

Calculations of the Unified Force Theory as Explained in the Aether Physics Model

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Abstract

In a previous paper, we demonstrated a geometrical model of Aether, which includes a Unified Force Theory. The present paper reveals the calculations and method for proving the unification of the forces and provides additional discussion about the Aether Physics Model and the Standard Model of Particle Physics.

1. Introduction

In our paper, [A New Foundation for Physicsⁱ](#), we provide a coherent and quantified Aether Physics Model (APM), which unites the forces, Aether (environment) and matter. The Aether Physics Model further develops in our book, *Secrets of the Aetherⁱⁱ*. A key component of the Aether Physics Model is the mathematically correct Unified Force Theory, which bases upon two different manifestations of charges, and the assumption that all charge is always distributed (squared). We shall provide in this paper a more detailed analysis of the Unified Force Theory and show how the predicted relative strengths of the forces compare to the Standard Model (SM) predictionsⁱⁱⁱ.

Table 1 – Quantity Definitions		
Electron mass $m_e = 9.109 \times 10^{-31} \text{ kg}$	Electron electromagnetic charge $e_{emax}^2 = 1.400 \times 10^{-37} \text{ coul}^2$	Planck's constant $h = 6.626 \times 10^{-34} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}}$
Proton mass $m_p = 1.673 \times 10^{-27} \text{ kg}$	Proton electromagnetic charge $e_{pmax}^2 = 2.570 \times 10^{-34} \text{ coul}^2$	Proton angular momentum $h_p = 1.217 \times 10^{-30} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}}$
Neutron mass $m_n = 1.675 \times 10^{-27} \text{ kg}$	Neutron electromagnetic charge $e_{nmax}^2 = 2.573 \times 10^{-34} \text{ coul}^2$	Neutron angular momentum $h_n = 1.218 \times 10^{-30} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}}$
Aether mass $m_a = 3.268 \times 10^{15} \text{ kg}$	Aether electromagnetic charge $e_a^2 = 5.021 \times 10^8 \text{ coul}^2$	Aether Conductance $Cd = 2.112 \times 10^{-4} \text{ siemens}$
Electron fine structure $\alpha = 7.297 \times 10^{-3}$	Electrostatic charge $e^2 = 2.567 \times 10^{-38} \text{ coul}^2$	Coulomb's electrostatic constant $k_c = 8.988 \times 10^9 \frac{\text{kg} \cdot \text{m}^3}{\text{sec}^2 \cdot \text{coul}^2}$
Proton fine structure $p = 3.974 \times 10^{-6}$	Aether unit $A_u = 1.419 \times 10^{12} \frac{\text{kg} \cdot \text{m}^3}{\text{sec}^2 \cdot \text{coul}^2}$	Newton's gravitational constant $G = 6.673 \times 10^{-11} \frac{\text{m}^3}{\text{kg} \cdot \text{sec}^2}$
Neutron fine structure $n = 3.969 \times 10^{-6}$	Gforce $Gforce = 1.210 \times 10^{44} \text{ newton}$	Quantum length $\lambda_c = 2.426 \times 10^{-12} \text{ m}$

2. The Force Carriers

According to the Aether Physics Model, the dimension of subatomic particle mass is dependent upon the subatomic particle's angular momentum. Subatomic particle mass always occurs within the quantum structure as a circular line (string) and moves perpendicular to its circumference. We can call the circular string of mass the Ligamen Circulatus (LC), and the moving ligamen circulatus we can call Primary Angular Momentum. When a quantum Aether unit does not encapsulate the ligamen circulatus, the LC exists as dark matter. The encapsulation of primary angular momentum by the Aether converts the dark matter into visible matter by imparting charges.

There are two distinct manifestations of charges, the electrostatic charge, and the electromagnetic charge. The electrostatic charge is a direct property of the Aether. When primary angular momentum is absorbed into an Aether unit, the primary angular momentum acquires the electrostatic charge of the electrostatic dipole with which it is associated. Since the electrostatic charge is a property of the Aether,

it has the same value regardless of whether it is associated with a negative electron or positive proton. The electrostatic charge has spherical angle, one-spin geometry.

