The Creation of Space, the Illusion of Time, and the Unified Force Fields

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1961

ABSTRACT

A hypothesis that energy at the speed of light creates space orthogonal to Galilean space solves dilemmas that otherwise have no logical explanation in contemporary physics. More than one frame of reference is used to examine phenomena hidden by relativity. With the subject hypothesis, light does not slow, but retains its velocity of ***c*** within transparent media in increased relativistic space. Two electrons share one energy state in an atomic orbit by occupying orthogonal spaces. Four unified third-order equations describe gravity, charge, magnetism and electromagnetic propagation. Direction of force in the unified equations depends on spatial domains. The four unified equations explain the retention of positrons within nuclei, gravity, the propagation of light, the retention of light in a Black Hole, the attraction of mass to a Black Hole, and the expansion of the universe. A faster-than–light instantaneous communication channel is described. Dark matter is postulated with its energy-space functioning as both the binder of constellations and the expander of the universe. Constructs are proposed for the electron, the neutrino, and quantized space. Speed is shown not to vary with frame of reference; speed is nonrelativistic. Time is examined from Galilean and relativistic frames of reference; our innate concept of instantaneity is resurrected, and time is revealed to be a mathematical concept, not a physical entity. The compression of distance and the increase of mass with speed become rational.

2. GLoSSARY

2.1. PROPOSAL -

A *proposal* can be accepted or rejected. Its truth and proof is in its usefulness.

2.2. PROPOSITION -

A *proposition* will profoundly affect your thinking, whether you accept it or not.

2.3. ENERGY-SPACE -

a collective term that refers to space created by any and all energy potentials.

2.4. RELATIVISTIC SPACE -

A space created by energy near or at the speed of light where distance and time are shortened proportionally to Lorentz's radical to zero or near zero.

2.5. ORTHOGONAL SPACE -

A space created by speed that does not project span of separation in position or let in time onto any other space.

4.6. GALILEAN SPACE -

Three-dimensional space (without the fourth dimension of time) is herein called Galilean space.

2.7 Truth

That which describes nature.

3. DILEMMAS

The following dilemmas are resolved by the concepts presented in this paper. However, these concepts may also resolve other physics dilemmas.

3.1. ENTANGLED PHOTONS -

In the Einstein-Podolsky-Rosen Paradox, two identical photons of opposite spin are observed to propagate on a single line in opposite directions. One is intercepted at 11 kilometers, and accounting for propagation times for the detection event to be transmitted to the experimenter, the other entangled photon, now 22 kilometers away from the first, instantly disappears.

3.2. REFRACTIVE LENS -

Imbedded in classical physics is the concept of light within a lens travels at speed less than that of light, c. This violates Einstein's Law that states light travels in a straight line at the speed c regardless of the frame of reference.

3.3. BLACK HOLE -

The classical explanation that light does not come out of a black hole is that intense gravity pulls the light in, despite the fact that light has no rest mass, and that light always propagates in a straight line.

3.3. DUAL SLIT PHENOMENON-

Coherent light entering two slits form an interference pattern until either path is interrupted or sensed.

3.4. STARLIGHT BENDING-

Starlight bending about celestial bodies is correctly accredited to warped space. But space-warp around celestial bodies is not explained, nor has the mechanism of space warped by mass been explained.

3.5. GRAVITY -
The mechanism of gravity is unknown.

3.6. DARK MATTER -
Ninety-five percent of the matter in the universe does not emit, absorb, or reflect light.

3.7. PROTONS IN THE NUCLEUS-
Protons within a nucleus, being of the same polarity, should have a repellant force between them that approaches infinity; but they do not. Protons coexist within the nucleus in perfect harmony.

3.8. INSTANTANEITY-
"This instant" as defined by Einstein's Theory requires allowance for the speed of light. Our intuitive concept of instantaneity is left meaningless in the cosmic reality of relativity. A nova epoch 9000 years ago was observed 900 years ago. Einstein's Theory of Relativity says that for those observing the explosion, the nova exploded in their time, 900 years ago. The innate human concept of instantaneity was left meaningless.

3.9 UNEXPECTED DRAG –
Recent missile tracking has revealed an unexpected drag at the edge of the solar system.
http://findarticles.com/p/articles/mi_m1134/is_3_117/ai_n25384101
/
3.10 MEMORY OF WATER -
Allergen characteristics can be induced into distilled water. The storage mechanism has not been identified. Science and Homeopathy have been at war for over 100 years. This paper gives credibility to homeopathic preparations.
http://www.bbc.co.uk/science/horizon/2002/homeopathytrans.shtml

3.11 WHY BOSONS SNAP –
Bosons resist the pulling force more intensely the further they are pulled apart, until they snap. This is not in agreement with the existing inverse-square law-of-attraction of electric fields, magnetic fields, or gravitational forces.

3.12 THE NEXUS BETWEEN GRAVITY AND ELECTRIC FORCES -
The connection between energy, mass, charge, magnetism, and gravity has previously been an enigma.

3.14 MECHANISM OF FORCE TRANSFER -
None of the historic force equations divulged the force mechanisms by particle or method: Newton's equation for gravity does not divulge the mechanics of gravity; Charles-Augustin de Coulomb's equation does not divulge the force mechanisms of charge; James Clerk Maxwell's equations do not divulge the force mechanisms of magnetism. Herein there is a proposal on the mechanism for each unified force, and the energy-force equations are germane to the force transfer propositions.

3.2 dilemmas not resolved herein-

3.2.1. Quantized Red Shift Riddle -
Doppler from the edge of all galaxies in the cosmos are quantized at 72 km/s, not uniformly proportional to velocity as expected. This phenomenon is uniform throughout the cosmos, not blurred as expected.
http://www.cs.unc.edu/~plaisted/ce/redshift.html

4. AXIOMS

The following are a priori assumptions:

4.1 COMPLEX SPACE -
The complex planes of real and imaginary numbers are used to describe relativistic space.

4.1.1 Orthogonality -
Each energy space is orthogonal to every other energy space, as each space is created by relativistic speed with respect to all other spaces. Energy exists in their created space, labeled imaginary, and directed by a unit vector with the square root of minus one (making imaginary space hard to imagine) but never the less a existing place where energy physically exists. Galilean space is orthogonal to all other spaces, because with respect to any other energy-space, Galilean space is traveling at the speed of light, c. Therefore Galilean space is assigned the unit vector i. Each vector.

4.1.1.1 The three spaces of an electron
The spaces created by electrons are mass-space, magnetic-space, and charge-space. All three spaces are orthogonal to each other. The space in which electrons flows is Galilean. Static and dynamic electrons create charge and magnetic space. With any space as the frame of reference, the other two are imaginary (orthogonal). The radical is implied in a unit vectors directing each energy space.

4.2 RELATIVITY -

Einstein's relativistic theory equates energy and mass by $e = mc^2$; therefore mass (as energy) creates mass-space, and the Lorentz transform radical $[1 - v^2/c^2]^{½}$ converts Galilean measure to relativistic measure; and $[1 - v^2/c^2]^{-½}$ converts relativistic measure to Galilean measure.

4.2.1 Orthogonality Of Energy-Space
At the speed of light, c, each energy-space has the relationship of the square root of minus one, , to every other energy-space.

4.3 CHANGING DIMENSIONS WITH RELATIVITY -
As speed approaches that of light, Galilean length and time shorten toward zero, and relativistic mass increases toward infinity. Lorentz's scaling radical applies at all speeds. Distance shortens and time slows in the presence of mass.

5. Conventions

5.1. UNIT VECTORS -
Besides direction, the unit vectors are imbued with an imaginary relationship between each other; i = j = k = l (all having a common factor of) mathematically assign the orthogonality of energy-spaces. At the near speed of light, ***c-,*** each energy-space has the relationship of the square root of minus one, , to every other energy-space.

i directs Galilean-space.
j directs charge-space.
k directs magnetic-space.
l directs light-space (which is photon-space).

