Energy Derivation of Mass Ratios of Elementary Particles [1]

1.0 Abstract

Imagine many, bazillions, of spheres rotating on 3 axes. Each one is paired with another of exactly opposite rotation. Going from an incremental/discrete scale of rotation fraction to minus one to plus one on the x, y, and z axes. Inside these spheres is another level of spheres that are matched. Therefore we go down two levels of dimensions from our three dimensional level of the universe. Matching the energy effects these matched pairs may be result in the mass rations of elementary particles. The mass ratio calculation for the elementary particles of the proton, electron, muon, and tau(tauon) are shown below. It is shown that these particles are all ratios with the neutron. It is shown that the electron, muon, and tau are all derived from the proton neutron mass ratio. It is shown that the muon and tau are complimentary lepton particles.

2.0 Calculations Proton Neutron Mass Ratio,Electron Neutron Mass Ratio, and Muon Mass ratio from previous papers.

Section 2.1 Mass Ratio of Proton to Neutron

It was shown in "Serendiptious Mathematical Geometric Origin of Mass Ratio of the Proton to the Neutron" (1) the following equation was used to model a mass ratio of the Proton to the Neutron.

Equation 2.1 $P(1-P)=\sqrt{3}/32\int_0^1 x^4(1-x^2)^2\,dx$ (1)

This yields the following two solutions.

Where P_x~~0.998623461644084 and P_y~~0.00137653835591585

We can see that if we combine P_x, from Equation 2.1, the Lorentz factor with dimensional constants.

Equation 2.2 $$\alpha=\frac{1}{\sqrt{1-(\frac{Me}{3Mn})^2}}=1.00000001645$$

Multiplying $Px=0.99862346144084$ by the Lorentz factor 1.00000001645

Equation 2.3 $\frac{Mp}{Mn}=Px*\alpha=0.998623461644084*1.00000001645=0.998623478023$

$\frac{Mp}{Mn}=0.998623478023$

Compared to the Codata proton neutron mass ratio of

proton-neutron mass ratio $m_{\mathrm{p}}/m_{\mathrm{n}}$
Value **0.998 623 478 44**

Standard uncertainty	**0.000 000 000 51**
Relative standard uncertainty	**5.1 x 10^{-10}**
Concise form	**0.998 623 478 44(51)**

(2)

Section 2.2 Mass Ratio of Electron to Neutron

It was shown in **"Serendipitous hints at shape of Electron and Electron/Neutron Mass Ratio"(7), that the following equations were used to model the mass ratio of the Electron to the Neutron.**

Equation 2.2 $\frac{1}{(1-(\frac{\pi * Py}{12^{0.5}})^2)^{0.5}} = \alpha = 1.00000077922996619330$

If we use the first solution to the equation (2.1) of y=0.998623461644084 and the Lorentz transformation in equation 2.2 above of 1.00000077922996619330 we can develop the following equation.

Equation 2.2.2 $(E)(1-E) = \frac{1}{6Px} / (\sqrt{3})^7 \int_0^1 x^4 (1-x^2)^2 dx$.

Equation 2.2.2 gives the solutions for z of

E_x= 0.0000906445574284686867 and E_y= 0.999909355442571531

If we propose that the electron is contained in six structures of
E_x=0.0000906445574284686867
Then we can multiply E_x by $6*\alpha$ in Equation 4

Equation 2.2.3

$$Ex*6*\alpha = \frac{Me}{Mn} = 0.0000906445574284686867*6*1.000000779229 = 0.00054386734446$$

$$\frac{Me}{Mn} = 5.4386734446*10^{-4}$$

0.0005438673444489767128152309

Propose that electron neutrino is equal to

0.000000779229***0.00009064455742846867*939565382eV=0.066 eV**

Compare this to Codata Electron/Neutron mass ratio of

electron-neutron mass ratio m_e/m_n	
Value	**5.438 673 4428 x 10^{-4}**
Standard uncertainty	**0.000 000 0027 x 10^{-4}**
Relative standard uncertainty	**4.9 x 10^{-10}**
Concise form	**5.438 673 4428(27) x 10^{-4}**

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It was also shown in "Serendipitous hints at shape of Electron and Electron/Neutron Mass Ratio"(7) that the mass ratio of the Neutron Mass minus the Electron Mass all divided by the Neutron mass could be modeled as follows.

One can also use the other result from equation 2.2.1 of E_y= 0.999909355442571531 to calculate a mass ratio of the (Neutron Mass-Electron Mass)/Neutron Mass. If one uses the following equation

Equation 2.2.3 Using Equation 2.2.1 results.

$$\frac{Mn-Me}{Mn}=1-(1-Ey)*6=1-(1-0.999909355442571531)*6=0.999456132655$$

Equation 2.2.4 Using Codata values

$$1-\frac{Me}{Mn}=1-5.4386734428(27)*10^{-4}=0.999456132655$$

Note that both Methods give identical results to 12 digits

2.3 Muon/Neutron Mass Ratio

It was shown in "Serendipitous Hints Toroid Shape of Muon and Muon/Neutron Mass Ratio and Muon Neutrino Mass Proposal" (9) that the ratio of the Mass of the Muon to the Neutron could be calculated as follows, with close to one sigma of the Codata value for the Muon/Neutron Mass Ratio

Equation 2.3.1 $$Px*48*16M\frac{1-M}{9}=\int_0^1 x^4(1-x^2)^2\,dx$$

Where the equation is being solved for M, and P_x =0.998623461644084, one of the solutions to Equation 1

Mx=0.99970188182917 and My=0.00029811817083363

It has been clear, for a long time, that the mass of the muon is close to one ninth of the neutron. Below we see an equation that gives the exact mass, to within one sigma of the 2014 CODATA ratio of the Muon/Neutron mass ratio.

