New Standard Model

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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. The language of physics is drawing, not mathematics. Various unsolved problems in physics are 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

The purpose of this study is to propose a new standard model of particle physics.

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.

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.

2.4 Combined particles

All the other particles are the combined particles.

2.5 Kinetic, Steady, Combined State

All particles have the kinetic state rest mass of Fig. 4 and Fig. 5 and the steady state rest mass of Fig. 6 and Fig. 7. The change of the universe operates as the combined state of above two of Fig. 8 and Fig. 9.

2.6 Particle and Antiparticle

Particle is red n and anti-particle is blue s. In fermion, the mass of antiparticle s is 2π times greater 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.

2.7 Normal and Oscillation

Lowercase n and s means normal mass, and uppercase N and S means oscillating mass. As one example, the normal masses of three generation neutrinos are presented in Fig. 4(a). The mass of electron, muon, and tau neutrinos are calculated as 0.15244 eV, 169.06 keV, and 15.408 MeV. Here, as one example, the 186.5 keV and 13.53 MeV in Fig. 4(b) are also electron neutrino mass. Such as above, neutrinos of Fig. 4 and gravinos of Fig. 5 oscillate the three kinds of mass. The logarithmic average mass of the three kinds of mass is the oscillating mass of the particle. As above example, the oscillating log-mass of electron neutrino is calculated as 3.8617 = (log 0.1524 eV + log 186.5 keV + log 13.53 MeV) / 3.

The shapes of three generation normal neutrinos and gravinos are shown in Fig. 3.1(a).

2.8 Three generation dark forces

Dark energy is the wrong word. Dark time is the correct word, 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 calculation of four forces in Fig. 15. At the chart, 2.6922 is calculated, and 2.6922 / 3.6922 is 72.916%.

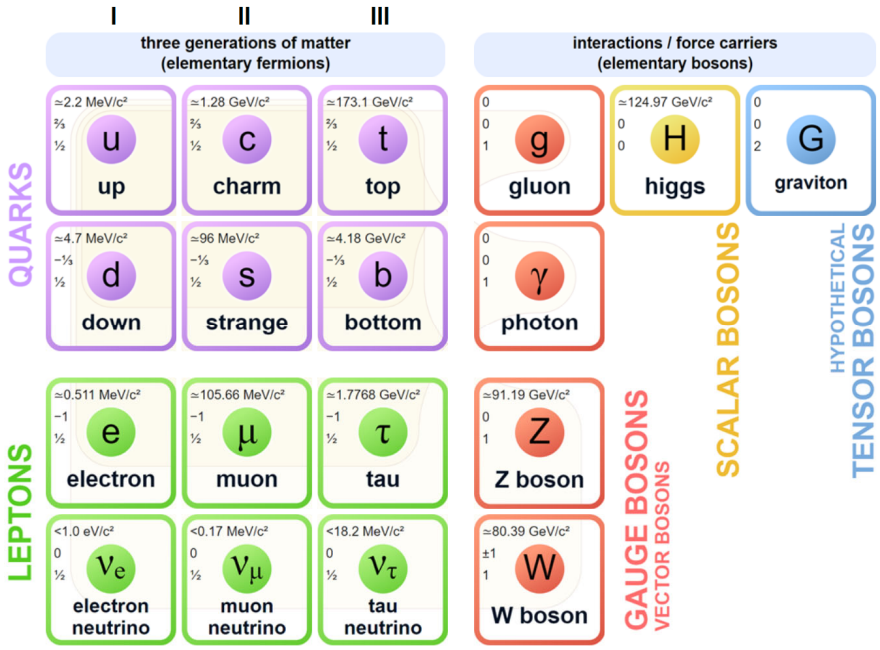


Fig. 1 Current Standard Model

Fig. 2 New Standard Model

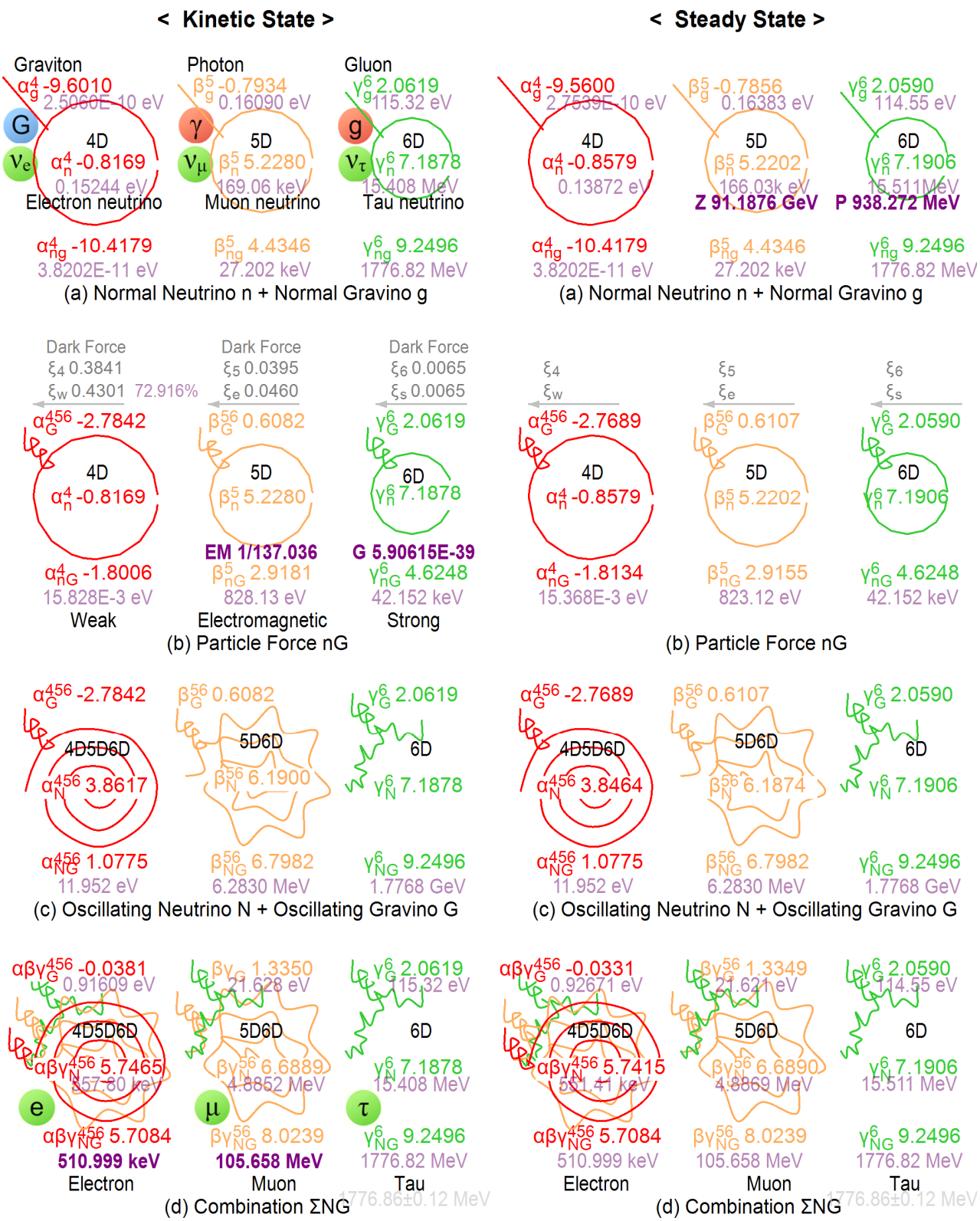
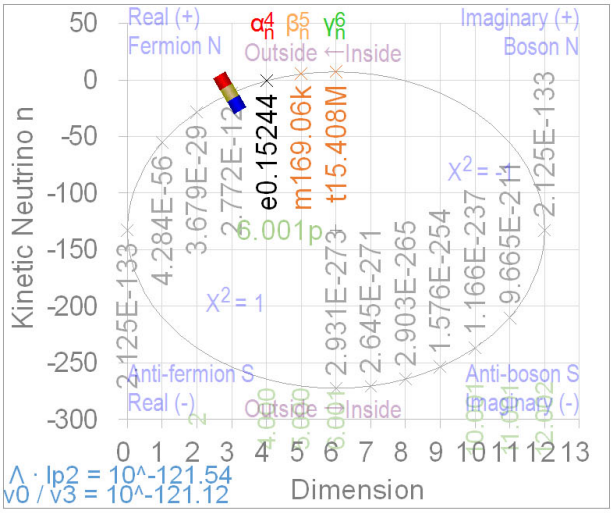
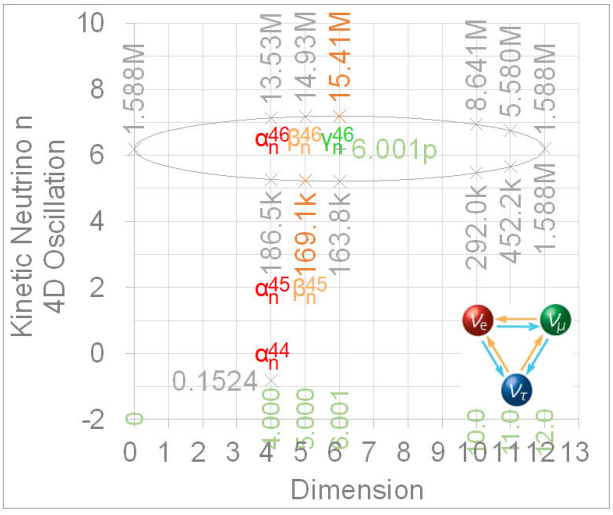


