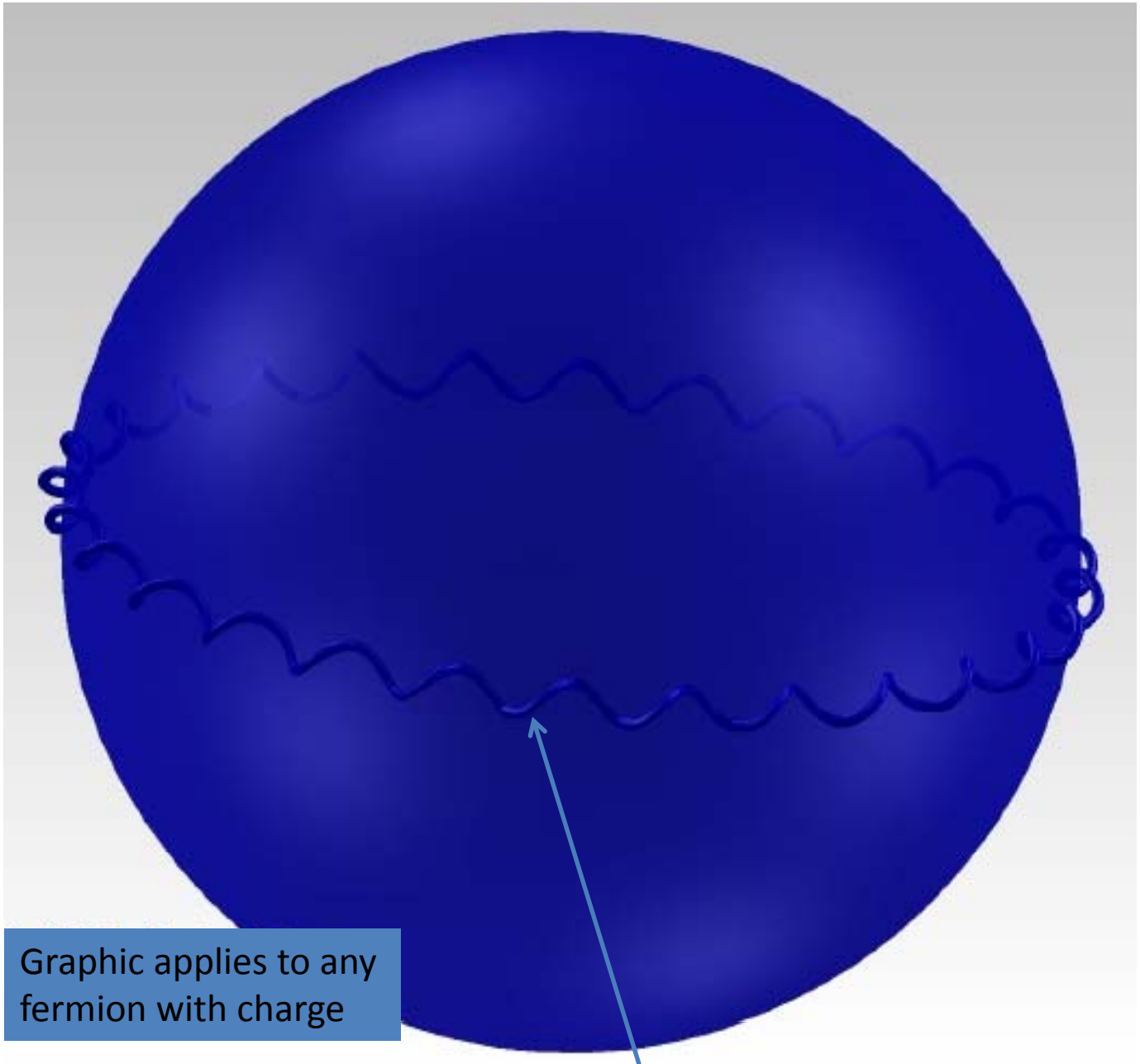
Evidence for the Existence of Superluminal Waves in the Creation of Matter & Energy A Physical, as well as Mathematical Explanation

Part II: Reconciling Particle Magnetic Moments

Since the ultrawave equations shown in Part I produce magneton values for spin-1/2 particles, how can the measured values be found?