Light space, having no mass, consisting of charge space and magnetic space only, has unique characteristics of not being able to exist in any space but light space. If light gives up its E-M energy to kinetic and potential energy to an entity, light loses its light-space. Light cannot project its energy onto any other energy-space

because of the character of orthogonality at the speed of light. A photon can split its energy to become two photons of longer wavelength, both continue at the speed of light. The two longer wavelengths of the split maintain the epoch of time and position of emission of the parent photon.

6. PROPOSAL on Space

6.1. Proposal 6.1.-1 Space is Created By Energy.

6.2 PROPOSAL 6.2.-1 Mass is a Relativistic Energy -

With light as the frame of reference, mass is traveling at the speed of light. The energy-space that we perceive is mass-created Galilean space. Energy-spaces other than Galilean are real, and perceive by other species: birds perceive the magnet field of the earth and the electromagnetic fields of radar. Sharks perceive the electric nerve impulses of fish, and selectively, suckerfish have been herded into traps by fences made of electric fields. With respect to all other relativistic energies, Galilean space travels at ***c***; therefore, Galilean mass-space is a relativistic space with respect to charge-, magnetic-, and electromagnetic-spaces.

6.3 PROPOSAL 6.3-1 Potential-Energy is the Creator of Space –

Each relativistic energy-space has a quantitatively defined potential force field. Energy-space is defined by its potential energy field equation, and called herein by the energy's hyphenated name space.

6.3.1. Contrapositive Energy

If there is no potential energy field there is no space.

6.3.2. Corollary

Where there is no space there is a void. There is no measure of time or distance within a void. A void cannot be maintained in more than one dimension, a void cannot project onto any other space.

6.4.4. ENERGY POTENTIAL DEFINES SPACE –

Energy creates space, and the potential energy equation defines the energy-space created. Each force equation is between two entities, items I_1 and I_2. By designating one entity as the reference, and dividing both sides of the equation by the reference, the potential equation is derived for that particular energy. For examples: gravity, the potential of earths mass is pound force per pound mass; Electromagnetic potential - volts per meter; Charge potential - dynes per coulomb of charge per coulomb of reference charge.

13.4.1 Potential Defines Space

Each potential, and therefore the density of space is an inverse function of the separating radius. The potential function of each energy, and therefore space is a third-order inverse radius potential energy function. The gradient of force with respect to radius is the slope of space. Space becomes denser as radii decrease.

6.4.4.1.1 Items of force

The unified force field is written with respect to the force between items I_1, and I_2. Newton's gravity equation is written with respect to the center of gravity of two bodies. unified force field for mass attraction applies to such mass centers as the two nucleons, two electrons in orbit, objects on Earth and the Earth, celestial bodies, and galaxies.

13.4.1.2. Three Unique Force-field Formulations, *Four Equations*

The inherent radial dependent differences that mass, charge, and magnetism have on the direction of force, makes it impossible for a single unified equation to apply to all forces. Because of these known differences there will be a Unified Force Fields equations developed herein specific to each of the three item oriented energy-force equations (those of mass, charge, magnetism and electromagnetic radiation). one generalized equation is developed for all four equations.

6.4.4.3. Potential Equations Must Agree with Known Physics
To be in agreement with nature, the unified force fields must as a minimum be a third order equations of reciprocal powers of the radius that can incorporate the known the inverse radius third order propagation equation of electromagnetic waves,, Coulomb's Law, Newton's Law, and Maxwell's law, and express the strong and weak known forces.

6.4.5. Forces Domains -
There are sets of source items (I's) for which Unified Force Fields were developed: a) aggregated particles and b) individual particles. The equation developed for aggregated particles apply to individual particle sourced forces.

6.4.5.1. Aggregated Particles Forces
aggregated forces are forces are derived for conglomerates of particles that comprise items I_1 and I_2. The mass, charge, and magnetic equations are calculated form force equations for aggregations of billions of atoms, Coulombs of electrons, amperes turns magnetic sources, and relativistic photon having no Galilean dimensions and no associated items I_1 and I_2. The force equations derived were not based on particles of force exchange, but on the concept of force reversal in the offset third-order inverse radius equation. Offsets were estimated from the physical dimensions of the space they occupied. Reversals of force had to be within the nucleus to account for charged particles of like charge to dwell within the nucleus, thereby setting the offsets in the domain of the nucleus. From the conclusions made from the aggregate force equations characteristics, it was evident that the same equations could be applied to individual particles. Offset were always multiples of DeBroglie wave lengths.

6.4.5.1.1. Individual particle forces
The smallest particle, neutrinos, exists as individual (free) neutrinos, and as entangled pairs. Free neutrinos have velocities from thermal speeds up to relativistic speeds just below that o light, designated ***c-.*** Neutrinos entangled in an electron have a quasi-unique speed that approximates the mass of the electron. Each energy state has a unique DeBroglie wavelength, which defines a speed dependent mass-space.

6.4.5.1.1 The domain for particles
Femtometer (10^{-15}meter) -dominion forces will address individual neutrons, protons, electrons, neutrinos and photons (the photon can be either a wave or a particle).

6.4. PROPOSAL 6.4.-1 PHOTON-SPACE IS ORTHOGONAL TO ALL OTHER ENERGY SPACES
No measure of space or time projects from photon-space onto any other energy-space. All energies (of different wavelengths) traveling at the speed of light create relativistic spaces, orthogonal even unto its own type energy space, and orthogonal to all other energy spaces. At the speed of light, measure of time and span are zero with its own space as the frame of reference and with any other relativistic space as the frame of reference. The proposal that energy creates space is aptly demonstrated in the entangled photon experiment. Touching both photons at one Galilean coordinate and one Galilean instant demonstrates that the relativistic zeroing of time and space is projected back to Galilean space as zero displacement and zero time. The relativistic measure of time and distance at the speed of light is zero regardless of the frame of reference.

6.4.1. Relativistic Created Energy Space
The statements in the 6.1, the Energy Created Space Proposal, are in accordance with Einstein's Law of Relativity and Lorentz's contraction and ballooning radicals.

6.4.2. Photon-space
The entangled photon experiment demonstrates orthogonal photon-space in which there is no measure of distance and time, while the entangled space spans the Galilean space. The orthogonal relativistic space of the

photon has the same span as in Galilean space. Einstein called this space spooky; herein it is called Photon-Space.

6.5. Proposition On Span –
Span is a mathematical concept that describes the difference in measure of time or distance between two points that does not vary with speed. Span is a way of understanding what physically happens to distance and time as speed increases. Span is independent of speed, the distance and time between two points, which is constant regardless of speed. The measures that disappear from Galilean space shows up in an imaginary dimension orthogonal to Galilean space. Span is the square root of the Galilean-distance squared plus the imaginary-distance squared; span is the hypotenuse of a triangle in complex space. Since the hypotenuse of a triangle that has two imaginary sides is square root of two negative numbers, span is also imaginary. Span speed of light, projects onto i Galilean space as zero. Span at the speed of light projects in full measure onto relativistic or light space (one am the same space directed by the unit vector 1.

6.6 Proposition VI – Mass at Relativistic Speed –
At progressively faster speeds from zero to c-, from the Circle of Relativity, mass is ballooned from Galilean space to relativistic space by the progressively diminishing angle $\phi\xi$.

6.6.1 Lorentz's Radical
The foreshortening of Galilean distance measures in Galilean space are related to speed by Lorentz's radical γ. Given by:

$$\gamma = [1 - v^2 / c^2]^{1/2}.$$

Relativistic measure m_R is equal to Galilean measure m_G times γ:

$$m_R = m_G \gamma.$$

$$m_R = m_G [1 - v^2 / c^2]^{1/2}.$$

Where: *m* is the measure of span of time or distance,
m_R notates Relativistic measure,
m_G notates Galilean measure,
v = s/t is speed (not velocity) with respect to any frame of reference.
c = 299,792,458

6.6.1.1 Speed is independent of frame of reference
Lorentz's radical contracts and balloons distance (s) and time (t) at the same rate), and ***c*** is the speed of light with respect to any frame of reference.