As the primary angular momentum spins within the five dimensions of the Aether structure, its interaction with the conductance of the Aether causes the phenomenon of electromagnetic charge. Unlike the Standard Model of Particle Physics, the electromagnetic charge of the Aether Physics Model is not a function of a moving electrostatic charge with point geometry. The electromagnetic charge has surface area and takes the form of tubular cardioid geometry, which is geometrically equivalent to toroidal geometry. This toroidal electromagnetic charge shares the half spin nature of the subatomic particle.

Within the Aether Physics Model, we use a new tool for analyzing quantum structure named Quantum Measurements Analysis. Quantum measurements analysis is similar to dimensional analysis, except that the dimensions are also associated with measured quantum quantities. Therefore, we can produce the following quantum measurements for our analysis of the forces:

$$\begin{aligned}
 m_e &= 9.109 \times 10^{-31} \text{ kg} & e^2 &= 2.567 \times 10^{-38} \text{ coul}^2 \\
 m_p &= 1.673 \times 10^{-27} \text{ kg} & e_{emax}^2 &= 1.400 \times 10^{-37} \text{ coul}^2 \\
 m_n &= 1.675 \times 10^{-27} \text{ kg} & e_{pmax}^2 &= 2.570 \times 10^{-34} \text{ coul}^2 \\
 m_a &= 3.268 \times 10^{15} \text{ kg} & e_{nmax}^2 &= 2.573 \times 10^{-34} \text{ coul}^2
 \end{aligned} \tag{2.1}$$

The electrostatic force carrier has the value of the elementary charge squared. The electromagnetic charges of the electron, proton, and neutron are calculated from the angular momentum of the subatomic particle times the conductance constant of the Aether. Following the structure of the electron angular momentum, the proton and neutron angular momentum calculates as their mass times the Compton wavelength (quantum length) times the speed of light. Their values present as:

$$\begin{aligned}
 h &= 6.626 \times 10^{-34} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}} \\
 h_p &= 1.217 \times 10^{-30} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}} \\
 h_n &= 1.218 \times 10^{-30} \frac{\text{kg} \cdot \text{m}^2}{\text{sec}} \\
 Cd &= 2.112 \times 10^{-4} \text{ siemens}
 \end{aligned} \tag{2.2}$$

Thus, the electromagnetic charges of the electron, proton, and neutron are equal to their angular momentum times the conductance of the Aether:

$$\begin{aligned}
 e_{emax}^2 &= h \cdot Cd \\
 e_{pmax}^2 &= h_p \cdot Cd \\
 e_{nmax}^2 &= h_n \cdot Cd
 \end{aligned} \tag{2.3}$$

Other key quantum constants, infamously known in the SM as “convenience constants,” present as Coulomb’s electrostatic constant, Newton’s gravitational constant, and the Compton wavelength (which is also the quantum length):

$$\begin{aligned}
k_C &= 8.988 \times 10^9 \frac{\text{kg} \cdot \text{m}^3}{\text{sec}^2 \cdot \text{coul}^2} \\
G &= 6.673 \times 10^{-11} \frac{\text{m}^3}{\text{kg} \cdot \text{sec}^2} \\
\lambda_C &= 2.426 \times 10^{-12} \text{m}
\end{aligned} \tag{2.4}$$

Another new constant in the APM is the strong force constant, which is also the quantification of the quantum Aether unit. The quantum Aether unit also views as a quantum rotating magnetic field.

$$A_u = 16\pi^2 \cdot k_C = 1.419 \times 10^{12} \frac{\text{kg} \cdot \text{m}^3}{\text{sec}^2 \cdot \text{coul}^2} \tag{2.5}$$

3. Discussion of the Forces

The electrostatic force in the Aether Physics Model is the same as the static “electromagnetic force” in the Standard Model. In the Aether Physics Model, the electrostatic charge shows specifically to have spherical angle and one spin. Although the charges do not have inherent associated length, their distributed nature allows for distributed existence on surfaces. A positive and negative electrostatic charge resides separately in each half of the Aether unit, creating the Aether electrostatic dipole.