This is not actually a problem with the ultrawave equations, it is more a problem with the way the torus forms. Looking at the torus shape as flexible, the interaction between the magnetic moment and charge prevents the torus from forming a perfect shape. The correct values only appear due to a contraction of the torus. The only particles that are even close to perfect are the leptons; the electron, the muon and the tauon (tau).

The following diagram shows how the warping of the torus makes the effective r and R values change. R becomes smaller as r becomes larger, keeping the surface area unchanged, but increasing the magnetic moment. For the leptons this is not a large change, but for most particles this contraction can produce quite a drastic alteration.


Graphic applies to any fermion with charge
Secondary twisting of torus x-section

UT Electron (Actual)

The constants using the ideal electron values hold, such as the magnetic constant and the electric constant. The items that do change are the charge and magnetic moment. The new values are:

Time unit (effective) T_e = 9.09883E-31s

Overall radius $R_e = T_e \cdot C^*/2\pi$ = 1.29403E-14m

X-section radius $r_e = A_T/(4\pi^2 \cdot R_e)$ = 1.29703E-21m

Magnetic mom. $\mu_e = \pi \cdot r_e^2 \cdot I_e$ = 9.2848E-24J/T

Unfortunately, the time unit can only be calculated, it is not a measurable quantity. The measured magnetic moment determines what r_e and R_e are for spin-1/2 particles.

Ideal vs. Actual

In the previous slide, the effective spin radius is increased from the ideal. In actuality, the ideal radius still holds for producing the magnetic constant and everything down the line from it. The actual radius is an effective or virtual radius. Since it is a size change, it controls the magnetic moment's effect on the particle and produces the true measurement. The spin remains calculated from the ideal, because the original tube x-section still exists.

There are alternatives, but they would require a sea change. The result would be that the value of all of the constants would change. While it is possible to do this because they are all interrelated, as will be shown in Part IV, at this time such drastic measures are unnecessary.

What about the values for the ideal versus actual for the Proton and Neutron?

UT Proton (Idealized) v = *C** m/s

Mass m_p or Time T_{pi} = 1.67262E-27kg or s

Overall radius $R_{pi} = T_{pi} \cdot C^*/2pi$ = 2.37879E-11m

X-section radius $r_{pi} = h\text{-}bar/(m_p \cdot C^*)$ = 7.05569E-25m

Torus surface area $A_T = 4pi^2 \cdot r_{pi} \cdot R_{pi}$ = 6.62607E-34m^2

Spin Angular Mom. $\rho = ½ \cdot m_p \cdot C^* \cdot r_{pi}$ = 5.27286E-35kg*m^2/s

Magnetic mom. $\mu_{pi} = pi \cdot r_{pi}^2 \cdot I_{pi}$ = 5.05078E-27J/T

All values are calculated identically to those of the electron. We see this same logic applied to any particle with a mass and magnetic moment that is spin-1/2.

UT Proton (Actual) v = *C** m/s

Time T_p = 5.98895E-27s

Overall radius $R_p = T_p \cdot C^*/2\pi$ = 8.51745E-12m

X-section radius $r_p = A_T/(4\pi^2 \cdot R_p)$ = 1.970546E-24m

Magnetic mom. $\mu_p = \pi \cdot r_p^2 \cdot I_p$ = 1.41061E-26J/T

(Adding the radii ratio to the constants gives:)

Magnetic constant $\mu_{0p} = 4\pi \cdot r_{pi}/R_{pi}$ = 3.727282E-13 (unitless)

Electric cons. $\varepsilon_{0p} = e^2/(2A_T \cdot \alpha_p \cdot c)$ = 2.9852E-5$(A \cdot s)^2/(kg \cdot m^2)/s$

Fine Structure $\alpha_p = \mu_{0p} \cdot c \cdot e^2/2A_T$ = 2.164451E-9$kg/(m \cdot s^2)$

Rydberg cons. $R_{\infty p} = \alpha_p^2 \cdot c \cdot m_p/(4\pi \cdot h\text{-}bar)$ = 1.77267E-3 $kg^2/(m^2 * s^4)/m$

UT Neutron (Idealized)