Speed =

6.6.1.1 AXIOM 6.6.1.1-1 Speed is Relativisticly Invariant –
From a frame of reference at any speed, $\delta s/\delta t$ is the same. As speed increases, the numerator δs, and the denominator δt, are both reduced by Lorentz's radical, γ. Speed is independent of relativistic frame of reference. It should not be surprising that the speed of light is c regardless of the frame of reference. The measure of any speed is the same regardless of the frame of reference, speed projects from one energy space onto another without change.

6.6.1.1.1. **(Visual aid of time at the speed of light)**
At the speed of light, Δt_R is zero; the Galilean measure of span of time is distance, and the relativistic measure of time is zero. in photon-space, the sine and cosine wave's sine and cosine are frozen, as in a movie stop frame, but still moving at the speed of light. At the speed of light, sine waves do not undulate with time as they

do at zero speed; but, as the frozen wave flies by a Galilean observation point, the sines and cosines appear to undulate at the frequency imbued upon their emission.

In photon-space, on a sine or cosine wave, as the point of reference moves back from $\phi = 0$, in increments of Δs, the sines and cosines are observed to have ordinate values corresponding to the abscissa increments of $c\Delta t$. The units of $c\Delta t$ is distance.

$$c\Delta t = \Delta s$$

At the Speed of Light, with the speed of light normalized ($\boldsymbol{c} = 1$), the above equation becomes:

$$\Delta t = \Delta s.$$

.
At the speed of light, the function of time f(t) is replaceable with f(s). Radio Frequency Audio modulation (AM) of radio waves is preserved through the freezing of time with the substitution of time as distance.

7.1.1. AXIOM: Time at the Speed of light
At the speed of light, time can be replaced by ***c*** multiplied by distance.

7.1.2. Time at partial speeds of light.
At partial speeds of light, Galilean time shortens by Lorentz's radical, Galilean measure of time approaches zero as speed approaches ***c***, because distance approaches zero as speed approaches ***c***.

7.1.1.3. Trigonometric relationship of time at speed.
In the circle of relativity, s_G Galilean distance, and s_R Relativistic distance. Galilean time slides into relativistic distance with the trigonometric relationships of tan(ϕ):

1 relativistic time (in units of $\boldsymbol{c}\Delta t$) = tan(ϕ)i Galilean time (in units of time).

7.1.1.3.1. (Time related to distance)
While speed increases from zero to c, Galilean time shortens proportional to distance.

I7.2 Relativisticly Invariant SpeeD –
Speed is relativisticly invariant, as Lorentz's radical (γ), is in the numerator and the denominator of the equation for speed; they cancels.

7.2.1 Speed As The Independent Variable
The time is distance, s, divided by speed ś

Where speed, ś, the first derivative of distance with respect to time is:

ś =

[Speed] =

7.2.1.1. Speed is nonrelativistic–
Lorentz's radical, γ, cancels, leaving the conclusion that speed is independent of Lorentz's radical, therefore is independent of relativity, and is referred to herein as nonrelativistic. Speed measured from any frame of reference is the same. Therefore, light travels at ***c,*** whether measured from the Galilean frame of reference or from the frame of reference of another photon.

Henceforth: ś ≡ Speed; all speed is nonrelativistic, meaning that it is independent of the frame of reference. Speed, being nonrelativistic, is a physical entity.

7.2.2 Momentum is a Physical entity
Momentum is the product of velocity and mass. Velocity is directed speed. Therefore, momentum is a physical entity.

7.2.2 1. Velocity is a physical entity
Velocity is a physical entity, determined by momentum divided by mass, momentum and mass are measureable physical entities. Speed, as momentum divided by mass, is a physical entity.

7.2.3. Time is a Mathematical Concept
Time, as relativistic distance divided by non relativistic speed, is a mathematical concept dependent upon distance; time exists only as a mathematical concept, not as a physical entity. Time helps us organize and keep tract of events in our lives. There was no beginning of time. there are selectable epochs from which we can start count time; but there was no beginning of time, and there will be no end of time.

7.2.3.1 Distance and time shortens with speed
The fact that distance shortens with speed has to do with space being created by quanta of energy, and energy being force through distance. Power is energy per unit time. If energy remains constant, and speed remains constant , and …

Work = force ˙distance
Power = work/unit time
Time = distance ÷ [speed]

Inserting Lorentz's radical γ, and ś where appropriate yields:

Work = force ˙γ distance
Power = work ÷ γ unit time
Time = γ distance ÷ ś

8. The Circle of Relativity

Starting with Lorentz's reduction equation [in paragraph 6.6.1. above] that calculates the relativistic measure (m_R) of distance at speed ś as v:

$$m_r = m_G [1 - v^2 / c^2]^{1/2}$$

Dividing by m_G and squaring:

$$m_R^2 / m_G^2 = 1 - v^2 / c^2$$

Adding v^2 / c^2

$$v^2 / c^2 + m_R^2 / m_G^2 = 1$$

Regrouping

$$(v / c)^2 + (m_R / m_G)^2 = 1$$

Let the abscissa X be the relativistic velocity: $X = (v / c)$, and Let the ordinate Y be the relativistic compression: $Y = (m_R / m_G)$

$X^2 + Y^2 = 1$, the equation for a circle, which will be called herein the *Circle of Relativity*.

8.1. Proposal on the Circle of Relativity –
The reality of all energy-spaces are governed by the relationship of measures of span to speed in the first quadrant of the Circle of Relativity. The limiting of speed to c and below sets the limit of relativistic relationships to within the first quadrant.

Let ω be frequency, and let ξ be the variable coefficient of frequency.

If ξ is time, $\sin(\omega\xi)$ is $\sin(\omega t)$, which is a frequency such as sound waves in air or electro-magnetic waves in space.

If ξ is distance, $\sin(\omega\xi)$ is $\sin(\omega s)$ which is a stationary wave on a media of trace such as paper on which s is a measure of span in distance.

Addressing the constant measure of span (s) in terms of the variables s_R and s_G, where s, x, and y are all in relativistic orthogonal space:

$$s = j x + l y$$

$$-s^2 = -x^2 + -y^2$$

SPAN is imaginary, because its square is equal to the square root of the sum of two negative numbers. K, J, L are all orthogonal with respect to each other.

$$k = j = l = (-1)^{1/2}$$

The imaginary space of span is directed by k :

$$k s = j x + l y$$

8.2 THE Formulas from the CIRCLE OF RELATIVITY –
Considering $(v / c)^2 + (m_R / m_G)^2 = 1$ is the circular relationship between the speed normalized to the speed of light and the ratio of relativistic measure to Galilean measure.

$\cos(\omega \xi) = v/c \equiv$ normalized speed
$\sin(\omega \xi) = m_R /$ span
$\tan(\omega \xi) = (s_R / s_G)/(v/c) = \acute{s} \equiv$ normalized time
$\cotan(\omega \xi) = (v/c) \div (s_R / s_G) = (\acute{s})^{-1} \equiv$ inverse normalized time

8.2.1 PROPOSAL VII Span independent of speed
Span is the vector sum of Galilean measure plus imaginary (orthogonal) relativistic measure between two positions. SPAN applies to measures of distance.

$$\text{Span} = \mathbf{|}\,\{[i\, m_R \cos(\omega\, \xi)]^2 + [1\, m_G \sin(\omega\, \xi)]^2\}^{\mathbf{1/2}}\,\mathbf{|}$$

8.2.1.1. (SPAN has coordinates in two spaces) Span projects onto two orthogonal spaces, and its magnitude does not change with speed. Span measured in quadrature, defines at any speed, the track between two points. Span measuring units are imaginary at all speeds except ś = 0.

