**Report on the Evaluation
of Chapter 36
Leptons
in
"The Grand Unified Theory of
Classical Physics"
by Dr. Randell L. Mills**

Prepared by

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Executive Summary

In my analysis, I verified calculations and equations involving the chapter on Leptons found in Chapter 36 of the book "The Grand Unified Theory of Classical Physics" (January 2020 edition) by Dr. Randell L. Mills. I verified equations and calculations to a high degree of accuracy that are associated with these subjects. There is a remarkable agreement between the GUTCP calculated equations and the equations I get from my calculations. I verified the equations from 36.1 through 36.23; in other words, I verified all the equations and the values they produce in Chapter 36. There is an amazing agreement between the mass ratios for the electron, muon, and tau given by the theory and their experimental values. And there is also an amazing agreement between the mass values for the three leptons from the theory and their corresponding experimental mass values.

Purpose

There are three known leptons – the electron, the muon, and the tau particle. They each have an antiparticle as well, with the antiparticle having the same mass but a different charge than the particle. The mass of each particle/antiparticle pair corresponds to an energy of Chapter 32. The electron and the antielectron correspond to the Planck energy equation. The muon and the antimuon correspond to the Electric energy. And the tau and the antitau correspond to the Magnetic energy.

For the electron and antielectron mass, relativistic corrections are made to Planck's energy equation which ultimately results in the electron mass. There is remarkable agreement between the electron mass from the GUTCP theory and the experimental value of the electron mass. The small difference in the two is due to the very slight difference between the MKS system's definition of the second and the definition of the second from Chapter 32 that uses the coordinate and proper time from relativity.

For the muon and antimuon mass, relativistic corrections are made to the Electric energy equation which ultimately results in the muon mass. There is remarkable agreement between the muon mass from the GUTCP theory and the experimental value of the muon mass.

For the tau and antitau mass, relativistic corrections are made to the Magnetic energy equation which ultimately results in the tau mass. There is remarkable agreement between the tau mass from the GUTCP theory and the experimental value of the tau mass.

The relations used to find the electron mass, muon mass, and tau mass are used to find the ratios m_μ/m_e, m_τ/m_μ, and m_τ/m_e. These three ratios are close to, but are off, compared to their experimental results. In order to conserve mass-energy, the electromagnetic fields of the particles must be included in the mass determination.

This leads to a correction of the three masses by a factor of γ*. γ* varies for the three leptons, and are given in Chapter 36 for each mass. Once corrected by γ* for each mass, the three ratios from the theory come out in amazing agreement with their experimental values.

The last section of the chapter is on the X17 particle. A resonance exists for the tau correction of the muon resonance of the electron mass that's given by the ratio of the muon to tau masses, namely the factor of 16.744, times the mass of the electron. Since the electron mass is 511 keV, the predicted mass is then (511 keV)(16.744) = 17.11 MeV. There have been recent experimental studies that report they have seen a particle of this 17 MeV mass. These studies are described at the end of Chapter 36.

Calculations

I have verified that Equations 36.1-36.3 are true and correct. I also got the same value as Eqn. 36.3 did for the electron mass. There is a remarkable agreement of the mass of the electron derived from the theory and the experimental value for it.

I have verified that Equations 36.4-36.6 are true and correct. I also got the same value as Eqn. 36.6 did for the muon mass. There is a remarkable agreement of the mass of the muon derived from the theory and the experimental value for it.

I have verified that Equations 36.7-36.8 are true and correct. I also got the same value as Eqn. 36.8 did for the tau mass. There is a remarkable agreement of the mass of the tau derived from the theory and the experimental value for it.

I have also verified that Equations 36.9-36.11 and their values are correct.

I have verified that Equations 36.13-36.15 are correct.

And I have verified that Equations 36.12 and 36.16 and the values they produce are correct as shown in the book.

I have verified that Equations 36.17 and 36.19 are correct.

I have shown that Equations 36.18 and 36.20 and their values are true.

And I have shown that Equations 36.21-36.23 and the values they produce are correct.

I have verified that the values of the mass ratios m_μ/m_e, m_τ/m_μ, and m_τ/m_e are in fact correct as listed in the book. There is remarkable agreement between these three ratios from theory and their known experimental values.

Conclusion

I was able to verify that the GUTCP results of Chapter 36 are in excellent agreement with my own calculations of values and derivations of equations. I successfully reproduced all of the equations and derivations found in Chapter 36. This chapter demonstrates that the GUTCP theory is successful (to a high degree of accuracy) at describing the masses of the electron, muon, and tau. This is seen by the remarkable agreement between their mass values from the theory and their true experimental values of their masses. I also verified that the values for the mass ratios listed in Chapter 36 for the electron, muon, and tau are in fact true as listed. And there again is a remarkable agreement between these mass ratios of the three leptons predicted by the theory and the experimental values of these mass ratios.

I find my results and calculations to be confirmation that the derivations and equations of Chapter 36 are indeed accurate, reproducible, and valid.