In addition to an electrostatic dipole, the Aether unit also has four spin positions; one each for the electron, antiproton, proton, and positron. When primary angular momentum inhabits any of the spin positions, the angular momentum interacts with the conductance of the Aether to produce electromagnetic charge. The electromagnetic charge has tubular loxodrome geometry in five dimensions of space-resonance (three dimensions of length and two dimensions of frequency). The two dimensions of frequency in space-resonance are the frequency of forward/backward time and the frequency of right/left spin direction. To our four dimensional space-time perspective, the electromagnetic charge has tubular cardioid geometry, which has surface area mathematically equivalent to toroidal geometry. Since the angular momentum producing the electromagnetic charge only spins in the forward direction of time and either the right or left spin direction, the electromagnetic charge also has half spin. The electromagnetic charge produces north and south magnetic poles, creating the magnetic dipole of the subatomic particle.

Compared to the scanned surface of the electromagnetic charge, the ligamen circulatus, which contains the very small mass of the subatomic particle, appears orthogonal to the electromagnetic charge due to its perpendicular motion.

The electromagnetic charge is the carrier of the strong force, which binds the subatomic particles in an atomic nucleus. In the Aether Physics Model, quarks are not small particles composing protons and neutrons, but rather quarks are the debris of broken subatomic particles as the Aether collapses and the encapsulated angular momentum of the visible matter spills back to the sea of dark matter.

Due to the movements of the LC within the toroidal geometry of the subatomic particles, when two protons or two neutrons bind together, their toroidal geometries shrink the major radius and expand the minor radius, which results in spherical geometry. While the subatomic particle is in its free state, the Aether unit force constant prevails over the toroidal geometry, but as two subatomic particles bind, the geometry shifts to spherical, and the Coulomb constant prevails as the force mediator constant.

Therefore, the strong force can appear to have variable strength during the binding and unbinding processes.

In the APM, the neutron quantifies as a bound electron and proton, which has captured dark matter between the bound strong charges. The captured angular momentum contributes to the total angular momentum of the neutron while it is bound. When the electron and proton bind in a neutron, their north magnetic poles are facing each other, thus there is magnetic repulsion fighting against electrostatic attraction. The magnetic moments of the electron and proton in a neutron cause the distance between the electron and proton to vary in length, as well as the angle between strong charges to vary. When the two magnetic moments synchronize such that the electron and proton push against each other with maximum effect, the distances between the electron and proton separate far enough for the electrostatic bond to break. The ratio of the electrostatic charge to electromagnetic charge is thus the so-called “weak force,” or weak interaction. The relative strength of the force between the electrostatic and electromagnetic charges will vary depending upon distance, charge angles, and charge geometry; hence, the weak interaction will have a great range of values, depending on the conditions.

4. Relative Strengths of the Force Carriers

In the Standard Model, the electrostatic charge (also named elementary charge) notates in single charge dimension. In the Aether Physics Model, all charges notate in distributed dimensions (squared). Therefore, when comparing the relative strengths of the force carriers, we need to consider the dimension notation differences. The strong force carrier for the proton and neutron compared to the electrostatic force carrier is:

$$\begin{aligned} \frac{e_{pmax}}{e} &= 100.058 \\ \frac{e_{nmax}}{e} &= 100.127 \end{aligned} \tag{4.1}$$

Therefore, the strong force carrier is 100 times greater than the electrostatic force carrier (according to SM notation), but 10,000 times greater according to APM notation of charges. Yet because the force carriers are in single dimensions in the SM and distributed dimensions in the APM, the force carriers in both expressions are equal:

$$\sqrt{\frac{e_{pmax}^2}{e^2}_{[APM]}} = \frac{e_{pmax}}{e}_{[SM]} \tag{4.2}$$

In the Aether Physics Model, the electrostatic charge relates to the electromagnetic charge by the unified charge equations:

$$\begin{aligned} e^2 &= 8\pi\alpha \cdot e_{emax}^2 & \alpha &= 7.297 \times 10^{-3} \\ e^2 &= 8\pi p \cdot e_{pmax}^2 & p &= 3.974 \times 10^{-6} \\ e^2 &= 8\pi n \cdot e_{nmax}^2 & n &= 3.969 \times 10^{-6} \end{aligned} \tag{4.3}$$

where alpha is the electron fine structure constant, p is the proton fine structure constant, and n is the neutron fine structure constant. As the unified charge equations reveal, the spherical angle, one-spin electrostatic charge equates to the steradian angle, half-spin electromagnetic charge multiplied by 2 to

equate spin, and multiplied by 4π to equate solid angles. The fine structure is the magnitude difference of the equivalent spherical angle, one-spin charges.