8.3. THE CIRCLE OF RELATIVITY –
The Circle of relativity is illustrated in Figure 8.2.-1.

ϕ, the arc sin(v/c), is the angle between Galilean space and relativistic span, set by speed.

ω is the rate of change in the space angle, ϕ, with respect to the modulus of span, ξ.

ξ is the modulus of span, **s**. *ξ = [s, t]… [ξ is the logical universe of s and t.]*

In the diagram of the circle of relativity, v/c = ***s*** cos(ω ξ).

$\phi = \omega\ \xi$

m_R / m_G

R= 1

Span, s

$\boldsymbol{S}_G = \sin(\omega\xi)$

1 v / c i Axis

$S_R = \boldsymbol{s}\cos(\omega\ \xi)$

Figure 8.2.-1: Circle of Relativity

8.3.1. The Abscissa in the Circle of Relativity
The abscissa in the Circle of Relativity has the direction of Galilean space. The Galilean space is that of mass, and current and is directed by the unit vector i. Galilean space is orthogonal to all other relativistic spaces (All relativistic spaces are mutually orthogonal.) The abscissa has units of relativistic compression. The speed scale is limited to between zero at the origin to IBc IB equals one (1) at the circle of relativity.

8.3.2. The Ordinate in the Circle of Relativity
The ordinate in the Circle of Relativity has units of ratio, and is from zero (0) to 1 for distance, and zero (0) to approaching infinity (∞) for mass (off the paper). The ordinate in the Circle of Relativity has the direction of $j(-1)^{1/2}$ with respect to the abscissa. The ordinate represents the ratio of contraction of Galilean measure by speed. With zero speed, ϕ = 90, SPAN is entirely in Galilean space directed by $i\,(-1)^{1/2}$.

8.4 AXIOM 8.4.–1 The Speed of Light creates photon-space, orthogonal to all energy-spaces –
In the entangled photon experiment, where the velocity of light is truly ***c***, each of the two photons traveled the Galilean span of 11 kilometers in relativistic time truly shrink to zero. The constancy of the speed of light ***c*** makes the product of zero time and c equal to the relativistic measure of span zero. Yet the photons traverse a Galilean span of 11 kilometers in a Galilean time of 11 km divided by the speed of light. The only possible conclusion is that there is a photon space orthogonally spanning Galilean space. Photon-space can be imagine as looking from Galilean-space at ninety degrees up the photon track from the point of emission; all points on the photon's tack are superimposed on the coordinates of emanation, all time along the track is the Galilean time of emanation. The measure between any two points on the photon track is zero. The lapse of time between any two events on the photon's track is zero. This unique space along the photon's track herein is called photon-space. In photon space, the span of distance and time is entirely in an orthogonal space.

8.4.1. Proposition 8.4.1.-1
The full span between two points is constant (always there).
As speed increases, the full span between two points is always there; its full measure is on two orthogonal spaces, partially in l(photon-space) and partially in the i(Galilean-space). As speed increases from zero toward that of light, span projected onto Galilean-space decreases, and span projected onto photon-space increases.

The magnitude of the measure of span at any speed can be calculated from span's projection onto the imaginary ordinate and real abscissa:

$$\text{span} = \left| \left[\{ i\, \gamma \text{galilean-space measure} \}^2 + \{ l\, (1-\gamma)\, \text{light-space measure} \}^2 \right]^{1/2} \right|$$

where: i = the unit vector aligned with Galilean-space.
l = the unit vector aligned with photon-space, and
γ = Lorentz's radical.

The imaginary unit vectors are never cross multiplied directly, but are squared in the Pythagorean Theorem; the imaginary radicals are in orthogonal spaces, and their squares are negative, such that their square root, SPAN, is also imaginary. The absolute operators | | are used to remove the unnecessary imaginary radical, as it is produced as an unnecessary by product of multiple orthogonal spaces. SPAN has the magnitude of measure in at zero speed, it is a mathematical concept for human apprehension.

8.4.3. Degrees of relativity
Herein only Galilean, near relativistic, and relativistic spaces are mentioned in analytical discussions. The off angle of relativistic space is the angle $90^o - \phi$, ϕ defined by the arcsin(v/***c***). When v = 0, $\phi = 90^o$; there is no reduction in length. Span is projected entirely on the ordinate where the direction of Galilean space is directed by i, and the multiplication factor is Unity (1). When v = c, (only possible with electromagnetic radiation), $\phi = 0^o$, and the projection onto the ordinate is 0.00, and SPAN projects entirely on the abscissa, where multiplication factor onto photon-space is 1.00, and no SPAN is projected onto the abscissa.

The angle off relativistic space is the angle ϕ, the sides separated by the angle arccos(v/***c***)**.** When v = 0, $\phi = 90^o$; there is no reduction in length. Span is projected entirely on the ordinate where Galilean space is directed by i, and the multiplication factor γ is 1.00. When v = c, (only possible with electromagnetic radiation), $\phi = 0^o$, and the projection onto the ordinate is zero, and SPAN projects entirely on the abscissa where multiplication factor onto photon-space is 1.00, and no SPAN is projected onto the ordinate (Galilean space) and the multiplication factor is zero (0.00).

8.4.3.1. (Galilean space: $90^o \le \phi < 85^o$ - The world perceived by Galileo)
Galilean Space is the space with which we are familiar. Low speeds cause undetectable shrinkage in measure,

and insignificant increase in mass.

8.4.4.2. (High Seed Space: $5^o < \phi < 90^o$ Particle Accelerators)
High Seed Space is achieved in particle accelerators. SPAN in High Seed Space project obliquely onto Galilean and photon-space. In High Speed Space, span between two points becomes significant, and is calculated by the square root of the sum of the Galilean measure squared plus the photon-space measure squared. Span is a mathematical imaginary number, of which only its absolute magnitude is of importance..

8.4.3.2. The SPAN of distance
SPAN in high speed space projects onto both abscissa and ordinate axes. The measure of SPAN is in two spaces, each space directed by unit vectors that have as a factor. The imaginary radical implies orthogonality with all other relativistic spaces. As distance shortens in i Galilean-space, it shows up in l photon-space.

8.4.3.3. Near relativistic Space
Near relativistic Space it's Wednesday is between 0° and the arts in 0.00004:

$0^o < \phi <$ *arcsine(0.00004)* *thermal speed neutrino-space*

8.5. MASS BALLOONING –
As a particle accelerates toward the speed of light, its mass increases toward infinity; thereby keeping the particle from reaching c.

$$mass_R = mass_G \, cosec(\phi)$$
$$mass_R = \gamma mass_G$$
$$mass_G = \gamma^{-1} mass_R$$
$$\gamma^1 = [1 + \cos^2(\phi)]^{1/2}$$

8.5.1. Lorentz's Compression in the Direction of Speed
If space were to be compressed in the three dimensions with speed, mass would increase as a cubic function of Lorentz's radical (height, width, and length would all be affected), which has not been observed. It is concluded that speed compresses space only in the direction of motion.

8.5.1.1. Orthogonal Energy-Spaces - Proposal:
orthogonal energy-spaces do not project onto each other – Every photon is orthogonal to every other photon; although a stream of photons may have a common source, each photon has its own epoch and are therefore orthogonal. Photons do not interfere with one another; they pass through each other's track in Galilean space without interference. The exception is when two or more photons have the same origin and the same epoch of emission.

8.5.1.2. Relativistic space
Relativistic space is space where speed foreshortens time and distance to zero.

Relativistic $\phi = 90^o$ E-M propagation space

Significance depends upon the accuracy of the instrumentation at hand to measure the foreshortening or ballooning.

8.5.1.3. Galilean measure shortens as relativistic measure increases.
While Galilean measure of distance is relativisticly foreshortened by speed, the vector sum of the l –directed abscissa and i –directed ordinate measures add in quadrature to maintain the magnitude of the span (as measured at zero speed in Galilean space).