Mass m_n or Time T_{ni} = 1.674927153E-27kg or s

Overall radius $R_{ni} = T_{ni} \cdot C^*/2\pi$ = 2.38207E-11m

X-section radius $r_{ni} = h/(2\pi \cdot m_n \cdot C^*)$ = 7.045975E-25m

Torus surface area $A_T = 4\pi^2 \cdot r_{ni} \cdot R_{ni}$ = 6.62607E-34m^2

Spin Angular Mom. $L = \frac{1}{2} m_n \cdot C^* \cdot r_{ni}$ = 5.27286E-35kg*m^2/s

Magnetic mom. $\mu_{ni} = \pi \cdot r_{ni}^2 \cdot I_{ni}$ = 5.04383E-27J/T

As you can see, everything calculates perfectly fine for providing the neutron's features. It is just too coincidental that all spin-1/2 particles can be treated exactly the same using ultrawave equations, while at the same time giving them a physical explanation, for the theory not to have some basis in reality.

UT Neutron (Actual)

Time T_n = 8.743254E-28s

Overall radius $R_n = T_n C^*/2\pi$ = 1.2434613E-11m

X-section radius $r_n = h/(2\pi \cdot m_n \cdot Cc)$ = 1.349783E-24m

Magnetic mom. $\mu_n = \pi \cdot r_n^2 \cdot I_n$ = 9.6623641E-27J/T

(Adding the radii ratio to the constants gives:)

Magnetic constant $\mu_{0n} = 4\pi \cdot r_{ni}/R_{ni}$ = 3.717028E-13 (unitless)

Electric con. $\varepsilon_{0n} = e^2/(2A_T \cdot \alpha_p \cdot c)$ = 2.99339E-5$(A \cdot s)^2/(kg \cdot m^2)/s$

Fine Structure $\alpha_n = \mu_{0n} \cdot c \cdot e^2/2A_T$ = 7.92131E-9$kg/(m \cdot s^2)$

Rydberg c. $R_{\infty n} = \alpha_n^2 \cdot c \cdot m_n/(4\pi \cdot h\text{-}bar)$ = 1.76536E-3

$kg^2/(m^2 \cdot s^4)/m$

The slides for the actual proton and neutron show values for the magnetic constant, electric constant, alpha, and the Rydberg constant. Unless there is a reason to use them, i.e. they have some value in determining features of atoms, these constants may never be needed. They are merely given to show that every particle is different in how it would behave if it took the place of an electron. For practical purposes, the only two particles that would are the other leptons, or their anti-particles that would then apply to creating anti-atoms.