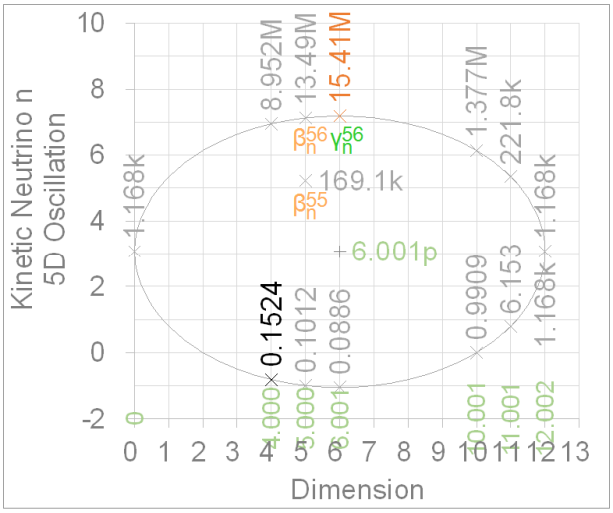
Fig. 3 Particle shape and log-mass



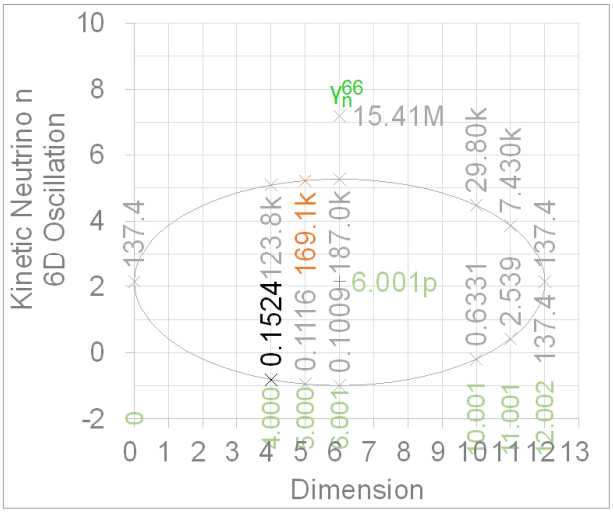
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Kinetic		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**7.18775**	7.13128	7.17393	**7.18775**	6.95194	7.13002	**7.18775**			**7.18775**
middle	5		**5.22804**		5.27069	**5.22804**	5.21421		**5.22804**		5.09258	**5.22804**	5.27195
low	4	**-0.81690**			**-0.81690**			**-0.81690**	-0.99498	-1.05271	**-0.81690**	-0.95236	-0.99628
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93658	6.74666	6.20098	6.13900	5.34599	3.06752			
middle	5				5.46538	5.65530	6.20098				4.47420	3.87099	2.13784
low	4							-0.00396	0.78905	3.06752	-0.19853	0.40469	2.13784

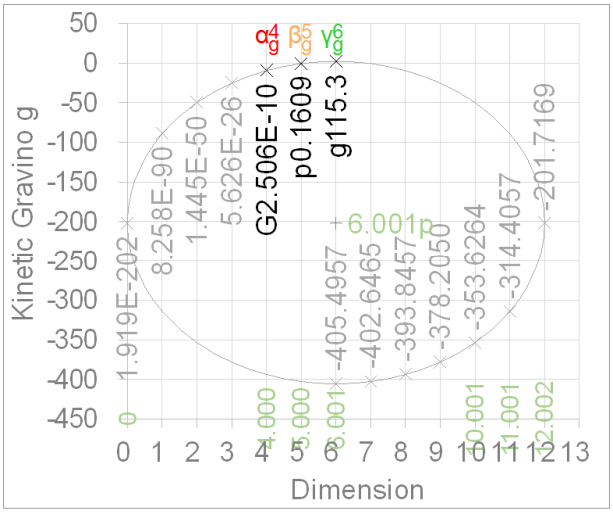
$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3$ = (-0.81690 + 5.27069 + 7.13128) / 3 = 3.86169, 7.27258 keV

$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4$ = (5.22804 + 7.13002 + 7.17393 + 5.22804) / 4 = 6.19001, 1.54884 MeV

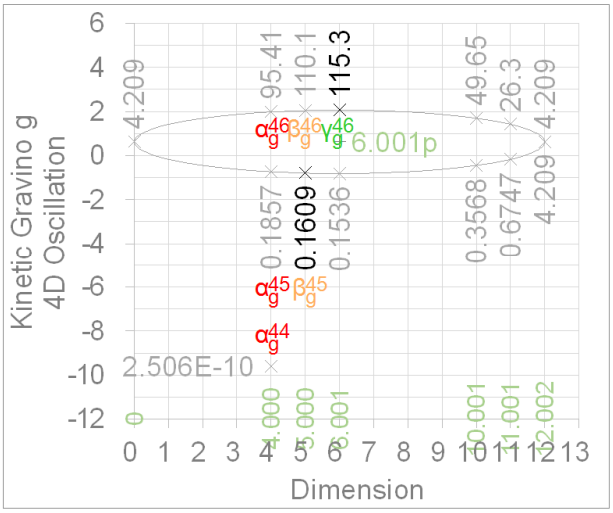
$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3$ = (7.18776 + 7.18776 + 7.18776) / 3 = 7.18776, 15.4082 MeV

(e) Log values

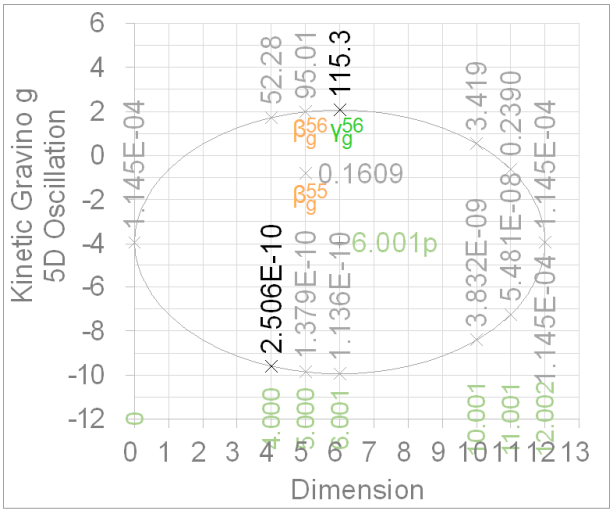
Fig. 4 Mass of neutrinos – Kinetic state



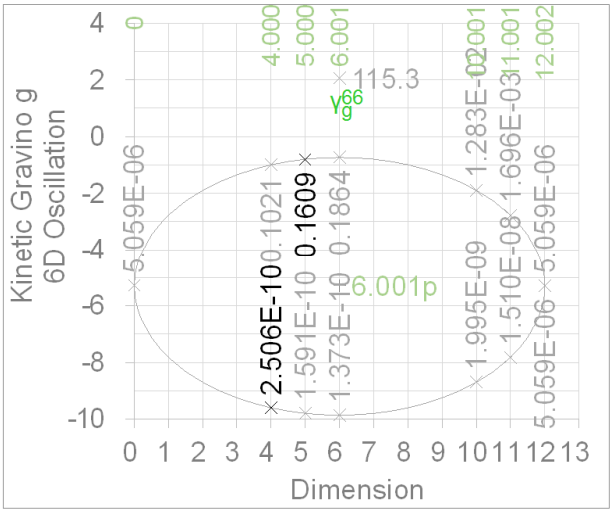
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Kinetic		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**2.06189**	1.97960	2.04174	**2.06189**	1.71831	1.97777	**2.06189**			**2.06189**
middle	5		**-0.79344**		-0.73130	**-0.79344**	-0.81359		**-0.79344**		-0.99081	**-0.79344**	-0.72946
low	4	**-9.60101**			**-9.60101**			**-9.60101**	-9.86048	-9.94460	**-9.60101**	-9.79838	-9.86236
Gravino		graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon
high	6				1.69593	1.41921	0.62415	0.53384	-0.62159	-3.94135			
middle	5				-0.44763	-0.17091	0.62415				-1.89179	-2.77068	-5.29591
low	4							-8.41655	-7.26112	-3.94135	-8.70003	-7.82114	-5.29591