*8.5.1.4. at **c**, no time , no distance*

In the entangled photon experiment, the photons traverse the span of 11 kilometers in Galilean space at the speed of 11,000 m/***c*** in Galilean time. When detected, the entangled photons are touched in their self-created relativistic space, where the relativistic measure of time projects onto Galilean space as zero lapse in time, and the relativistic measure of separation projects onto the Galilean space as zero. In light space directed by l, time as a dependent variable of distance, is relativisticly zero. It is as if one were to look down the path of the photons and see all points touched - no matter where one put down the finger. The only time on the path is the epoch of emission, when time stopped. the only position of points along the path is the coordinates of the epoch of emission. Fixed at the point of emission pointing the direction of the photons path, is the unit vector l, pointing to the physically imaginary track of the photon. When one entangled photon is touched or detected, the touching is in photon space, where the other photon is also touched in a Denver Instantly, faster than the speed of light, absolutely without delay. Lorentz's radical calculates the measure of distance and time as zero. The relativistic intervals of time and distance between entangled photons are zero.

8.5.1.5. E-M propagation only at the speed of light

When a photon slows below the speed of ***c*** it loses its energy, giving it up as heat or to excite an orbiting electron to a higher energy state.

8.6. THE PHYSICAL BALLOONING OF MASS WITH SPEED –

The only dimension that is relativisticly reduced by speed is the dimension in the direction of speed. Mass is squeezed into a smaller and smaller dimension in the direction of speed. Within the thinning Galilean measure, mass (because it is energy, and energy cannot be created or destroyed) is squeezed between planes normal to the direction of motion. This constitutes increased density of mass within the decreased dimension. As speed approaches that of light, and the thickness of mass-space approaches zero measure, and mass density approaches infinite. Mass, in any infinitesimal amount, prohibits ś from reaching c. as mass balloons toward infinity, it becomes impossible to accelerate. Mass balloons with speed as a function of 1+cosec(ϕ), derived from its trigonometric relationship in the Circle of Relativity:

$$l\,mass_R = i\,mass_G\,[1 + \mathrm{cosec}(\phi)].$$

8.7. Distance Shortens With Speed -

Distance is a measure of space, space is created by potential energy. Energy is work that would be generated if a force were to be exerted over distance. Power is work per unit time, and time is relativistic distance divided by nonrelativistic speed. So:

Energy = potential Work
Potential work = potential force times distance.
Potential Power(P) = (Potential Force(f)) (distance(s) per unit time(t)):

$$\text{Power(P)} = [\text{force(f)}]\,[\gamma\text{Distance(s)}] \div [\gamma\text{time(t)}]$$

[Note that here time is treated as a relativistic entity.]

Substituting: $[\gamma\,\text{Distance(s)}] \div [\gamma\,\text{time(t)}] =$

Gives:

$$P = f \cdot$$

Let ś (nonrelativistic speed), then:

$$P = f \cdot ś$$

Planck's energy per wavelength for a particle in motion:

h = Planck's energy per wavelength of a particle in motion.

$\lambda = h/p = h/\gamma m\acute{s}$

If speed (ś) increases, momentum increases, and wavelength (λ) for a particle is shorter. mass in the denominator is relativistic, and speed is nonrelativistic. The relativistic ballooning of mass has been explained. The necessity for shrinking distance with speed has been demonstrated; the mechanism for shrinking distance with speed has not been demonstrated.

8.7.1 Distance Shrinking with Speed AXIOM

The speed of light shrinks distance, as demonstrated in the entangled photon dilemma (phenomenon). Mass is not a requirement in shrinking distance. Moving energy, at any speed does shrink distance. The smallest unit of energy is Planck's constant. The wavelength of a moving particle is λ. And λ is inversely momentum dependent. Photons have momentum, and the greater the momentum the shorter is λ. Since Planck's energy is the smallest unit of energy, the space it generates is the smallest segment of space. The cross section of the smallest segment of space is in joules, and its length is λ. Distance shrinks with speed because λ-dependant space shrinks with speed, whether it is generated by moving mass or propagating energy, light. Space shrinks to zero at the speed of light.

The power equation is balanced by shortening the particle's wavelength, λ. If mass balloons with speed, and speed and h are nonrelativistic, λ becomes smaller. λ is the basis for all sizing of distance. Distance shortens with speed allowing mass to increase with speed, keeping energy per unit length to remain constant, maintaining the first law of thermodynamics: energy is neither created nor destroyed. Q.E.D.

8.7.2. Effects of Entanglement

Consider the entangled photon pair phenomenon, described in 3.1 Entangled Photons. If Einstein and Podolsky's entangled photon pair were allowed to travel in opposite directions for one year, when one was captured, the other would disappear instantly. In Galilean space, the entangled photon twins would be separated by two light years. Not only is the instantaneous capture collapsing Galilean distance, but also collapsing the Galilean time of capture. Detection of the entangled photons happened over distance faster than the speed of light, in truth instantaneously, absolutely without delay. The relativistic time of capture is one year ago, because relativistic time stops at $\boldsymbol{c}$. The only time for an entangled photon pair is that of the Galilean epoch of emission. Relativistic time stopped because of its relationship with relativistic distance divided by nonrelativistic speed. Distance collapsed as a result of the speed of light. Tine collapsed because of its dependency on distance.

8.7.2.1 Entanglement Proposal

Photons, and their downshifted offspring, are entangled in shared relativistic space by a common point and epoch of emission; the result of zero displacement and zero time lapse between the emission point of the parent photon and the point of downshifting are at the speed of light.

8.7.2.2. Photon space spans galilean space

In the relativistic space of entangled photons, time stops and measures of length are zero. This implies a relativistic space spanning Galilean space, where the photon traverses Galilean space while at one point in its relativistic photons-space. While taking Galilean time to traverse the span, in relativistic space, the only time is the Galilean epoch of emission, there is no relativistic lapse of time.

8.7.2.3. Photon space

The entangled photon phenomenon, of 3.1 Entangled Photons, is calculated using Lorentz's formula showing distance measure shrinks to zero and time stops at the speed of light, $\boldsymbol{c}$. Therefore, both photons are at one point in their entangled photon space. If you touch one ... you touch the other. Because time stops at the speed of

light, as there is no distance in the entangled space. Besides touching both photons, they are both touched at the same instant, even though they may be separated by light years in Galilean space.

8.7.2.4 Origin of the Entangled Photons
That two entangled photons that are emitted from the calcium ion with one point of origin and one start time, is because two counter rotating electrons in the calcium atom have the same point of origin in the same space by creating orthogonal spaces by counter rotating. The two electrons have the same potential energy level and the same point of origin. When the two electrons fall in unison to the same lower energy potential, they emit two photons from exactly the same point of origin time, the two photons traveling in exactly opposite directions from oppositely rotating electron. The two photons therefore create a common photon-space having a common point of origin and a common epoch of emission. Their common center of mass and, and epoch of admission satisfy the requirements of entangled. The relativistic measure of separation in distance and the relativistic measure in lapsed time is zero.

8.7.2.5. Three and More Entangled photons
More than two photons can be entangled in one photon-space through photon splitting. Photon splitting does not change the epoch between the split photons and the parent photon because there is no time lapse in photon-space. Likewise, the spit photons have the same starting location because there is no measure of span in photon-space, and the generated photon pair have downshifted frequencies (longer wavelength). There is no criteria on an entangled pair's path, therefore a straight path is not a requirement for entanglement, and mirrored and fiber optic paths may transport entangled and downshifted entangled photons. The second generation photons travel at the speed of light, maintaining a zero lapse of time and zero measure of distance, the criteria for entanglement. Also, there is no criterion for entanglement to be on a path of constant index of refraction. Therefore, lenses and fiber optics are allowable on the photon path of entangled photons; lenses and fiber optics create greater photon space (the photons do not change speed).