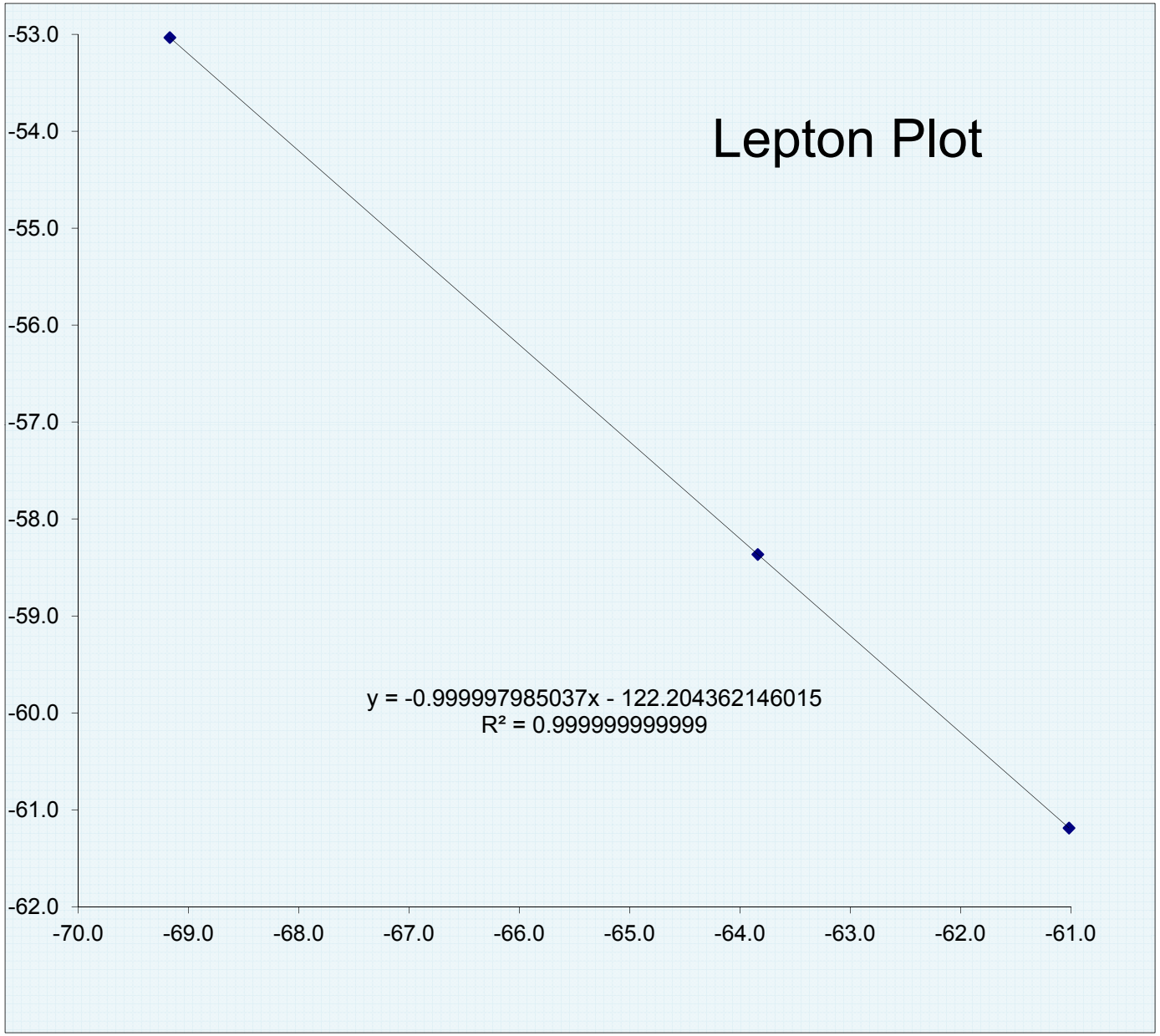
There has been no in-depth study using ultrawaves into whether or not particles other than the electron are responsible for hyperfine structure, or if an atom's nucleus is responsible for it.

What about other items such as atomic nuclei that are also spin-1/2?

Magneton plots of spin-1/2 particles can be made using natural logs that connect the data points through a straight line. The curve is approximately a -45° slope on a graph with magnetic moment as vertical axis and mass as horizontal axis. The curve parameters are:
$y = -0.9999979706$, $x - 122.2043611832$ and $R^2 = 1$

