Relationship between Neutrino and Boson

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Abstract In previous study, it was suggested that the masses of electron neutrino, muon neutrino, and tau neutrino in a combined state are each 0.14377 eV, 167.34 keV, and 15.493 MeV. Applying a symmetric dimensional coordinate to the masses, the results are the same as the H boson mass calculations by author. This means that neutrino masses and bosons are super-gauge symmetrically related. In previous study, everything was calculated as 9 unknowns. From above relation, two unknowns are calculated. Therefore, everything is calculated from seven values: (1) Electron 510.999 keV, (2) Muon 105.658 MeV, (3) Tau 1.77686 GeV, (4) Proton 938.272 MeV, (5) Z boson about 91.1876 GeV, (6) Gravitational coupling constant 5.90595E-39, and (7) Electromagnetic coupling constant 1/137.036. The 7 unknowns are equal to the sum of 6 absolute space dimensions and 1 absolute time dimension.

1. Introduction

Everything is composed of three generation of neutrinos and three generation of gravinos. Therefore, three generation of bosons must also be composed of neutrino and gravino particles. In previous study [Fig. 2 of pp. 43 in Ref. 1], the above relationship was calculated from down, strange, and bottom quarks. In this study, the relationship between three generation of neutrinos and bosons were described.

2. H boson mass

2.1 Previous study

Fig. 1 and 2 shows H boson mass calculated in the previous study [Fig. 5(b) of pp. 4 in Ref. 1]. In Fig. 1, W boson 80.375 GeV and Z boson 91.1876 are plotted on 4D vertices and 5D. Applying the logarithmic parabolic equation to those values, 133.23 GeV is calculated at 6.001D. Here, in the previous study, our dimension was calculated as 6.001D [Table 1 of pp. 17 in Ref. 1]. Applying the inverse parabola to these values, a vertex is formed at 6.043D, the value is calculated as 125.06 GeV.

2.2 Dark energy, Dark matter, Ordinary matter

The ratio of dark energy, dark matter, and ordinary matter are known as 68.89%, 26.19%, and 4.92%. Here, the ratio of dark energy to dark matter is calculated as 72.46% and 27.54%. The ratio of Z boson 91.1876 GeV and H boson 125.06 GeV is 72.92%. This value is very similar to the ratio of dark energy to dark matter 72.46%. The ratio of W boson 80.375 GeV to the 117.39 GeV in 6.001D of Fig. 2 is calculated as 68.47%. This value is very similar to dark energy 68.89% in physics. Author strongly asserts that ordinary matter does not apply to the calculation of the universe [Fig. 6 of pp. 58 in Ref. 1].

2.3 Three questions

Three questions arose. What does the vertex deviating by 0.042D from 6.001D mean in Fig. 2? What does 133.23 GeV in 6.001D mean in Fig. 1? What does 250.49 GeV in 0.999D mean in Fig. 1?

3. Combined neutrinos

3.1 Three generation masses

In previous study [Fig. 1 of pp. 46 in Ref. 1], the masses of three generation combined neutrinos were calculated as 0.14377 eV, 167.34 keV, and 15.493 MeV. The calculating process of Fig. 3 is the same as that of Fig. 1. Here, each dimension is 4D, 5D, and 6.001D. However, for convenience of understanding, 0.999D, 2D, and 3D were applied such as shown in Fig. 3. At 0.999D, a value of 0.2068 eV is plotted.

3.2 Inverse parabola

In Fig. 1, the inverse parabola is applied to W boson and Z boson. Such as, let's apply the inverse parabola in Fig. 3 to the masses of tau, muon, and Ed".

3.3 What is 0.042D

In Fig. 2, the vertex deviates to the right by 0.042D from 6.001D. In Fig. 4, the vertex deviates to the left by 0.042D from 0.999D. This value is the characteristic of parabolic super-symmetry of dimension and mass.