8.8. All Photons Are Orthogonal –
Photons not entangled are orthogonal to Galilean space, orthogonal to all other photons-spaces and orthogonal to other energy-spaces. Photons are orthogonal because of separate points of origin or epoch of emission. Photons that are not entangled cannot touch, interact, or interfere with one another, each photon has its unique photon space.

8.9. Energy Survives Interception –
The energy that photons deliver is not orthogonal; the photons' energy retained characteristics are its magnitude and polarity that adds vectorily with other energy force vectors. The addition can be constructive or destructive.

8.10. Interaction Between Orthogonal Spaces –
The characteristic of orthogonality holds true for all entities traveling near the speed of light. The probability of collisions between particles moving at near light speed is extremely low, and the consequences in the aggregate so insignificant that the probability for particle collision can be assumed to be near zero.

8.11. Energy in two spaces –
Energy can exist in two orthogonal spaces simultaneously. By redundant logic energy can exist in multiple orthogonal spaces. Photons exist simultaneously in photon space and Galilean space. The first law of thermodynamics, "Energy cannot be created or destroyed," supports the statement that the energy in one space is the same energy as that in shared spaces.

8.12. The Denver Instant –
To touch two places at the same time in photon-space is referred to herein as a Denver Instant. The Denver Instant will be used as a tool to investigate relativistic phenomenon. [There are an infinite number of Denver Instances in a New York Minuet.]

8.13. Relativity from Speed –

Within Lorentz's radical is the symbol v^2 which has been misconstrued as velocity, but it is speed that causes relativistic change.

8.13.1. Cesium Clocks Experiment–
The cesium clocks flown around the world slowed; flying in circles constitutes a constant change in velocity. The integration of velocity around a circle is zero. Although there is acceleration in moving around a circle, the acceleration is toward the center (centripetal), perpendicular to the direction of motion. The summation of the vector portion of velocity around the circle returns to the starting point; therefore, the sum of the velocity vector about a circle is zero. The airplane's speed was (somewhat) constant. It is concluded that the cesium clock slowed because of speed alone.

9.8.2. The difference between Velocity and Speed –
Lorentz's relativistic contraction is a function of speed not velocity; as demonstrated the first time derivative of a *vectored* distance (***s***) is a vectored velocity (***v***):

$$d\boldsymbol{s}/dt = \boldsymbol{v}.$$

The first time derivative of *scalar* distance (s) is speed (ś):

$$ds/dt = ś.$$

To be in accord with published articles, Lorentz's Radical herein will remain written as:

$$\gamma = [1 - v^2/c^2]^{1/2}.$$

Where: $v = ds/dt = ś$

9.10.1 Implication of Speed on Entanglement
The implication of v = ś is that entangled entities, whether photons or neutrinos or any other entangled entities, are not disconnected by change in path or any time derivatives of tangential measures. Entanglement is maintained by speed alone. Entanglement is destroyed by the loss of the speed of light, as in photon detection. Speed of light, ***c***, and the electrons near speed of light ***c-*** are alone the criteria for relativistic space. This is paramont in the understanding of dilemmas.

9. THE physics OF Time and Distance

9.1. time–
It was proven above that speed is nonrelativistic in paragraph *7.2.1.1. Speed is nonrelativistic*

AXIOM 9.1-A: Time is the dependent variable of distance divided by speed.

With axiom 9.1-A, time diminishes proportional to distance, while speed remains nonrelativistic. The conclusion is that relativistic time is proportional to relativistic distance divided by non-relativistic speed; relativistic time slows because relativistic distance shortens with speed.

Hypothesis 9.1-B Defining Distance as speed, ś, times time.
If distance (s) were to be defined as speed multiplied by time:

$$\gamma s = ś\gamma t$$

śγt ≡ γt, then, canceling γt gives:

ś ≡ , and canceling γ from the numerator and denominator yields:

ś ≡ ś.

The concept of relativistic speed is destroyed by the cancelation of relativistic time in the denominator by the multiplying factor of relativistic distance in the numerator. With relativistic time out of the equation what remains is:

s = s.

After dividing by s, the proposed definition for distance as *time multiplied by speed* has the trivial result of 1 = 1. Hypothesis **9.1- b is without merit.**

9.1.2. Treatment of Time Herein
Time will be mathematically treated as if it were a physical entity, shortened by Lorentz's radical γ, and ballooned by Lorentz's inverse radical γ^{-1}. The relationship of time to distance is relativisticly related by the nonrelativistic factor of inverse speed. This is the nature of time. The circle of relativity does not apply to time, as time is not a physical entity. When time stops at the speed of light, it is not moved to an imaginary space; there is no imaginary component of time in any other dimension.

Proposition 9.1.–B: Distance is not an independent variable of speed.

9.1.1. AXIOM: Time is distance divided by speed.
Of relativistic time, speed, and distance … time is the dependent variable, dependent on distance. Distance is relativistic; speed is not relativistic. With speed normalized to ***c,*** at the speed of ***c***, time can be replaced by distance.

9.1.2.1. Treatment of time herein
Time will be mathematically treated as if it were a physical entity, shortened by Lorentz's radical γ, and ballooned by Lorentz's inverse radical γ^{-1}. The relationship of time to distance is relativisticly related by the nonrelativistic factor of inverse speed. This is the nature of time. The circle of relativity does not apply to time, as time is not a physical entity. When time stops at the speed of light, it is not moved to an imaginary space; there is no imaginary component of speed in any other dimension.

10. Relativistic Effects on Span

10.1. Relativistic Effects On Time And Distance -
Time is a mathematical relationship between length inverse speed, treated herein as a physical entity in that it is reduced by Lorentz's radical (because it is related to distance which is reduced by Lorentz's radical, γ). Galilean time is without speed with respect to Galilean frame of reference. SPAN of time in Galilean space foreshortens to zero at the speed of light in accordance with the Lorentz's contracting radical, because distance shortens with speed to zero. With a photon as the point of reference, the Galilean space is moving at the speed of light; with photons as the frame of reference, Galilean distance is zero and Galilean time stops. With any frame of reference, the speed of light is c, and the only time for a photon is the time of emission epoch. In addition, the distance from the point of emission is zero at all pints along the photon's track.

10.1.1. Time at the Speed of Light. Contemplate a propagating electromagnetic wave. Its equation with unit space-vector notation is:

l E = jcos(ϕ) + ksin(ϕ), or

l E = jcos(ωξ) + ksin(ωξ).

For the electromagnetic potential wave, where:

ξ = t in Galilean space, and

i: the unit vector giving direction to Galilean mass-space where current flows, and

j : the unit vector giving directing orthogonal charge-spaces, and

k : the unit vector giving directing orthogonal magnetic-space.

l : the unit vector giving orthogonal directing to photon-space, E-M (electromagnetic energy) at the speed of light, ***c***.

10.1.1.1. Orthogonal spaces

i , j, k , and l direct spaces that are created orthogonally to one another; no relativistic space projects onto any other relativistic space. The energy, being neither created or destroyed, is transferable between energy spaces.

$$R = m_R/m_G$$

R=1

R = 0.866025

t (SPAN)

Φ $\phi = \arccos(1/2) = 60^{O}$

ϕ ϕ

speed

c (normalized) = 1

v = *c*/2 = 0.5

Figure 10.2.1.1-1

10.1.1.1.1 (Time and distance at half the speed of light)

At half the speed of light, **c**/2, the reduction of time to 0.866025 of that at zero speed, constitutes a loss of 0.133975 in the reduction ratio. The reduction in time is proportional to the shortening of distance. The slowing of time, since it is a mathematical concept, does not have to be accounted for as if it were a physical entity. Lost time does not move into an orthogonal dimension because time does not exist except as a mathematical concept.

10.2.1.2 Time at the speed of light, c

At the speed of light (where ϕ = 0), the reduction of distance is complete; time does not exist in the dimension of light, because distance, reduced to zero, is traversed at the speed of light in a Denver Instant.