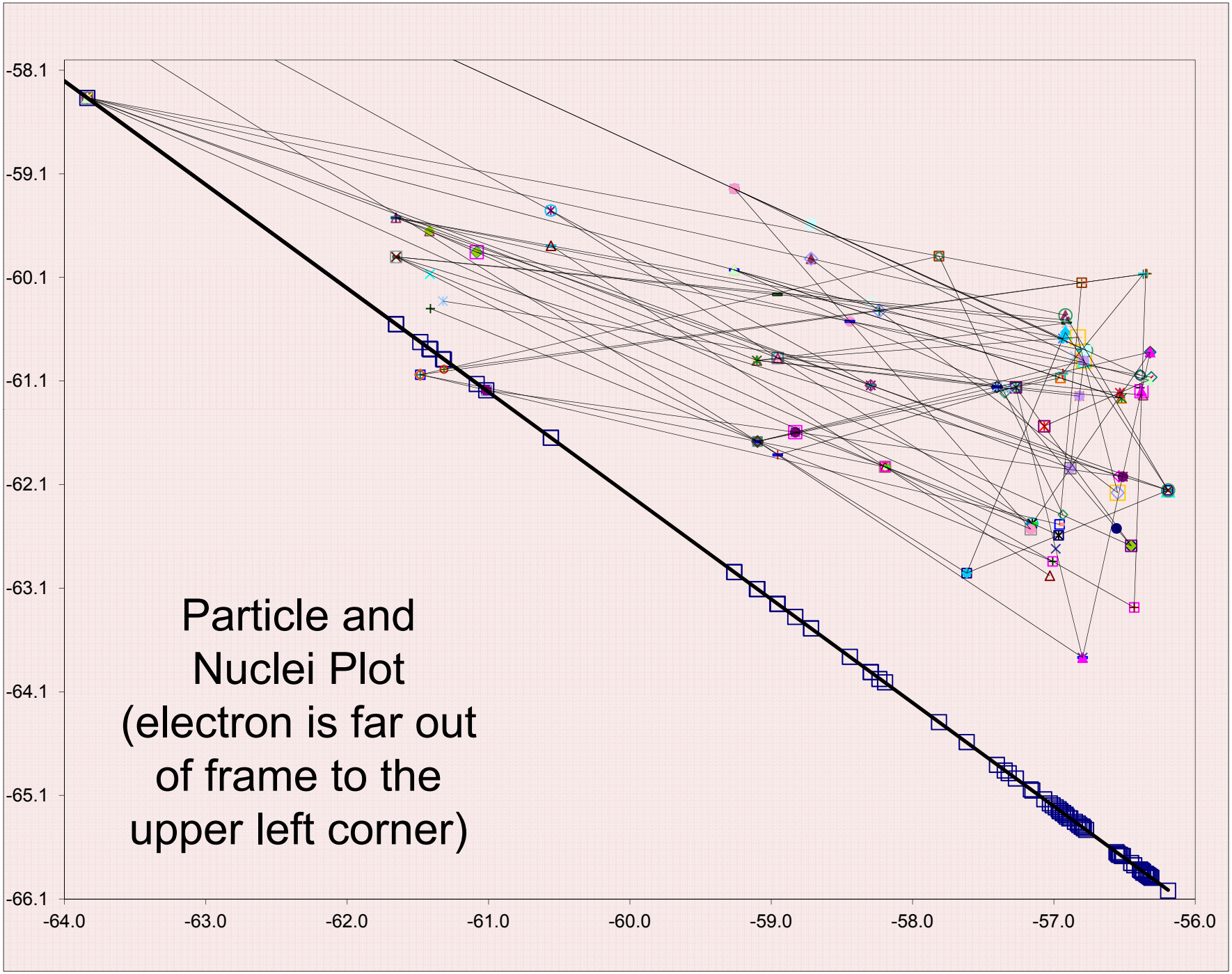
When the electron, muon and tau particles are plotted in this manner they give a curve with the parameters:
$y = -0.9999979850$, $x - 122.2043621460$ and $R^2 = 1$

This is in accordance with using particle masses: 9.1903824505E-31kg, 1.88353135E-28kg & 3.16744E-27kg The plots also incorporate their respective UT-calculated magnetic moments, which are precise for the particular mass used.


Lepton Plot
-53.0
-54.0
-55.0
-56.0
-57.0
-58.0
-59.0
-60.0
-61.0
-62.0
-70.0
-69.0
-68.0
-67.0
-66.0
-65.0
-64.0
-63.0
-62.0
-61.0
y = -0.999997985037x - 122.204362146015
R² = 0.999999999999

When you plot all spin-1/2 particles and spin-1/2 atomic nuclei in this manner something amazing occurs. By tweaking the masses of the particles and nuclei—all of them remain well within their range limits and usually only vary by a small fraction of the range—other 3-component curves appear. Out of the 80 particles and nuclei that were plotted, 65 curves appeared. One of the most exciting things is the discovery that it is not possible to place four members onto any one curve without ruining one or more better fitting curves!

Out of the many interesting things about completing this exercise, a shocker is discovering that there are three members of the positive and neutral families present. The proton, sigma+ and Nitrogen 15 nucleus form positive, and the neutron, sigma0 and Oxygen15 form neutral.


-58.1
-59.1
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-64.0
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-59.0
-58.0
-57.0
-56.0
Particle and
Nuclei Plot
(electron is far out
of frame to the
upper left corner)

The previous plot shows all spin-1/2 particles and spin-1/2 atomic nuclei. The data suggests that for nuclei to fit the same curve patterns as particles they must be larger versions of the same torus-surrounded-by-sphere particles that have been presented.

If spin-1/2 nuclei are single particles then that immediately suggests that other atomic nuclei are not built by protons and neutrons either. About the only atomic nucleus that we can be fairly confident is built with protons and neutrons is the deuteron. They are the only constituents that provide a reasonable explanation for the magnetic moment, spin, and mass data. Such a starting point may be the main reason the mistake about construction of atoms first began. From this point forward a lot of work needs done to determine atom construction.