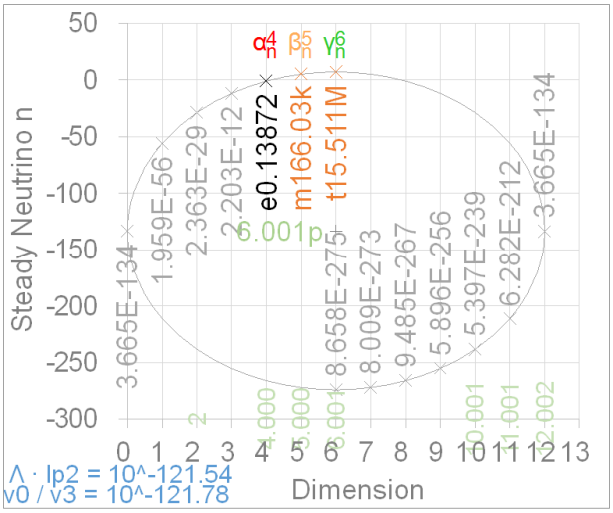
$\alpha_G^{456} = (\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46}) / 3$ = (-9.60102 + -0.73130 + 1.97960) / 3 = -2.78424, 1.64348 meV

$\beta_G^{56} = (\beta_g^{55} + \beta_g^{56} + \beta_g^{45} + \beta_g^{46}) / 4$ = (-0.79345 + 1.97777 + 2.04174 + -0.79345) / 4 = 0.60816, 4.05657 eV

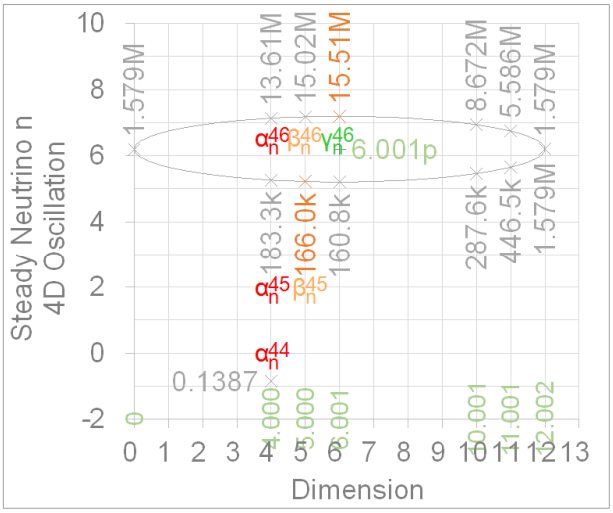
$\gamma_G^{6} = (\gamma_g^{66} + \gamma_g^{56} + \gamma_g^{46}) / 3$ = (2.06189 + 2.06189 + 2.06189) / 3 = 2.06189, 115.316 eV

(e) Log values

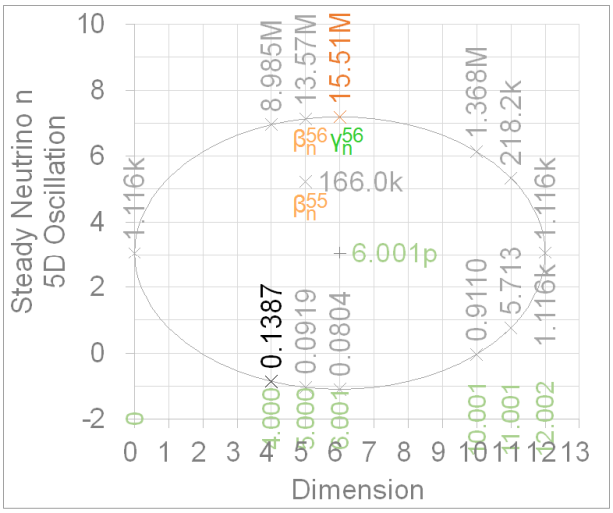
Fig. 5 Mass of graviton, photon, gluon – Kinetic state



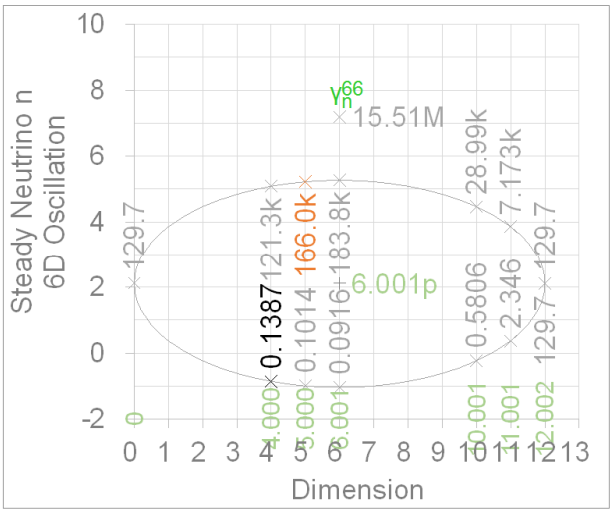
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Steady		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**7.19064**	7.13386	7.17674	**7.19064**	6.95354	7.13260	**7.19064**			**7.19064**
middle	5		**5.22019**		5.26308	**5.22019**	5.20629		**5.22019**		5.08399	**5.22019**	5.26435
low	4	**-0.85787**			**-0.85787**			**-0.85787**	-1.03692	-1.09497	**-0.85787**	-0.99407	-1.03822
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93810	6.74714	6.19847	6.13614	5.33879	3.04784			
middle	5				5.45884	5.64980	6.19847				4.46223	3.85571	2.11306
low	4							-0.04047	0.75688	3.04784	-0.23610	0.37042	2.11306

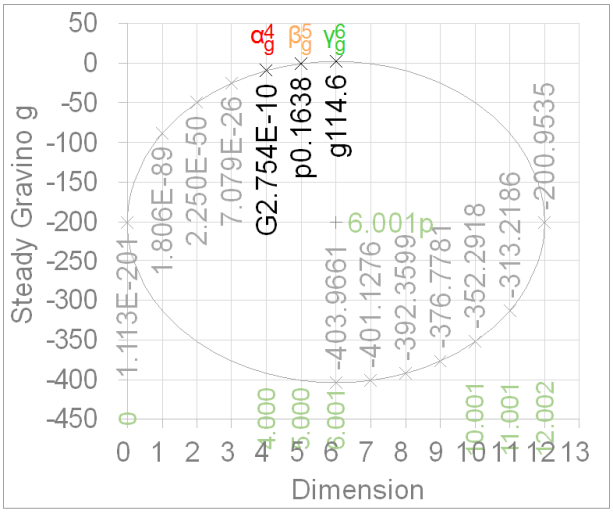
$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3$ = (-0.85786 + 5.26308 + 7.13386) / 3 = 3.84636, 7.02031 keV

$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4$ = (5.22019 + 7.13259 + 7.17674 + 5.22019) / 4 = 6.18743, 1.53968 MeV

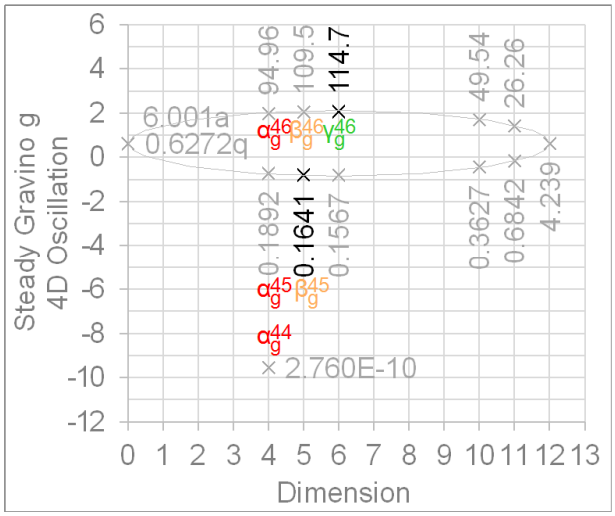
$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3$ = (7.19064 + 7.19064 + 7.19064) / 3 = 7.19064, 15.5111 MeV