10.3 INSTANTANEOUS COMMUNICATION –

A description of a hypothetical faster-than-light entangled photon communication channel is inserted here to be used herein as an analytical tool.

10.3.1. Proposition on Faster Than Light Communication –

Assume two streams of entangled photons are emitted to become a two-way communication channel between two space stations a light-year apart. Each ship emits a stream of entangled photons; at both stations, a reference beam of the entangled photons is delayed in a light-year long optical fiber. The receiver of light flips a

mirror deflecting photons into a detector, thereby encoding the light stream by destroying the entanglement. At the light emitting station a light year away, the paired entangled photon instantly disappears. The un-encoded photons continue for a distance before being destroyed. At the light-emitting station, the light in the optic fiber is analyzed for photon continuity. At the light-emitting station the interval of missing photons is decoded at the exact moment of the encoding. The information is decoded as missing photons in the reference optic fiber. The light emitter is the information receiver, and the light receiver is the information transmitter.

10.3.1. Synchronizing clocks

The space stations' clocks are now different from each other because the ships that ferried them to the space stations moved at different speeds over different paths. The clocks can now be synchronized using the instantaneous entangled photon channel. Human intuit to instantaneity is restored to respectability. Clocks separated by light-years are synchronized, and instantaneity has meaning to humans in human relationships in the Galilean frame of reference. Einstein's instantaneity retains meaning in relativistic physical relationships; Einstein's instantaneity retains meaning in relativistic physical relationships.

11. zero speed

11.1 ABSOLUTE SPEED -

Absolute speed is an enigma because there is no benchmark from which it might be reckoned. From any frame of reference, the speed of light is ***c***; therefore, any frame of reference is a viable zero benchmark for measuring speed. There is no such thing as zero speed. Nothing in the cosmos is dead still.

12. FORCE FIELD

12.1. Known Force-Field characteristics –

The identifying characteristics and differences of known energy fields are: Mass-force (gravity) is attractive between masses, its aggregate gravitational field was described by Isaac Newton, and its strength varies over the surface of the earth. Gravitational forces have been suspected to travel through space faster than the speed of light. The first energy-space equations to be discussed will be for aggregate Forces, as in billions of atoms having aggregated mass, coulombs of electrons in aggregated static charges, and current in coils measured in amperes. The second discussion of energy-space will address Particle Forces of individual protons, electrons, and neutrinos at radii of the measure pico-pico-nano meters (10^{-33} m).

12.1.1 Aggregate forces

Aggregate forces are addressed first, because they are forces that are what engineers and physicists have worked with. The unified force field for gravity, charge, magnetic, and light were addressed first, because they were the forces that were understood. The third order inverse radius equation was developed considering aggregate mass, aggregate charge, aggregate magnetic materials. The concept of energy creating space was deduced from the Einstein, Boris Podolsky and Nathan Rosen experiment in 1936. In this experiment two photons from a calcium atom where emitted in exactly opposite directions, when one was detected the other disappeared instantly. The concept that a photon spanned the distance between two points in a relativistic space seemed to have eluded Einstein, Podolsky, and Rosen even though they had designed and executed the experiment, and knew that distance at the speed of light was zero, and that there was no lapse in time at the speed of light. They failed to realize they were working in an imaginary space. This imaginary space is herein called photon-space or light-space. The relationship between photon space, Galilean space, ais developed herein in the paragraph "8.2 The Circle of Relativity," above.

12.1.2.1. Aggregate Mass-Force

Aggregate mass-force applies to atoms, molecules, and larger mass conglomerations. The direction of force is

radially dependent, changing directions dependent upon the DeBroglie wavelength.

12.1.2.2. Aggregate of Charge-Force
Charge-force applies to aggregations of unit charges, the direction (attractive or repulsive) depends on two charge polarities; opposite charges attract, like polarities repel, and remain in the vicinity of the source, i.e. they do not propagate. Charge-force is an all-inclusive term for static and dynamic charge forces. The direction of charge force is also dependent on the DeBroglie wavelength.
.
12.1.2.3 Aggregate of Magnetic sources
Magnetic force fields have static sources (as in ferromagnetic materials or static direct current), and dynamic forces in varying current sources and varying circulatory charges (as in turbulent moving ions and varying or alternating current).

12.1.2.4 Aggregate of electromagnetic sources
Acceleration of electron current (as in a radio antenna) or acceleration of ionic charges (as in lightning) constitute an aggregate source of electromagnetic radiation. Electromagnetic radiation is free of its source, has momentum but no rest mass, and travels at ***c*** with respect to all frames of reference. The electromagnetic propagation equation is the model for all force equation. Electromagnetic radiation of the third order within 2 ½ wavelengths of the antenna is returned energy.

12.1.2. particle forces
After the full development of the Unified Force Field for aggregate forces, it became apparent that the forces between particles could also be expressed by the same unified Force Field equations for particles. The common parameter between aggregate forces and particle forces is the DeBroglie wavelength. Aggregate forces were developed for two items of aggregate conglomerations of particles. The inverse radius squared force relationship was a natural development expressible as a function of inverse radius squared. The common carrier of force for aggregate forces and particle forces is the neutrino.

12.1.2.1. Particles of force exchange
entangled neutrinos are the medium of force exchange, the relativistic space in which the neutrinos transfer force has no measure of distance and no measure of lapse of time. The force transferred by entangled neutrinos is independent of distance and time, resulting in a constant force while traversiIng span in a Denver instant.

12.2. PROPOSITION ON THE CREATION OF SPACE -

12.2.1. PROPOSITION: Energy creates space.

12.2.1.1. Corollary I
Space does not exist until occupied; it is created by the force mechanism that is its occupant.

12.2.1.2 Corollary II
The potential energy equations describe the shape of space created by energy.

12.2.1.3 Corollary I*II*:
The relativistic neutrinos of force-exchange, and electromagnetic radiation create energy-space.

12.2.1.4 Corollary IV-a*:*
since energy is quantized, space is quantized.

12.2.1.5 Corollary I*V-b*: The smallest piece of space has Galilean dimensions of cross section in Joules and of length λ, where λ is the particle's DeBroglie wavelength or the wavelength of electromagnetic radiation.

12.2.1.6. Corollary I*V-c*:
Space is independent of the direction of the force and the polarity of potential.

12.2.1.7. Corollary I*V-d:*
Space is always positive.

12.2.1.8. Contrapositive*:*
Where there is no energy, there is void.

12.2.2. Electromagnetic Space
The occupants of propagating electromagnetic space are charge and magnetic potential energies, self-entangled energy spaces, propagating without particles or mass.

12.3 Proposition on a Void -
A void is where there is nothing, no potential energy to create space. A void has no origin, no locating dimensions, and no epoch of time. A void requires no calculation. A void is like thinking of a blank blackboard, then erasing that thought.

12.3.1 Void means nothing
Where there might be space, but there is no potential force of any kind, there is Void. If the potential energy of a void were to be calculated, the result would nothing, resulting in no space; a void does not create space. a void can exist in only one energy space. Such a place is the center of an electron where there is a spherical void in the imaginary dimension of charge-space. At the center of that spherical void is the electron's center of mass (COM). The COM is a mathematical concept and does not negate the fact that a Void exists within the electron. The void within an electron is created by relativistic neutrinos. Neutrinos approaching electrons void core would be free neutrinos with low energy, low momentum, and longer the Broglie wavelength than the electron neutrinos. The electron-neutrinos would successfully diverged impending free sample neutrinos by the first mass-force term. photons and magnetic fields, by virtue of their orthogonality can transparently pass through the void core of the electron.

12.4 Energy-Space Nomenclature -
Energy-Space is a collective term that refers to the spaces created by any and all energy potentials. Energy-space is defined by the potential force formula.