The proportion of electrostatic charge to electromagnetic charge is the basis for the so-called weak interaction, or “weak force.”

$$\begin{aligned}\frac{e^2}{e_{emax}^2} &= 8\pi\alpha = .183 \\ \frac{e^2}{e_{pmax}^2} &= 8\pi p = 9.988 \times 10^{-5} \\ \frac{e^2}{e_{nmax}^2} &= 8\pi n = 9.975 \times 10^{-5}\end{aligned}\tag{4.4}$$

Therefore, the weak interaction of the proton and neutron has a magnitude of about 10^{-2} compared to the electrostatic charge, and 10^{-6} compared to the electromagnetic charge

When comparing the gravitational force acting on a nucleon to the strong force acting on a bound nucleon we see:

$$\frac{G \frac{m_p^2}{\lambda_c^2}}{k_C \frac{e_{pmax}^2}{\lambda_c^2}} = 8.083 \times 10^{-41}\tag{4.5}$$

The unification of gravity to the other forces occurs through angular momentum and electromagnetic charge. Due to the mass of a subatomic particle being inseparable from its angular momentum, and the angular momentum being essential to the production of electromagnetic charge, there is a constant mass to electromagnetic charge ratio, which applies invariably across the physical Universe.

$$\frac{m_e}{e_{emax}^2} = \frac{m_p}{e_{pmax}^2} = \frac{m_n}{e_{nmax}^2} = \frac{m_a}{e_a^2} = 6.508 \times 10^6 \frac{kg}{coul^2}\tag{4.6}$$

To put it concisely, the gravitational force is orthogonal to the strong force and the quantum quantity of angular momentum contributing to the strong force is the same quantum quantity of angular momentum contributing to the gravitational force.

All three of the force constants (A_u, k_C, G) factor to a common Gforce. The Gforce has the value:

$$Gforce = 1.210 \times 10^{44} \text{ newton}\tag{4.7}$$

The Gforce factors from the constants as:

$$\begin{aligned}
A_u &= Gforce \frac{\lambda_c^2}{e_a^2} \\
k_c &= Gforce \frac{\lambda_c^2}{16\pi^2 \cdot e_a^2} \\
G &= Gforce \frac{\lambda_c^2}{m_a^2}
\end{aligned}
\tag{4.8}$$

where e_a^2 is the electromagnetic charge associated with the Aether and m_a is the mass associated with the Aether.

5. Standard Model Relative Strengths of the Forces

“Our job in physics is to see things simply, to understand a great many complicated phenomena in a unified way, in terms of a few simple principles.” – Steven Weinberg^{iv}

Compared to the quantum structure of forces, environment, and matter provided by the Aether Physics Model, the Standard Model of Particle Physics is anything but simple. In the APM, there are four fundamental particles of matter (electron, proton, positron, antiproton) and two types of photons (electron/positron, and proton/antiproton). All the forces in the APM unify to the Gforce and obey simple Newtonian type force equations, all matter quantifies as primary angular momentum, and the environment quantifies as quantum rotating magnetic field.

The SM explains quantum structure in terms of a dozen fermions and a dozen bosons, and one type of photon^v. The forces explain in terms of complicated and dissimilar paradigms^{vi}. Gravity equations relate curved space-time tensors to mass/energy tensors^{vii}, of which neither space-time curvature nor mass/energy are physical entities. Strong force counter-intuitively explains by imaginary particles called mesons, of which many different sizes have been “discovered.” Further, the mesons then compose from more fundamental forces named “strong color force.” Out of this has emerged the branch of physics called Quantum Chromodynamics^{viii}.

The so-called “weak nuclear force” does not express in terms of force, but as a dimensionless number^{ix}. Yet, this dimensionless number mediates by massive particles called W^\pm and Z bosons.

In the SM, a charge presents as a point particle. The fact that a point has zero dimensions means that force exchange particles would have infinite mass if calculated by the Heisenberg uncertainty principle^x. This not being acceptable, the force carriers of the strong and weak forces had to arbitrarily be given different structures than point particles, and thus were assigned the necessary imaginary qualities.

