

Supergauge Symmetry and Logarithmic Elliptic Equation

Deokjin Kim

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

June 22, 2022

Keywords: Fine-tuning universe, Gauge symmetry, Hierarchical problem, Renormalization, Super symmetry

Abstract In previous studies, it was proved that everything in the universe can be calculated with logarithmic elliptic equation and logarithmic parabolic equation. They satisfy all of Dirac delta function, Hierarchical problem, Super symmetry, Gauge symmetry, Renormalization, and Spontaneous symmetry breaking. In this study, the characteristics of logarithmic elliptic equation are described. When tau and muon neutrinos are 15.5 MeV and 170 keV, electron neutrino is calculated as 0.15 eV. 0D and 3D masses are calculated as $1E-133$ eV and $1E-12$ eV, and the ratio of the two is $1E-121$. This is the cosmological constant problem. Elliptic equation always is drawn as large ellipse and small ellipse, the large ellipse is standard mass, and the small ellipse is oscillating mass. This is the neutrino oscillation phenomenon.

1. Introduction

In previous study [1], various values of physics were calculated from log-elliptic equation and log-parabolic equation. In this study, it is proved that log-elliptic equation satisfies the basic theories of physics.

2. Logarithmic Parabolic Equation

2.1 Normal distribution equation

Normal distribution diagram and equation are shown in the upper of Fig. 1.

2.2 Log-parabolic equation

As shown in the left middle of Fig. 1, the value of log-parabolic equation is the normal distribution equation.

2.3 Value scale and Log scale

Fig. 1 is value scale, and Fig. 2 is log scale. That is, they are the same.

3. Logarithmic Elliptic Equation

3.1 Log-elliptic equation

Log-elliptic equation is drawn in Fig. 2.

3.2 Dirac delta function

If the log-ellipse of Fig. 2 is again plotted as values, it is Fig. 1. That is, log-ellipse satisfies Dirac delta function.

3.3 Super symmetry

In Fig. 2, 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.

3.4 Gauge symmetry

In Fig. 2, the upper and lower sides of elliptic equation are symmetrical. The upper is particle positive universe, and the lower is anti-particle negative universe.

3.5 Renormalization

In Fig. 2, the left side of parabola towards $-\infty$, and the right side towards $+\infty$. Eventually, the extreme value become exactly 0 eV. The left end of the ellipse is -a (0D) and the right end is +a (12D).

3.6 Spontaneous symmetry breaking

In Fig. 2, elliptic equation has vertices at -a and q-b.

3.7 Hierarchical problem

In Fig. 2, The minimum value of the ellipse is $1/E273$. This is an extremely small value, but not 0 eV.

3.8 Fine-tuning universe

As shown in Fig. 2, the lower part of parabola and the left side of inverse parabola cannot be calculated. However, ellipse can calculate all area.

3.9 Anthropic principle

In Fig. 2, our universe is located on 3D. Therefore, it can be understood that 6D multiverses exist. The 6D12D universes are the symmetry of 0D6D universes.

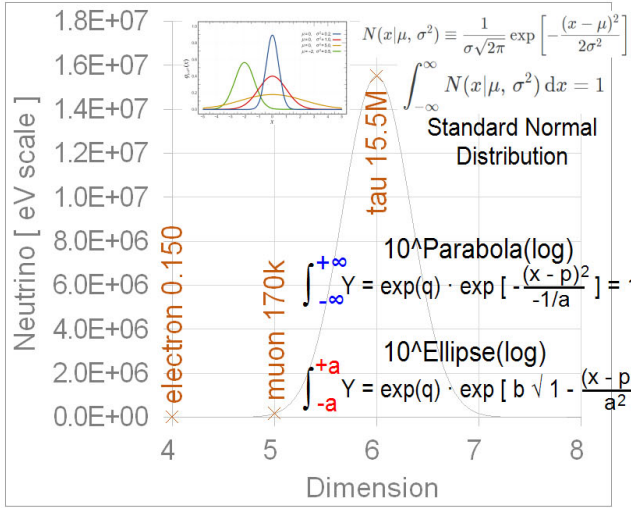


Fig. 1 Mass scale of neutrinos

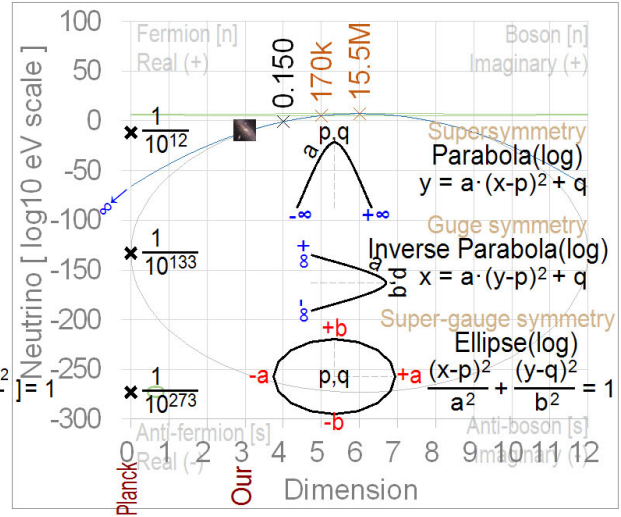


Fig. 2 Log mass scale of neutrinos

4. Calculation

4.1 Mass of electron neutrino

In Fig. 2, by substituting muon neutrino 170 keV on 5D, tau neutrino 15.5 MeV on 6D, 6D midpoint, and 0D vertex, the electron neutrino on 4D is calculated as 0.150 eV.

4.2 Cosmological constant problem

In Fig. 2, the Planck 0D value is $1/E_{273}$ eV, the Our 3D value is $1/E_{12}$ eV, and the ratio of the two is $1/E_{121}$.

4.3 Neutrino oscillation phenomenon

In Fig. 2, the ellipse is calculated as a very large gray ellipse and a very small green ellipse. The large ellipse is the normal mass, and the small ellipse is the oscillating mass.

4.4 Result of calculation

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

5. Conclusions

The key is two. First, the compressive strength of 6D logarithmic quantum space dominates the physical properties of everything. Second, three generation neutrinos, graviton, photon, and gluon are the basic particles of all things, and the rest are all combination particles of the above.

References

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

Table 1 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	Tau	Weak Force	Proton Radius	Quark Radius	Dark Energy	Cos.C.Problem
Physics	1776.86±0.12	About 1E-06	0.8751±0.0061	< 0.43 am	68.89%,72.8%	E-121.539
Results	1776.82 MeV	1.0109E-6	0.8751 fm	0.4401,0.425	72.92%	E-121.533
Term	Cosmo. C.	Hubble C.	Current Time	W	H	Up
Physics	1.1056E-52	67.66,≈74	13.787 BY	80.379±0.012	125.10±0.14	2.2 ^{+0.5} _{-0.4}
Results	1.1068E-52	70.961	13.780 BY	80.376 GeV	125.06 GeV	2.2572 MeV
Term	Charm	Top	Down	Strange	Bottom	Kaon
Physics	1275 ⁺²⁵ ₋₃₅	172.76±0.3	4.7 ^{+0.5} _{-0.3}	95 ⁺⁹ ₋₃	4.18 ^{+0.04} _{-0.03}	493.67,497.65
Results	1278.4 MeV	172.74 GeV	4.734 MeV	93.04 MeV	4.180 GeV	495.93 MeV