(e) Log values

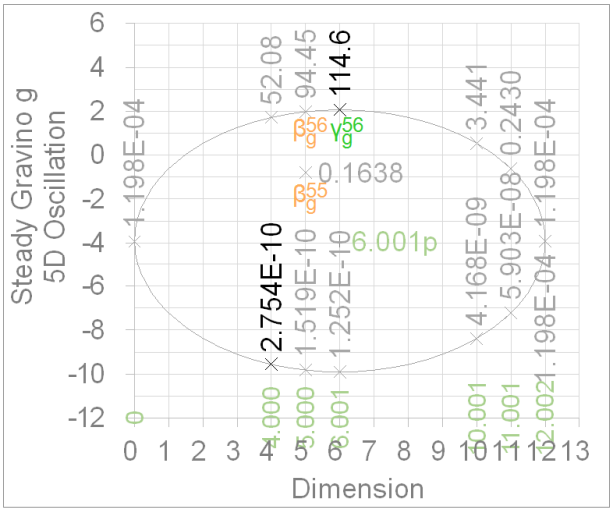
Fig. 6 Mass of neutrinos – Steady state



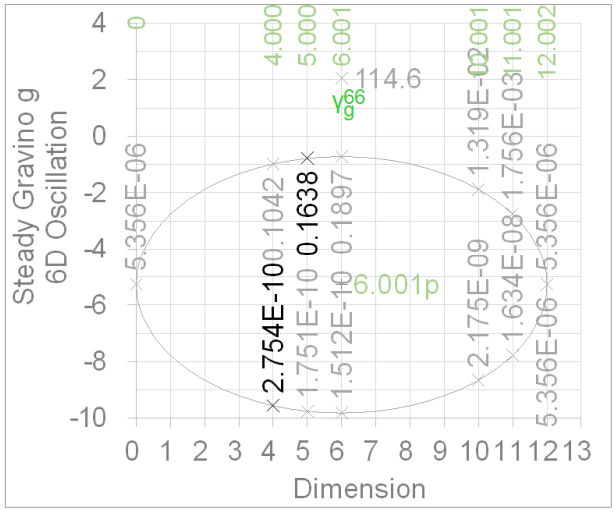
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Steady		Normal			Oscillation 4D			Oscillation 5D			Oscillation 6D		
high	6			**2.05900**	1.97702	2.03893	**2.05900**	1.71671	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	**-9.56005**			**-9.56005**			**-9.56005**	-9.81854	-9.90234	**-9.56005**	-9.75667	-9.82042
Gravino		graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon	graviton	photon	gluon
high	6				1.69442	1.41874	0.62667	0.53670	-0.61439	-3.92167			
middle	5				-0.44108	-0.16541	0.62667				-1.87981	-2.75540	-5.27113
low	4							-8.38004	-7.22895	-3.92167	-8.66245	-7.78687	-5.27113

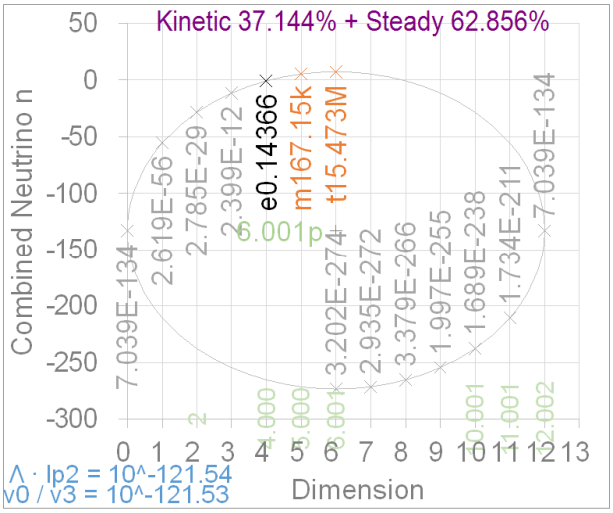
$\alpha_G^{456} = (\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46}) / 3$ = (-9.56005 + -0.72369 + 1.97702) / 3 = -2.76890, 1.70253 meV

$\beta_G^{56} = (\beta_g^{55} + \beta_g^{56} + \beta_g^{45} + \beta_g^{46}) / 4$ = (-0.78560 + 1.97520 + 2.03893 + -0.78560) / 4 = 0.61073, 4.08069 eV

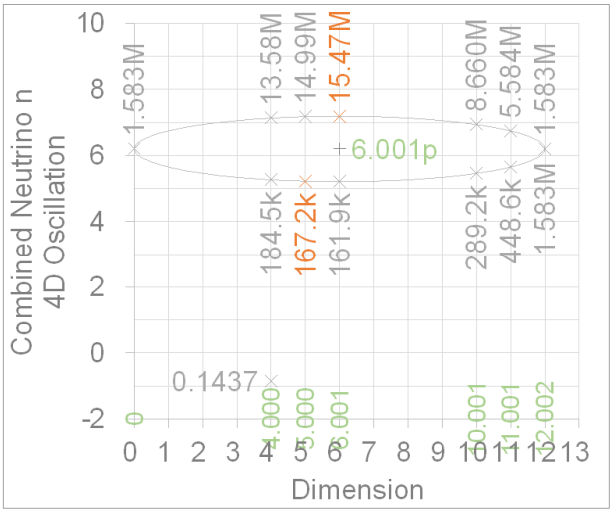
$\gamma_G^{6} = (\gamma_g^{66} + \gamma_g^{56} + \gamma_g^{46}) / 3$ = (2.05900 + 2.05900 + 2.05900) / 3 = 2.05900, 114.551 eV

(e) Log values

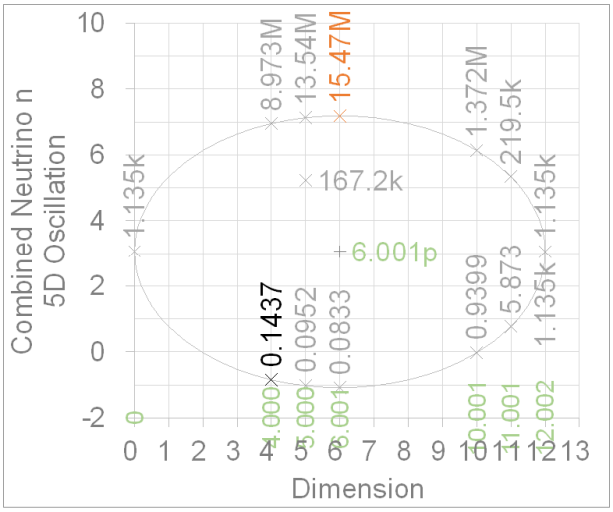
Fig. 7 Mass of graviton, photon, gluon – Steady state



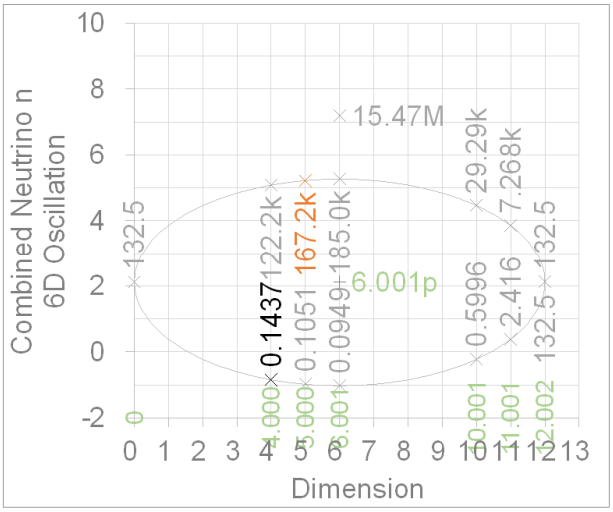
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Steady		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	**-0.84265**			**-0.84265**			**-0.84265**	-1.02134	-1.07928	**-0.84265**	-0.97858	-1.02264
Neutrino		electron	muon	tau	electron	muon	tau	electron	muon	tau	electron	muon	tau
high	6				6.93754	6.74696	6.19940	6.13721	5.34146	3.05515			
middle	5				5.46127	5.65184	6.19940				4.46668	3.86139	2.12227
low	4							-0.02691	0.76883	3.05515	-0.22215	0.38315	2.12227

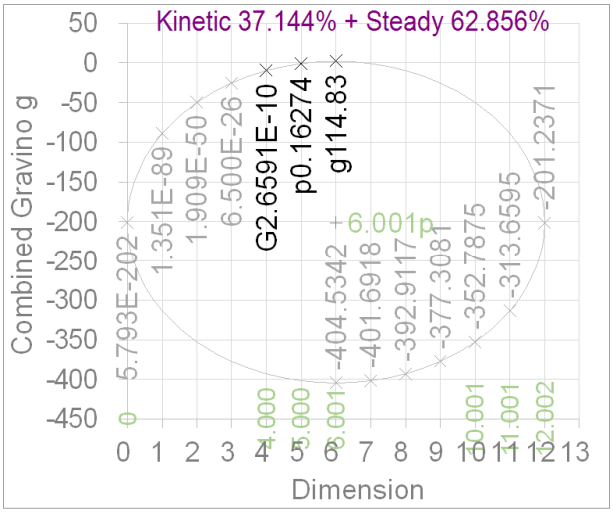
$\alpha_N^{456} = (\alpha_n^{44} + \alpha_n^{45} + \alpha_n^{46}) / 3 = (-0.84265 + 5.26590 + 7.13290) / 3 = 3.85205, 7.11298$ keV

$\beta_N^{56} = (\beta_n^{55} + \beta_n^{56} + \beta_n^{45} + \beta_n^{46}) / 4 = (5.22311 + 7.13164 + 7.17570 + 5.22311) / 4 = 6.18839, 1.54308$ MeV