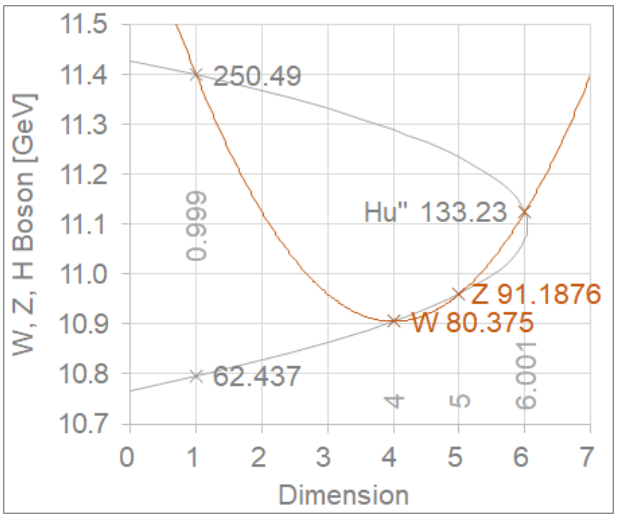

Fig. 1 W boson and Z boson

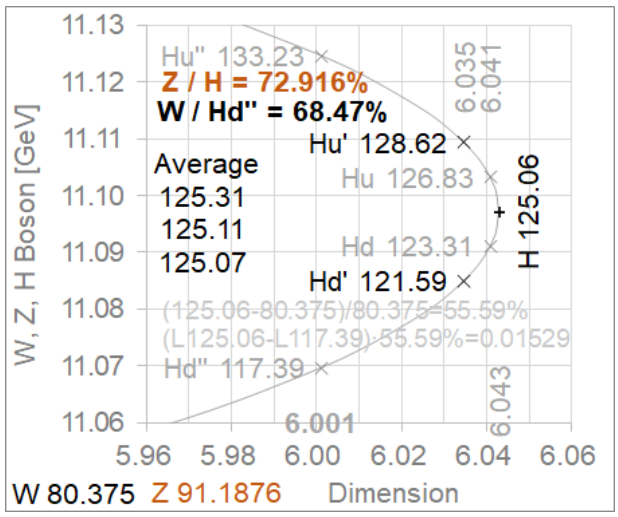

Fig. 2 H boson of inverse parabola

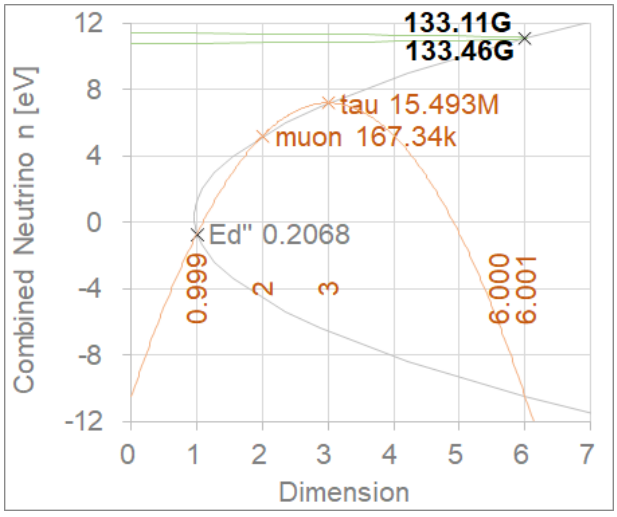

Fig. 3 Tau and Muon neutrinos

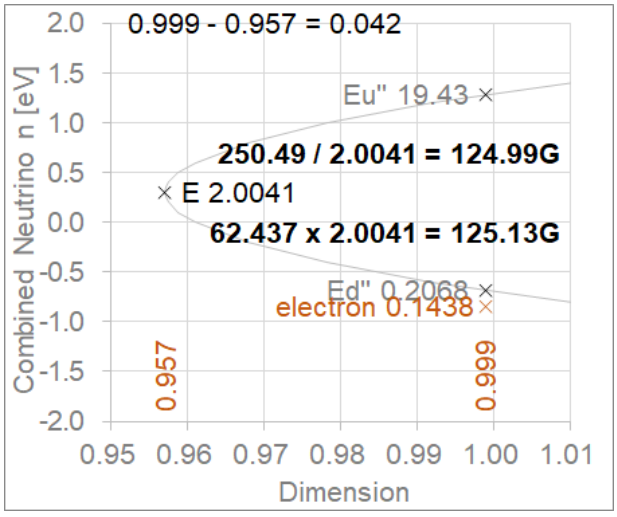

Fig. 4 Electron neutrino of inverse parabola

3.4 What is 133.23 GeV

In Fig. 3, the 133.11 GeV at 6.000D and 133.46 GeV at 6.001D are calculated, which is almost same as Hu" 133.23 GeV in Fig. 2. Bosons and neutrinos are not related, but consistent masses have been calculated. This means that particles do not have intrinsic mass, but the characteristic of three generation quantum space give them mass.

3.5 What is 2.0041 eV

In the neutrino in Fig. 4, the vertex of the inverted neutrino parabola was calculated as 2.0041 eV. What does the value mean? In previous study [Fig. 2, pp. 43, Ref. 1], the value 2.0000 in the chart would be 2.0041.

3.6 What is 250.49 GeV

In the neutrino in Fig. 4, Dividing 250.49 GeV in Fig. 1 by 2.0041, the value is calculated as 124.99 GeV. Multiplying 62.44 GeV in Fig. 1 by 2.0041, the value is calculated as 125.13 GeV. This value is very similar to the Higgs mass.

3.7 Super-gauge symmetry

As can be seen from Figs. 1 to 4, the boson and neutrino have the relationship of super symmetry on left & right and gauge symmetry on up & down. From this, it can be understood that all particles have the relationship of super-gauge symmetry to each other. It is super-gauge symmetric quantum space, not particle mass.

