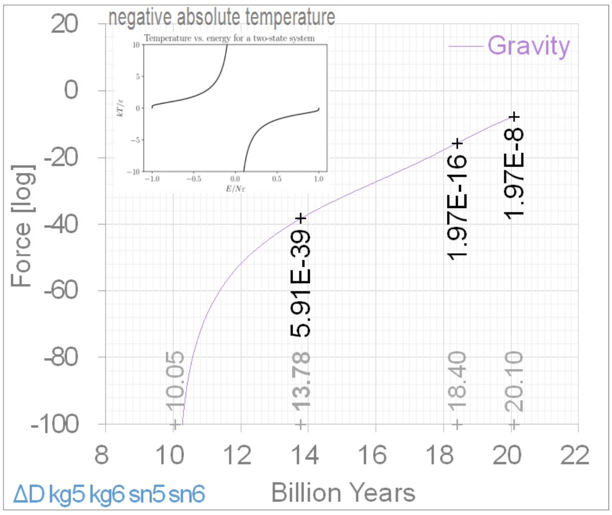
(a) Mass of kinetic state neutrinos



(b) Mass of steady state gravinos



(c) Strong, electromagnetic, weak forces



(d) Gravitational force

Fig. 26 Change of universe according to time flow

10.050 BY is 3.73 billion years ago. First fossils of life on Earth were proven 3.5 billion years ago, and fossils of life have been discovered 3.7 billion years ago. Is this a coincidence? Is it inevitable?

7.7 Reversal of neutrino masses

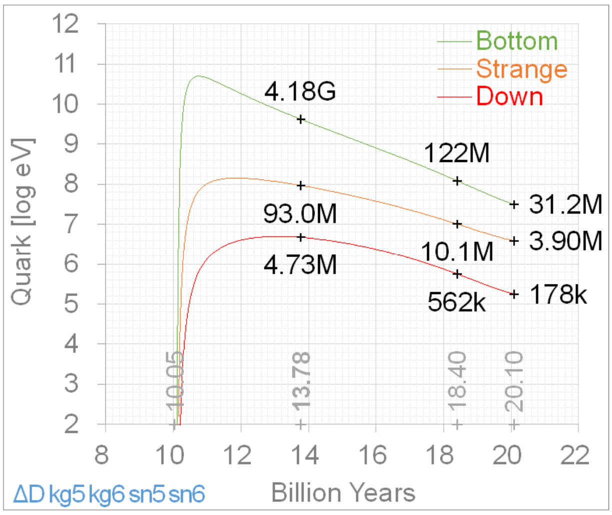
At 18.40 BY in (a), a reversal of the neutrino masses occurs. This is a phenomenon that the downward ellipse is compressed and suddenly upward. This may be a phenomenon that the neutral ns ellipse is separated into monopole n ellipse and monopole s ellipse when 18.40 BY.

7.8 What are the five absolute constants?

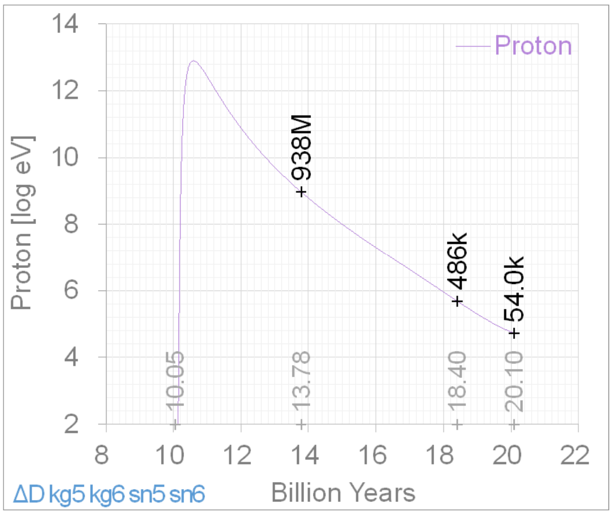
The results in Fig. 26 are clearly wrong. Five absolute constants are required. The cosmological constant problem is an absolute constant. The value is the neutrino mass ratio of 0D and 3D in Fig. 8(a). From the above idea, in Fig. 9(a), the gravino mass ratio of 0D and 3D can be an absolute constant. Weak force coupling constant and electromagnetic force coupling constant will be absolute constants. The above values are ratio. One absolute mass is needed to solve the problem. It is assumed that Z boson is an absolute mass.

8. Conclusions

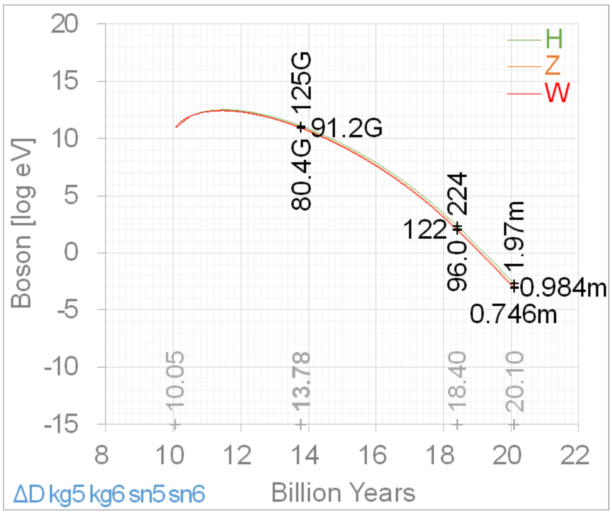
The language of physics should be drawing. After the drawing for phenomenon is shown correctly, mathematical formulas suitable for the drawing must be derived. The representative drawing example is standard model. The combination of quantum masses is multiplication, not addition.



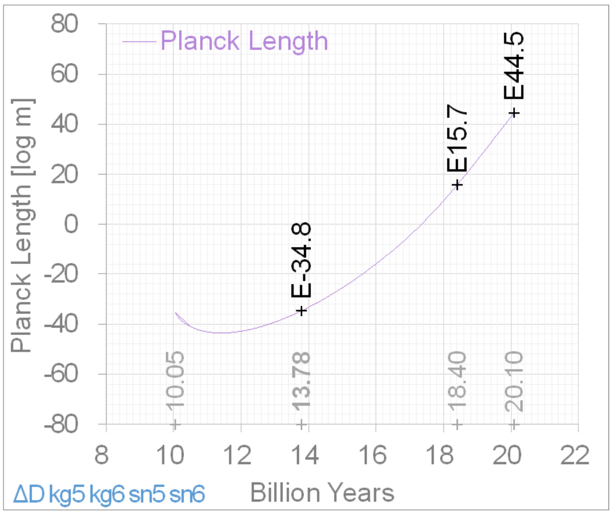
(e) Mass of down, strange, bottom quarks



(f) Mass of proton



(g) Mass of W, Z, H bosons



(h) Planck length

Fig. 26 Change of universe according to time flow

There is no quantum mechanics theory that can calculate the elementary school arithmetic. The key word in this paper is ellipse. From the hint of ellipse, any person can discover the results of this paper.

References

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