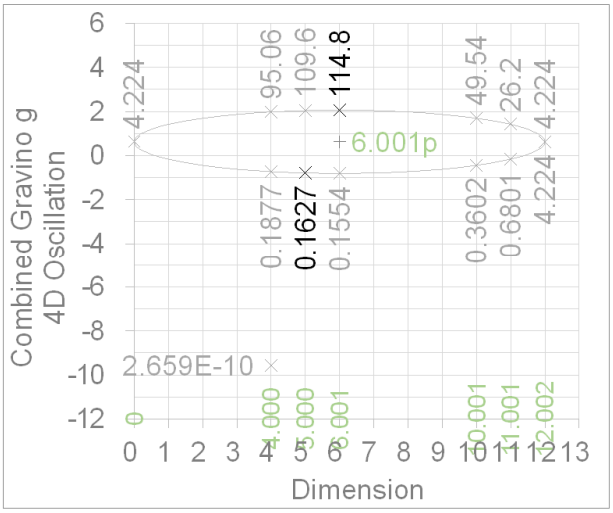
$\gamma_N^{6} = (\gamma_n^{66} + \gamma_n^{56} + \gamma_n^{46}) / 3 = (7.18957 + 7.18957 + 7.18957) / 3 = 7.18957, 15.4728$ MeV

(e) Log values

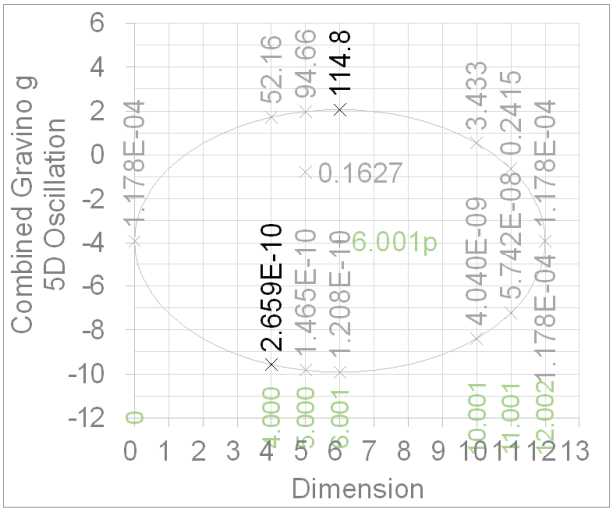
Fig. 8 Mass of neutrinos – Combined state



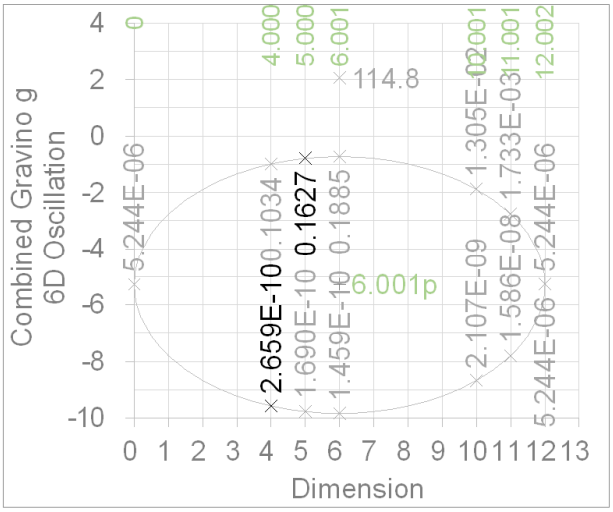
(a) Normal mass



(b) 4D oscillation mass



(c) 5D oscillation mass



(d) 6D oscillation mass

Steady	
high	6
middle	5
low	4
Gravino	
high	6
middle	5
low	4

Normal

		2.05900
	-0.78560	
-9.56005		
graviton	photon	gluon

Oscillation 4D

1.97702	2.03893	**2.05900**
-0.72369	**-0.78560**	-0.80567
-9.56005		
graviton	photon	gluon
1.69442	1.41874	0.62667
-0.44108	-0.16541	0.62667

Oscillation 5D

1.71671	1.97520	**2.05900**
	-0.78560	
-9.56005	-9.81854	-9.90234
graviton	photon	gluon
0.53670	-0.61439	-3.92167
-8.38004	-7.22895	-3.92167

Oscillation 6D

		2.05900
-0.98222	**-0.78560**	-0.72185
-9.56005	-9.75667	-9.82042
graviton	photon	gluon
-1.87981	-2.75540	-5.27113
-8.66245	-7.78687	-5.27113

$\alpha_G^{456} = (\alpha_g^{44} + \alpha_g^{45} + \alpha_g^{46}) / 3$ = (-9.57526 + -0.72652 + 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, 4.07171 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

(e) Log values

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

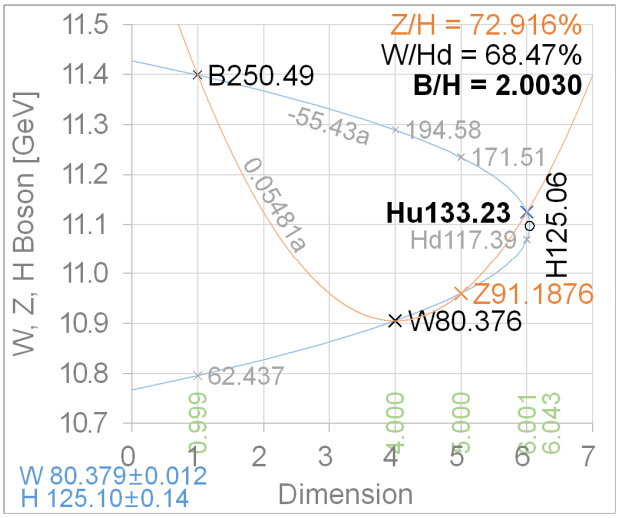


Fig. 10 Calculation of W and H boson

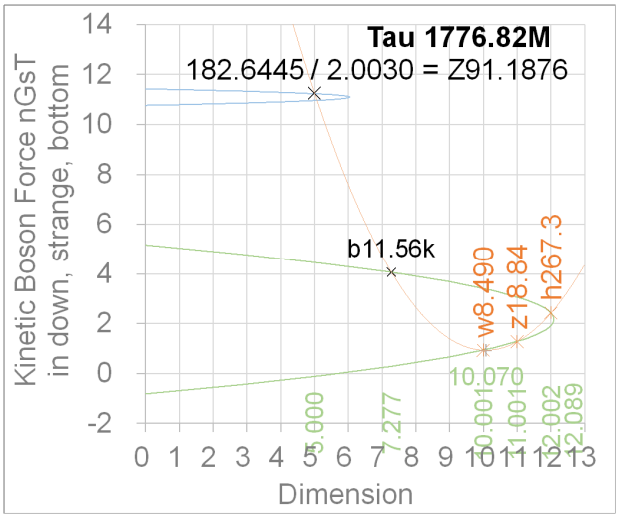


Fig. 11 Collapse of quarks

2.9 Weak, Electromagnetic, Strong forces

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 the dark energy of physics.

2.10 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.

2.11 Fermion and Boson

Fermion particles located on the left side of Fig. 4 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 10^111 years, these reverse.

2.12 W, Z, H Bosons

Bosons are hidden in quarks. When a quark explodes, a boson pops out into our world. The shapes of W boson, Z boson, and H boson 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.

2.13 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 bosons of combined state. The boson particle in quark is lowercase w, z, or h with very little mass such as Fig. 11. When a quark decays, the w, z, h boson of the combined state change to kinetic stats of Fig. 11 (See Table 3), 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.