4. Muon neutrino mass about 170.00 keV

4.1 Neutrino mass in Kinetic state

The mass of muon neutrino is measured as 170 keV. However, for accurate calculations, the value must be given in 5

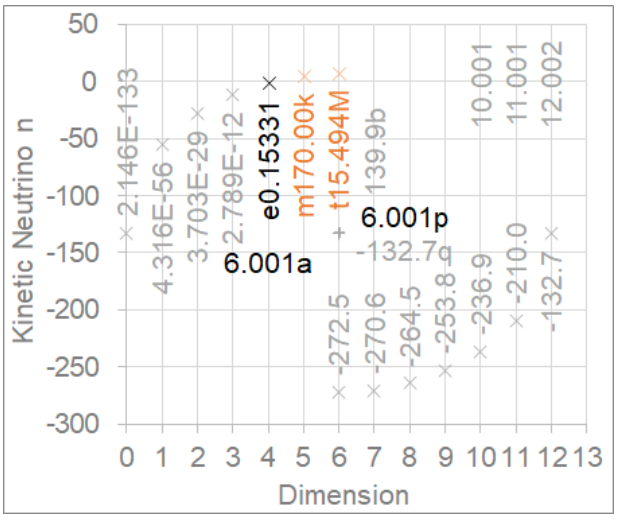

Fig. 5 Three generation neutrino masses

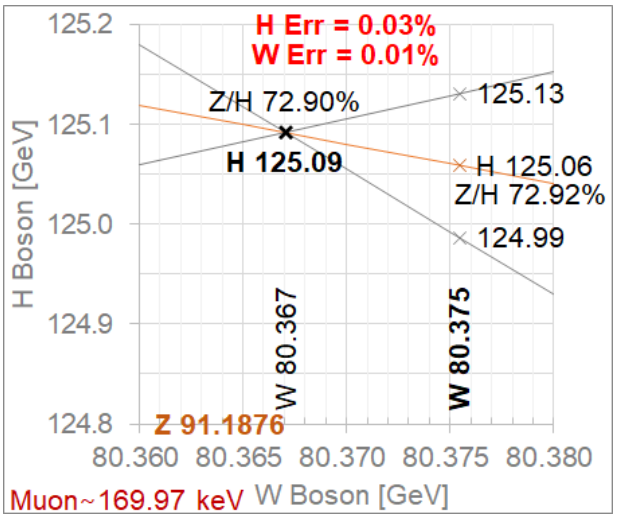

Fig. 6 Calculation error

digits to calculate the 5 digits mass of H boson. In Fig. 5, the 170 keV of muon in kinetic state is the measured value, and 15.494 MeV of tau is the calculated value of author.

4.2 Neutrino mass in Steady state

Steady state neutrinos make up particles such as quarks. The values were calculated in previous study [Fig. 3 of pp. 22 in Ref. 1].

4.3 Neutrino mass in Combined state

The change in the universe consists of the combination of kinetic state and steady state, and the mass of the combined neutrinos are shown in Fig. 3 [Fig. 1 of pp. 46 in Ref. 1].

4.4 Cosmological constant problem

In Fig. 5 on kinetic state, the value of 0D is 2.146E-133 eV, the value of 3D is 2.789E-12 eV, and the ratio is 10^-121.11. On steady state, the ratio is 10^-121.79 [Fig. 3, pp. 22, Ref. 1]. The ratio of dark matter 27.08% and dark energy 72.92% is 37.14%, and the ratio 37.14% of 10^-121.11 and 10^-121.79 is 10^-121.54. This value is the cosmological constant problem. Therefore, the cause of that is the difference between 3D and 0D.

4.5 Multiverses

Our universe was 3D at the moment of Big Bang, current also is 3D, and future also will be 3D. Therefore, 3D divided by 3D in Fig. 5 is 10^0, that is, 1. This means that all multiverses are necessarily beautiful.

4.6 Error of 0.01% ~ 0.03%

125.13 and 124.99 on the right of Fig. 6 are the values in Fig. 4, and they should match. By changing the value of W boson and recalculating, the coincidence is calculated as 80.367 GeV for W boson and 125.09 GeV for H boson. However, the current measured average of W boson is 80.379 GeV. Somewhere, the error of 0.01% or 0.03% occurred.

4.7 Measured mass 170 keV of muon neutrino

All calculations start from the muon 170 keV in Fig. 5. It is judged that there is an error of 0.01% or 0.03% in the muon measurement value 170 keV.

4.8 Excel vs. Programming calculation

All calculations in the previous study [1] and this study were performed in MS Excel. To analyze the error of Fig. 6, the programming calculations are required.

5. Conclusions

Bosons and neutrinos are independent elementary particles. However, both results were symmetrically almost same such as 133.11 or 133.46 GeV and 124.99 or 125.13 GeV. This means that the origin of particle mass is not the particle itself, but quantum space. All particles are located in quantum space. In other words, since the characteristic of quantum space give mass to all particles, all particles are connected to each other. Neutrinos are particles in our world, and bosons are symmetric particles in our world.

The concept of intrinsic particle and intrinsic mass should be evaded. Three generation quantum space gives three generation characteristics to all particles.

References

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