To complicate things further, the SM only recognizes one manifestation of charge, the electrostatic (elementary) charge^{xi}. Thus, electromagnetic observations incorrectly explain in terms of moving electrostatic charge^{xii}. Yet, it is apparent from observations of the electron through the Zeeman effect the electron has inherent magnetic dipoles^{xiii}. If the electron has inherent magnetism, then how can electron magnetism be explained by moving charge when the electron is the charge carrier?

To illustrate the chaos of modern theories of quantum structure, let us look at the predictions of the relative strengths of the forces as determined in the SM as compared to the Aether Physics Model. The table below represents seven different reputable sources of physics information. Each source predicts a

different set of relative force strengths, and unfortunately, none of the sources reveals the exact math and method used to deduce the values.

Table 2 – Relative Strengths of Forces According to Various Authorities								
	Aether Physics Model	AIP Handbook ¹	Q is for Quantum ²	HyperPhysics ³	Forces of Nature ⁴	Wolfram ⁵	Particle Physics ⁶	PHYSNETiii
Strong Force	1	1	1	1	1	1	~1 at large distance <1 at small distance	1
Electrostatic Force	$\sim 10^{-2}$	$\frac{1}{137}$	$\frac{1}{137}$	$\frac{1}{137}$	$\sim 10^{-2}$	$\sim 10^{-3}$	$\sim 10^{-2}$	$\sim 10^{-2}$
Weak Interaction	$\sim 10^{-6}$	$\sim 10^{-14}$	$\sim 10^{-13}$	$\sim 10^{-6}$	$\sim 10^{-6}$	$\sim 10^{-16}$	$\sim 10^{-13}$ @ 10^{-15} m $\sim 10^{-2}$ @ 10^{-18} m	$\sim 10^{-5}$
Gravity	$\sim 10^{-41}$	$\sim 10^{-38}$	$\sim 10^{-38}$	$\sim 10^{-39}$	$\sim 10^{-38}$	$\sim 10^{-41}$	$\sim 10^{-38}$	$\sim 10^{-38}$

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 3. <http://hyperphysics.phy-astr.gsu.edu/hbase/forces/couple.html>; R. Nave, Georgia State University
 4. <http://www.ph.surrey.ac.uk/partphys/chapter6/nature.html>; University of Surrey
 5. <http://scienceworld.wolfram.com/physics/FundamentalForces.html>; Eric W. Weisstein
 6. <http://www.shf.ac.uk/physics/teaching/phy304/interactions.html>; C N Booth, University of Sheffield

Of particular note is the use of the electron fine structure constant as the relative strength of the electrostatic force. The relative strength of the electrostatic force is supposed to be in relation to the strong force. Since there is no mathematical basis in the SM relating the electrostatic force to the strong force by way of the fine structure constant, the fine structure constant appears arbitrarily assigned. The above sources quantify the electron fine structure by its cgs units representation $e^2 / \hbar c$, which only shrouds the situation in deeper mystery. According to SM authorities, h-bar and c are merely convenience constants, having no real physical representation. Furthermore, according to the SM, all charge expresses as single dimension. There is no logic for squaring the SM elementary charge in showing the relative strength of the strong force to the electrostatic force.

Many having great success in physics have touted the SM, yet the forces do not unify, and each force has a different method of force calculation, because none of the force theories is mathematically consistent with each other. The view of charges and quantum particles as points, which dictates by the Heisenberg uncertainty principle, further cripples the ability of the SM to unify the forces. For the claim of seeing complicated phenomena in a simple way, the SM is grossly disjointed, incomplete, and inconsistent in its presentation.

Although the Aether Physics Model may seem complicated due to the many new paradigm shifts needed to view it, these shifts are necessary only because the SM exists as the “normal” view. The complexity of the SM is its disjointed, incomplete, and inconsistent nature. Once properly understood, the APM appears as a unified, complete description of quantum structure, and is self-consistent, making it a very simple model of physics.

6. Conclusion

According to the Aether Physics Model, the strong force mediates by a second type of charge, which we properly call electromagnetic charge. The electromagnetic charge is quantifiably different from electrostatic charge in geometry, spin, and magnitude. When protons and neutrons bind, the toroidal geometry alters to a spherical geometry, thus invoking the Coulomb constant as the force mediator constant. The strong charge, although capable of variations in force magnitude, always maintains a constant mass to electromagnetic charge ratio. From these newly discovered physics principles, the Aether Physics Model properly computes the relative strengths of the forces.

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