2.14 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

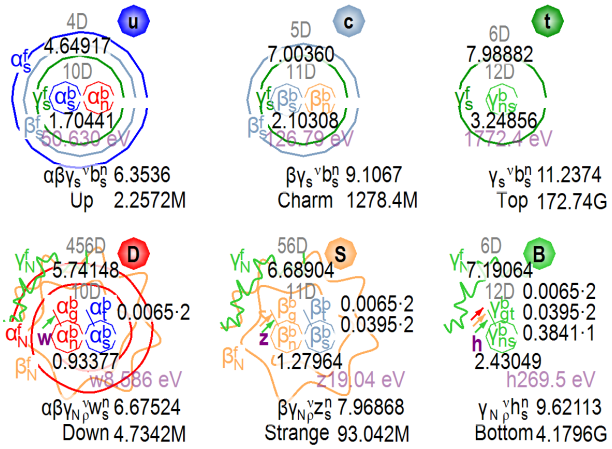


Fig. 12 Shape of quarks

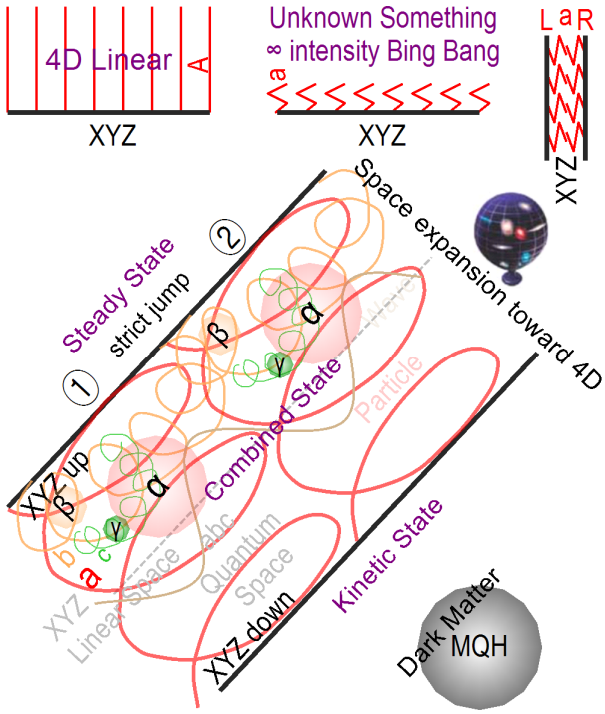


Fig. 13 Shape of quantum space of universe

state. The boson mass of lowercase b is located in quark. When a quark decays, 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 six. If six exact values are given, everything is calculated accurately as shown in Fig. 18.1 of Ref. [1]. The dark force (dark energy) and the current time are calculated from the electromagnetic force coupling constant. 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 steady state masses of g 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. 14 shows the mass obtained by combining the mass of neutrino as 37.144% of kinetic state and 62.856% of steady state (See Fig. 2 and Fig. 18). Two internal variables can be calculated for the E value is 2.0030 and the Bu value is 133.23 GeV.

3.2 Why are particles three generations?

As shown in Fig. 13, all particles are classified into three generations because three generation quantum spaces of a, b, and c dimensions exist. The current exact quantum dimensions are 4D, 5D and 6.00107D.

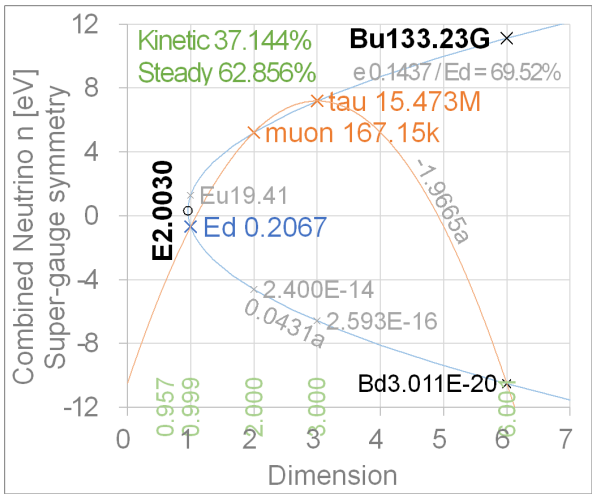


Fig. 14 Supergauge symmetry of combined Neutrinos

3.3 What is Gravity?

Gravity is easily calculated from Fig. 15. (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 on Fig. 15 is the space that we usually perceive.

3.4 What is the origin of mass?

As shown in Fig. 13, 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. 16, the combination of 3 kg and 4 kg in quantum space is not 7 kg of addition but 12 kg of multiplication. In muon of Fig 2 or Fig. 3(d), the value of 21.628 eV x 4.8852 MeV is the muon mass of 105.658 MeV. There is a photon in the shape of muon. The value of 21.628 / 4.8852E6 is 4.425E-6. This is the cause of muon g-2 problem.

3.5 Is the mass of neutrino 0 eV?

Neutrino masses are shown in Fig. 2.

3.6 Is the mass of gravino 0 eV?

Graviton, photon, and gluon masses are shown in Fig. 2.

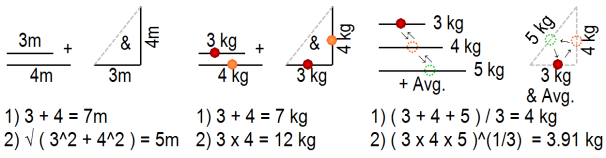
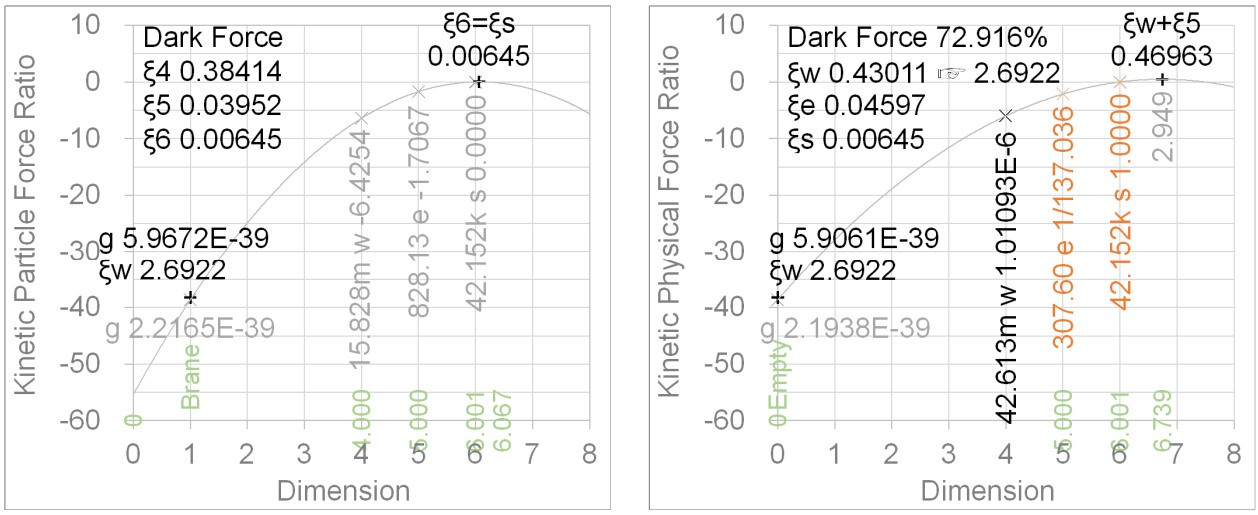


Fig. 16 Calculation of quantum particle mass



(a) Particle force mass

(b) Physical Forces Affected by Dark Forces

Fig. 15 Unification of four fundamental forces

3.7 What is Oscillation?

Three generation neutrinos and three generation gravinos constantly jump through three generation quantum space of Fig. 13. Due to this, their masses always change to three generation masses. This is oscillation phenomenon. The oscillating masses are calculated in Fig. 4 and Fig. 5.

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. 13, when the particle appears on our space XYZ, it turns into a wave line that has almost close 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?

Various particles occur during the collapsing of combination particle. However, every particle is a combination of six fundamental particles. Combining the various values in Ref. [1], the masses of various particles measured in physics will be calculated. There are no hypothetical particles.

3.12 Is the super-symmetry correct?

In Fig. 4, the left side of elliptic equation is the real fermion universe, and the right side is the imaginary boson universe. The upper part is a positive universe in which light spreads, and the lower part is a negative universe in which light converges. They have perfect super-gauge symmetry.

3.13 Will proton decay?

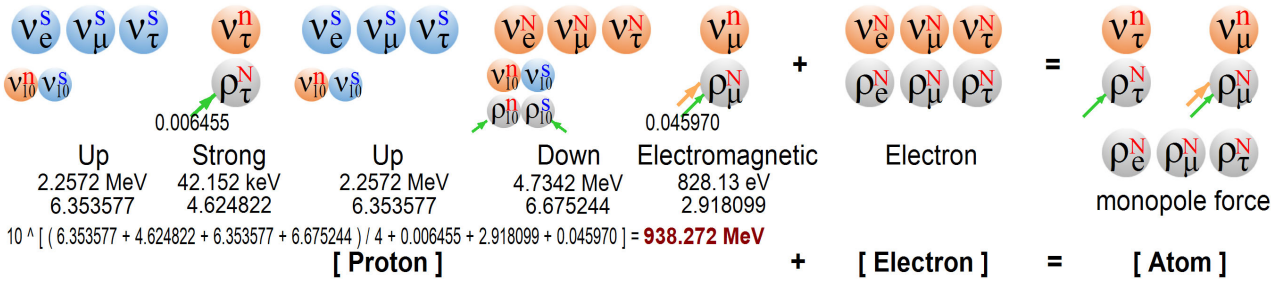


Fig. 17 The number of particles and antiparticles in an atom

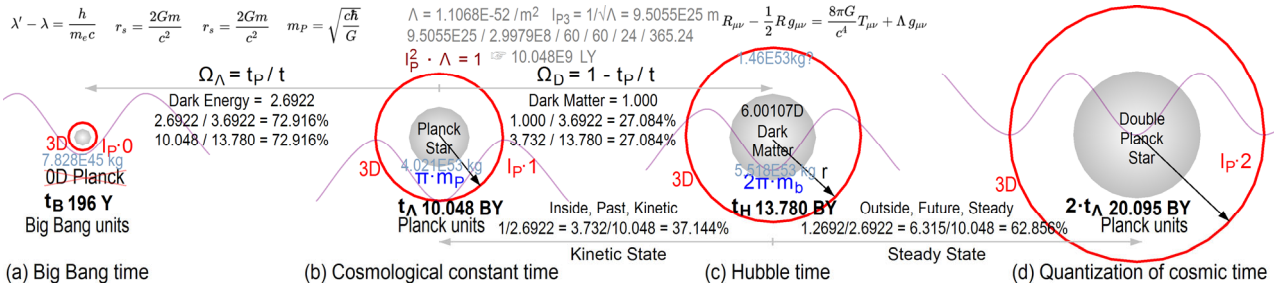


Fig. 18 Dark energy and dark matter

In natural state, proton does not decay. The three generation quantum spaces of Fig. 13 dominate everything.