First there is a Lorentz transformation.

Equation 2.3.2 $Lm = \frac{1}{\sqrt{1-(\frac{\pi My}{9})^2}} = 1.0000000054$

Where M_y=0.00029811817083363 , is one of the solutions to equation 2.3 above.

Equation 2.3.3

$$\frac{Mu}{Mn} = 1 - Lm * Px - \frac{Mx}{9} = 1 - 1.0000000054 * 0.998623461644084 + \frac{0.99970188182917}{9} = .1124545198$$

Which compares to 2014 Codata of

muon-neutron mass ratio m_μ / m_n	
Value	0.112 454 5167
Standard uncertainty	0.000 000 0025
Relative standard uncertainty	2.2 x 10^{-8}
Concise form	0.112 454 5167(25)

Where Mu = Mass of Muon, Mn=Mass of Neutron, Lm=Lorentz solution to Equation 2.3.2 =1.0000000054, Px=0.998623461644084, a solution to equation 2.1.0 in Section 2.1, and Mx=0.99970188182917 is solution to Equation 2.3.1 in Section 2.3. (8)

2.4 Calculation of the Tau/Neutron Mass ratio.

Considering the calculations in section 2.0, Calculations Proton Neutron Mass Ratio, Electron Neutron Mass Ratio, and Muon Neutron Mass Ratio, from previous papers, can a similar equation be used that can describe the mass ratio of the Tau meson to the neutron. Basically, the equation for the Tau meson, is exactly the same equation as the Muon, except that instead of multiplying by 1/9 it is multiplied by 17/9. It appears that the muon and tau are complimentary parts of the same structure. To deter the impression of numerology one must, if possible, show repeat similar patterns, to the correlation of the masses of particles, to equations. If there is a pattern to the ratios of the masses of particles, it must be a similar pattern, that does not use an infinite number line, for coming up with numbers to model the ratios of masses. At the same time, if the patterns were too similar, these patterns would have been discovered before. Once the patterns are discovered, it may tell us useful information for the construction of Baryons and Mesons. Below is a set of equations to model the muon neutron mass ratio.

Equation 2.4$Px*16*48M\frac{1-M}{9}=\int_0^1 x^4(1-x^2)^2 dx$

Where the equation is being solved for M, and P_x =0.998623461644084, one of the solutions to Equation 1

Tx=0.99970188182917 and Ty=0.00029811817083363

It has been clear, for a long time, that the mass of the tau lepton is close to 17/9 of the neutron. Below we see an equation that gives the exact mass, to within one sigma of the 2014 CODATA ratio of the Tau/Neutron mass ratio.

First there is a Lorentz transformation.

Equation 2.4.1 $Lm=\frac{1}{\sqrt{1-(\frac{\pi Ty}{9})^2}}=1.0000000054$

Where M_y=0.00029811817083363 , is one of the solutions to equation 2.4 above.

Equation 2.4.2

$$\frac{Mt}{Mn}=(2*(1-Lm*Px)-\frac{17*Tx}{9}=2*(1-1.0000000054*0.998623461644084)+\frac{17*0.99970188182917}{9}$$

$\frac{Mt}{Mn}=1.8910789$ `Within one sigma of Codata 1.89111 and within0.99998`

Which compares to 2014 Codata of

tau-neutron mass ratio
$m_\tau / m_{\rm n}$

Value	1.891 11
Standard uncertainty	0.000 17
Relative standard uncertainty	9.0×10^{-5}
Concise form	**1.891 11(17)**

Where Mt = Mass of Tau Lepton, Mn=Mass of Neutron, Lm=Lorentz solution to Equation 2.4.1 =1.0000000054, Px=0.998623461644084, a solution to equation 2.2 in Section 2.1, and Tx=0.99970188182917 is solution to Equation 2.3 and in Section 2.4.

3.0 Discussion

It is clear that the Equation 2.4.2 yields a value that is within one sigma of the 2014 Codata value for the Tau/Neutron mass ratio. It is a similar equation to that used for the Proton/Neutron mass ratio, the Electron/Neutron mass ratio, and extremely similar to the equations for the calculation of the Muon/Neutron mass ratio in Section 2.3 In fact the mass ratio of the Tau/Neutron depends on the mass ratio of Proton/Neutron Mass ratio. There are similarities to the Electron/Neutron Mass ratio as well. Is it numerology or is further evidence that is empirical? Obviously, it has been difficult to find a final theory. The solution cannot be straight forward either.
The Lorentz transformation in Equation 2.4.1, the 0.0000000054 part, when multiplied by two times the mass of the proton, may be the rest mass of tau muon neutrino.

Proposed Tau Neutrino Mass $= 2*0.0000000054*1.67262178*10^{-27}Kg = 18*10^{-36}Kg = 10eV$
If the tau neutron mass ratio, was known to more digits, we could have a more precise comparison to equation 3.2

4.0 References

1) http://vixra.org/pdf/1502.0193v2.pdf
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6) http://physics.nist.gov/cgi-bin/cuu/Value?mesmn|search_for=electron+neutron+mass+ratio
7) http://vixra.org/abs/1508.0027
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