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. Fig. 17 is an atom that is the sum of proton and electron. The red particles and blue anti-particles are equal numbers, so only the red force particles remain. The force particles cause various chemical reactions.

3.15 What is consciousness?

In Fig. 17, there is only the red forces. The red and blue forces must be equal numbers. Where is the blue force?

3.16 Where is Dark Matter

In Fig. 18, the object inside of the universe is dark matter or Planck star. The object is composed of antiparticles. That is, dark matter does not exist in our universe.

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 10.048 billion years. The current big bang theory adopts the value on 0D in Fig.3. Our universe is the value on 3D not 0D.

3.18 Why is it inconsistent with ΛCDM model?

Ordinary matter has nothing to do with the expansion of the universe. The universe is expanding at a constant velocity. If the ratio of ordinary matter is included in the calculation, the result is inconsistent with the constant velocity expansion. In the Plank 2018 data, Λ is 1.1056E-52 /m2, and the current time is 13.787 BY. Therefore, 1 / c$\sqrt{\Lambda}$ = 1 / (2.9979E8 · 60 · 60 · 24 · 365.24 · $\sqrt{\Lambda}$) = 10.053 BY of Fig. 18(b). The value of 10.053 / 13.787 is 72.915%, and this is dark energy ratio. However, it is not dark energy, but dark time. The value of 10.053 / (13.787 – 10.053) is 2.6923. Our result is 1.1068E-52 /m2, 10.048 BY, 72.916%, and 2.6922. Fig. 15(a) is calculated from Fig. 3(b). 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 the log parabola in Fig. 15, the value of 0D is 2.1938E-39, and when multiplied by 2.6922, the gravity is calculated as 5.9061E-39. The 72.916% or 2.6922 is equally affecting electromagnetic force, weak force, and gravitational force. The masses of force particles are shown in Fig. 15(a).

4. Logarithmic Elliptic Equation

4.1 Normal distribution equation

Normal distribution diagram and equation are shown in the upper of Fig. 19(a).

4.2 Log-parabolic equation

As shown in the left middle of Fig. 19(a), the value of log-parabolic equation is the normal distribution equation.

4.3 Value scale and Log scale

Fig. 19(a) is value scale, and (b) is log scale. That is, they are the same.

4.4 Log-elliptic equation

Log-elliptic equation is drawn in Fig. 19(b).

4.5 Dirac delta function

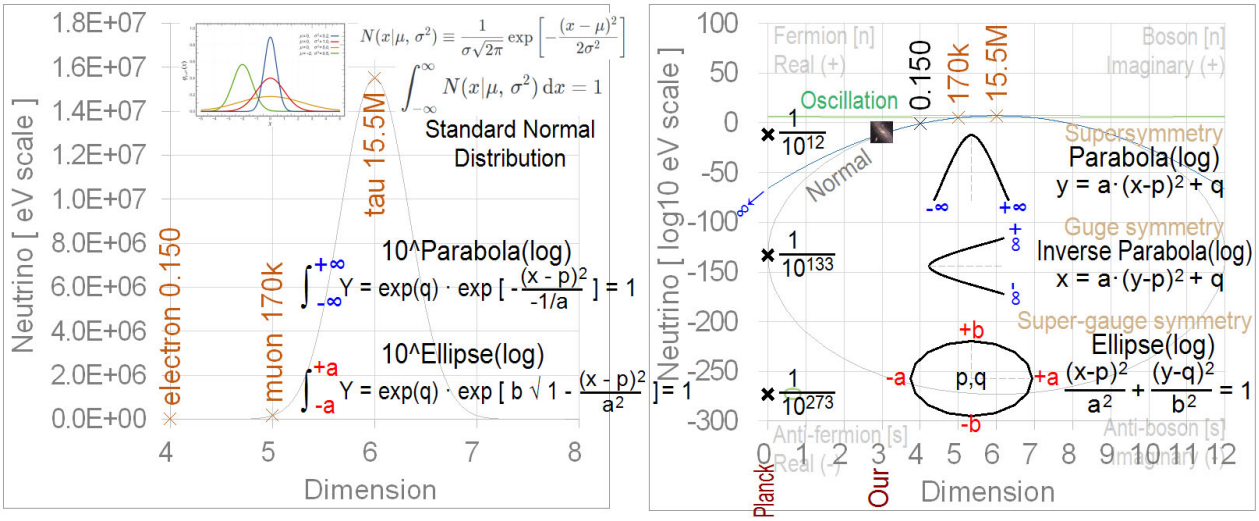
If the log-ellipse of (b) is again plotted as values, it is (a). That is, log-ellipse satisfies Dirac delta function.

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.



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

Fig. 19 Characteristics of log-elliptic equation

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 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.

4.12 Anthropic principle

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

5. Result of calculation

5.1 Mass of electron neutrino

In (b), as an example, by substituting muon neutrino 170 keV on 5D, tau neutrino 15.5 MeV on 6D, 6D midpoint, and 0D vertex, electron neutrino on 4D is calculated as 0.150 eV. The exact mass is calculated in Fig. 4(a).

5.2 Cosmological constant problem

In (b), the Planck 0D value is 1/E273 eV, the Our 3D value is 1/E12 eV, and the ratio of the two is 1/E121. The exact cosmological constant is calculated from the Fig. 20 of the mixture of 37.144% (= 1 / 2.6922) log mass of kinetic state neutrinos and 62.856% (= 1.6922 / 2.6922) log mass of steady state neutrinos.

5.3 Neutrino oscillation phenomenon

In (b), the ellipse is calculated as a very large gray ellipse such as Fig. 4(a) and a very small green ellipse such as Fig. 4(b). The large ellipse is the normal mass, and the small ellipse is the oscillating mass.

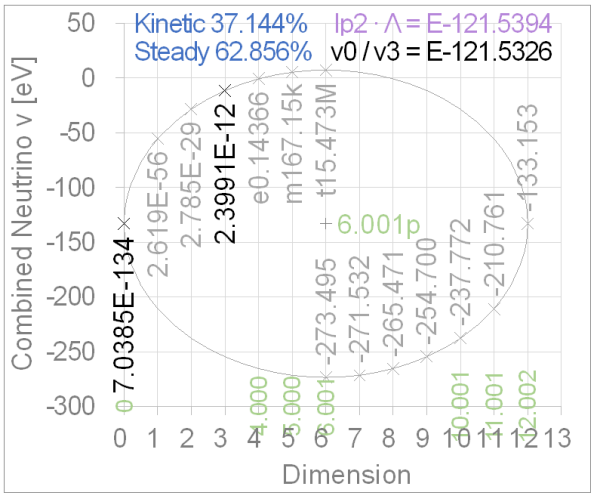


Fig. 20 Cosmological constant problem

Table 1 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	$g_E = 2 + 2 \cdot a_E$

5.4 Integration of the four forces

Electromagnetic force 1 / 137.036 and gravity 5.9061E-39 are input values for calculation. See Fig. 2. Strong particle mass is 42.152 keV = (15.408M · 115.32)^1/2, electromagnetic particle mass is 828.13 eV = (169.06k · 4.0566)^1/2, and weak particle mass is 15.828 meV = (0.15244 · 1.6435m)^1/2. The electromagnetic coupling constant is 1 / 137.036 = 823. 13 / 2.6922 / 42.152k. The weak coupling constant is 1.01093E-6 = 15.828m · 2.6922 / 42.152k. See log-parabolic line of Fig. 15(b). The value on 0D is calculated as 2.1938E-39. The gravitational coupling constant is calculated as 5.9061E-39 = 2.1938E-39 · 2.6922. There is 2.6922 connected to all forces. The log value is 0.38414.

5.5 Three generation dark forces ξ

See Fig. 15. ξ_6 is 0.00645, $\xi_w = \xi_4 + \xi_5 + \xi_6$ is 0.38414, and $\xi_w + \xi_5$ is 0.46963. Therefore, ξ_4, ξ_5, ξ_6 is 0.38414, 0.03952, and 0.00645. $\xi_e = \xi_5 + \xi_6$ is 0.04597, and $\xi_s = \xi_6$ is 0.00645. What is this?

5.6 Electron, Muon, Tau

Electron mass 510.999 keV and Muon mass 105.658 MeV are input values for calculation. 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 problem

In Table 1, 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.

5.8 Proton mass

Proton mass is calculated in Fig. 17. Here, proton mass of 938.272 MeV is input value for calculation.

5.9 Proton radius puzzle

Hydrogen radius is 52.918 pm, weak force is 1.01093E-6, and electromagnetic force is 1/137.036. From the below equation, one proton radius and one quark radius are calculated as 0.87506 pm and 0.4401 am.

1.01093E-6 · 52.918 pm = 1/137.036 · 8π/3 · Rp

1/137.036 · 0.8751 pm = 1 · 8π/3 · Q → Rq = Q /√3

Extending this logic, the acting radius of gravity is calculated as 12.70 BY. Above is the relationship between kinetic state force and kinetic state radius. The proton radius 0.8414 fm is the radius at which the force is steady state. To calculate this, the hydrogen radius when the force stops is needed.

5.10 W Z H bosons

The W and H boson masses are calculated in Fig. 10. Here, Z boson 91.1876 GeV is input value for calculation.

5.11 Up, Charm, Top

In Table 2, 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 2 will be easy.

5.12 Down, Strange, Bottom

In Table 3, 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.

5.13 Planck length l_P

Planck length is 1.61626E-35 m. This is steady state value. The kinetic state Planck length is needed. Its value would be 1.64827E-35 = 1.61626E-35 x (0.87506 / 0.84140)^1/2. Therefore, the Planck length of the mixture at 37.144% and 62.856% is l_P 1.62815E-35.

Table 2 Mass calculation of Up, Charm, Top quark

Term	Reference	Kinetic State			Steady State			Unit	Symbol		
Dimension		4D	5D	6.001D	4D	5D	6.001D	-			
n Neutrino	Fig. 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		0.95782	1062.2k	96.813M	0.87160	1043.2k	97.459M	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
		46.18k	10.14M	96.81M	44.58k	10.08M	97.46M	eV			
Dimension		10.001D	11.001D	12.002D	10.001D	11.001D	12.002D	-			
n Neutrino	Fig. 6(c)	0.9909	6.1525	1168.2	0.9110	5.7133	1116.4	eV	m_{n5}^{10}	m_{n5}^{11}	m_{n5}^{12}
ns Neutrino	(2)	52.804	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
		2.4386M	1334.3M	175.53G	2.2572M	1278.4M	172.74G	eV	m_u	m_c	m_t

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

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

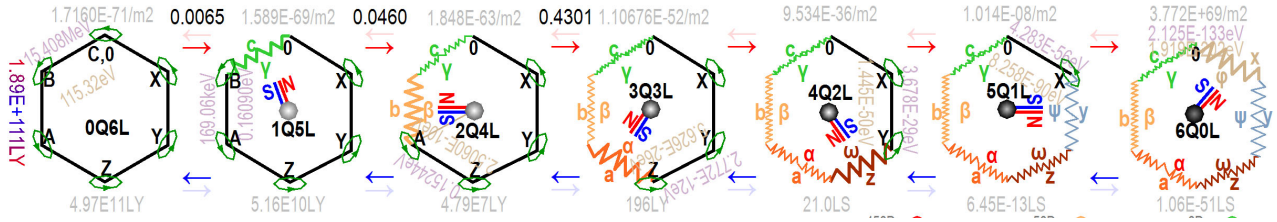
Table 3 Mass calculation of Down, Strange, Bottom

Term	Reference	Kinetic State			Steady State			Unit	Symbol		
FERMION	Dimension	4D	5D	6.001D	4D	5D	6.001D				
Oscillating	Fig. 6(e)	3.8617	6.1900	7.1878	3.8464	6.1874	7.1906	log	α_N^{456}	β_N^{56}	γ_N^6
Shell	(1)	5.7465	6.6889	7.1878	5.7415	6.6890	7.1906	log	$\alpha\beta\gamma_N^{456}$	$\beta\gamma_N^{56}$	γ_N^6
BOSON	Dimension	10.001D	11.001D	12.002D	10.001D	11.001D	12.002D				
n	Fig. 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	(2)	28.66k	35.67k	66.86k	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	Fig. 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	(2)	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	Fig. 15(a)	0.0065	0.0395	0.3841	0.0065	0.0395	0.3841	log	ξ_6	ξ_5	ξ_4
	(3)	0.0129	0.0919	0.4761	0.0129	0.0919	0.4761	log	ξ_{10}	ξ_{11}	ξ_{12}
Force	Boson+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	w	z	h
QUARK	Sum	Down	Strange	Bottom	Down	Strange	Bottom				
	Shell+Force	6.67537	7.96400	9.61475	6.6752	7.9687	9.6211	log	q_d	q_s	q_b
		4.7356M	92.046M	4.1186G	4.7342M	93.043M	4.1796G	eV	m_d	m_s	m_b

(1) $\alpha\beta\gamma_N^{456} = (\alpha_N^{456} + \beta_N^{56} + \gamma_N^6)/3$ $\beta\gamma_N^{56} = (\beta_N^{56} + \gamma_N^6)/2$ $\gamma_N^6 = \gamma_N^6/1$

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

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



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

Fig. 21 Change of six dimensional universe

5.14 Cosmological constant Λ

See Fig. 20. The $l_P^2 \cdot \Lambda$ is 1E-121.5326. Therefore, the Λ is calculated as 1.10675E-52. 1 / c$\sqrt{\Lambda}$ is 10.048 BY = 1 / (2.9979E8 · 60 · 60 · 24 · 365.24 · $\sqrt{\Lambda}$).

5.15 Planck units

In Fig. 21, After (c) had a big bang, our universe (d) was born. The universe (e) is spread out in supermassive black hole at the center of galaxy. Planck units of physics are the values of universe (g), and this is not our universe.

5.16 The law of increasing entropy

Our universe (d) is changing in the direction of upper arrow from (c) to (e). This is the cause of the second law of thermodynamics. (d) continues to be quantized. Wormhole is impossible, and white hole does not exist in our universe.

5.17 Current Time

10.048 BY / 72.916% is 13.780 BY.

5.18 Hubble constant H

977.813 / 13.780 is 70.96 km/s/Mpc. Since the universe is a 4D sphere, ordinary matter has no effect on the shape of the whole universe.

5.19 Result of calculation

The new results calculated from previous study [1] are presented in Table 4. They will be accurate to within 0.01%.

6. Conclusions

The language of physics is drawing, not mathematical formula. After the drawing for phenomenon is shown correctly, a mathematical formula suitable for the drawing must be derived. The representative drawing example is standard model. The combination of quantum masses is multiplication, not addition. There is no quantum mechanics theory that can calculate the elementary school arithmetic.

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.

References

[1] D. Kim, 2021, Theory of Everything and Logarithmic Elliptic Equation, https://vixra.org/pdf/2110.0023v1.pdf

Table 4 Calculation result by applying log-elliptic equation

Term	Electron	Muon	Tau	Graviton	Photon	Gluon
Physics	0.12(0.15) eV	<170 keV	<15.5 MeV	0 eV	0 eV	0 eV
Results	0.15244(0.120)	169.06	15.408	2.506E-10	0.16090	115.32
Term	W	H	Tau	Weak Force	Proton Radius	Quark Radius
Physics	**80.379**±0.012	**125.10**±0.14	**1776.86**±0.12	About 1E-06	**0.8751**±0.0061	< 0.43 am
Results	80.376 GeV	125.06 GeV	1776.82 MeV	1.0109E-6	0.8751 fm	0.4401,0.425
Term	Up	Charm	Top	Down	Strange	Bottom
Physics	$2.2^{+0.5}_{-0.4}$	1275^{+25}_{-35}	**172.76**±0.3	$4.7^{+0.5}_{-0.3}$	95^{+9}_{-3}	$4.18^{+0.04}_{-0.03}$
Results	2.2572 MeV	1278.4 MeV	172.74 GeV	4.734 MeV	93.04 MeV	4.180 GeV
Term	Dark Energy	$l_P^2 \cdot \Lambda$	Λ	Hubble C.	Current Time	Muon g-2
Physics	68.89%,72.8%	E-121.539	1.1056E-52	67.66,≈74	13.787 BY	**…4122**
Results	72.92%	E-121.533	1.1068E-52	70.961	13.780 BY	…4120, 4136
Term	Antiproton	Kaon	Pion			
Physics	5.6, 6.2	493.67,497.65	134.97,139.57			
Results	5.895 GeV	495.93 MeV	137.10 MeV			