12.4.1. Photon-Space
A space created by interacting E-M energy fields of a photon. A unique photon-space is created for every non-synchronous non-entangled photon. Entangled photons occupy one photon-space.

12.4.2. Mass-Space
A space created and defined by potential mass-force fields.

12.4.3. Glass-Space
A subset of mass-space created by transparent material.

12.4.3.1. Photon-Path
The combined spaces of mass-space and glass-space and light-space of one wavelength (one color). A unique orthogonal photon-path is created for each wavelength (color).

12.4.5. Charge-Space Charge-space is created and defined by potential charge-force fields, consisting of entangled neutrinos vibrating about void spheres about lepton's center of mass.

12.4.6. *Magnetic-Space*
Magnetic-space is created and defined by potential magnetic-force fields. The relativistic tangential speed of the electron-neutrinos causes time and distance to reduce in tangential direction in accordance with Lorentz's radical. Magnetic space reduces proportional to radius times angular velocity. At each radius, time and

tangential distance are reduced by the same value of Lorentz's radical; therefore, magnetic space is nonrelativistic (magnetic space is not dependent upon the point of reference). Magnetic space has an orthogonal direction to electrostatic force by being created perpendicular to electrostatic fields by the rotation of the electron at the speed of ***c-.***. Magnetic space is the curl of charge-space. The magnitude of magnetic space formulation terms has the same coefficients as charge-space formulation terms. The iGalilean-density of magnetic-space is reduced by the inverse radius squared; the k magnetic-space density is independent of radius by the virtue of orthogonal relativistic radial speed of the electron-neutrinos that create the magnetic field.

12.4.7. High Energy Particle Spaces
Relativistic space, the space of high-energy particles having mass with velocities less than ***c***, project onto relativistic energy-spaces in distance and time as described by the Circle of Relativity.

12.4.8 Electromagnetic Space / Photon-space
Electromagnetic space is charge space and magnetic space regenerating each other by being in the relationship of jcos(ωt) + k sin(ωt). Electromagnetic space has no mass and no particles of force exchange. Only electromagnetic-space travels at the speed of light. Electromagnetic space is time invariant self regenerating potential ***energy spaces (self-regenerating c***harge-energy and magnetic-energy***) moving at the speed of light, transferring momentum without mass.*** they propagate at the speed of light, where distance replaces time and speed is normalized to ***c***. E-M space is directed by 1 , and is orthogonal to all other energy spaces including other electromagnetic propagation energy-spaces.

12.5 Mutually Orthogonal Spaces –
Mass, charge, magnetic, and electromagnetic propagation energy spaces move at or near the speed of light with respect to the other energy spaces and thereby create their mutual orthogonality. Galilean space is the space with which we are familiar, and it is difficult to imagine our space as moving at relativistic speed, but Galilean space has relativistic or near relativistic speed when other energy-spaces our the point of reference. Charge-space is created by electron neutrinos vibrating radially from around the electron's void core at near relativistic speed. Magnetic-space is created by tangential speed of electron neutrinos in rotation of the electron. Electromagnetic spaces propagate at the speed of light. Each energy-space moves relativisticly with respect to the other relativistic spaces by separation of epoch location or direction of generation.

12.5 The Meaning of Potential –
Each type of energy generates its energy-specific space. Energy creates space, and the potential energy field equation defines the space created. The earth's gravity does not produce force until an item of mass is in its field; the weight of the object is the force gravity produces on the mass of the object. The earth's gravity is a potential mass-force until another mass is in its field. Charge is not detectable until another charge is in its field; only then is a force created. Magnetic fields are undetectable until another magnet is in its field. The second magnetic can be induced by the first magnet, as in ferromagnetic materials.

12.5.1. Mass-Space Potential Force
The Gravitational Force Field – The inverse second order radius term of the mass-potential force field delineates mass-space known as gravity. The increased space creates a lower potential energy state: lower potential is the source of attraction between masses. By two energy sources (two masses) moving together, each reach a lower potential energy, therefore both are in a more stable energy state. [physical systems move toward lower states of energy; the second law of thermodynamics.] Mass is a form of energy equivalent to $E = mc^2$, and gravity is aggregate masses' potential force field. The mass-potential force field (gravity) delineates aggregate mass-space. Earth's gravity is mass-potential field's second term acting on an isolated mass.

12.5.1.1. The shape of Mass-Space
Earth's Gravity is the shape of i Galilean space created by Earth's mass. All masses create gravitational force fields. By moving two masses together, both bodies reach a lower potential energy state; the two masses slide down into a mutually generated valley of lower potential energy.

12.5.2. Potential Force Between Leptons

Lepton force is independent of distance – The force between two individual leptons is through the interaction of entangled neutrinos. The force is reciprocal (the force acts on both particles) and is independent of distance (because of relativistic speed), the neutrinos that comprises the leptons are moving at near speeds of light, c-.

12.5.2. Galaxies of Relativistic Space

The gravitational mechanism pulling galaxies into Black Holes is the increased relativistic space within the Black Hole. The relativistic speed of mass particles within a black hole approaches the speed of light. The mass of galaxies inside a Black Hole creates galaxies of relativistic space. The slope of space into a black hole is extremely steep. Galaxies are sucked into a black hole is analogist to substance being sucked into a vacuum bottle.

12.6.1. Relativistic Galilean Mass-space

Galilean mass-space is relativistic with respect to all other energy spaces; with respect to other spaces, mass is traveling at the speed of light. All energies reaching the speed of light, $\boldsymbol{c}$, create orthogonal relativistic spaces with regard to all other energy spaces, and to all energy spaces that do not have the same origin and epoch. As mass accumulates the relativistic distance shortens, causing time to slow, and space to become more dense with respect to Galilean space. In a black hole the accumulated galaxy of mass creates a galaxy of relativistic space. The deep potential gravity created attracts more mass with increasing force.

12.6.2. Space Without Potential Force

Inside a spherical shell of constant thickness, the resultant gravitational field of mass is zero. One might argue that there is no space within such a sphere. However, each shell segment creates mass-potential. The sum of mass-potential force vectors at any point within the shell cancels, but the space does not cancel. The mass-force transmission media (neutrinos) continues to create space within the sphere. **Therefore, space can exist with or without a potential energy force.** However, energy-potential cannot exist without creating space. [This will be of importance in the explanation of electromagnetic propagation.]

12.7 Forces between two entities –

Forces are between two entities (I_1 and I_2) of the same energy type. One entity, as an energy source creates a potential for the other source of like energy. Both entities' potential field creates space of that specific energy. The equation defining the potential energy defines the energy-space created. Energy-space source entities are: mass, charge, and magnets. Electromagnetic propagation is treated as the interacting self regenerating combination of charge-space and magnetic-space.

12.7.1. Charge and Magnetic Space

Electrons create both charge and magnetic fields. The fields are orthogonal energy-spaces. Charge fields add vectorily, and magnetic fields add vectorily. Charge fields act on charges, magnetic fields act on magnets.

12.7.1.1. Current in a wire

When moved in a conductor by an electromotive force, electrons align poles north to south as the negative electrons move toward the positive source. The magnetic fields add in magnetic-space with fields of other electrons in the same conductor and with magnetic field of electrons in nearby conductors. Magnetic fields are in their imaginary spatial domain, an attribute that is not within our innate ability to sense. The charge field is the radial complement of flux, the magnetic field is the tangential complement of flux. [Birds do have the innate ability to sense the magnetic field of the earth, which he used you to navigate].

12.7.1.2. Magnetic materials

Unpaired electrons in atomic orbits are present in all magnetic materials. The magnetic atoms' position and alignment in crystalline structures determines their magnetic properties.

12.7.1.3. Photon Generation

When an electron is in an atomic orbit, it has potential energy with respect to the mass-space created by itself and all host fermions' charge-spaces. When the electron drops to a lower energy level, the potential charge-

space equivalent to energy change from the position of the electron rips away and begins to coil from the acceleration caused by the jump. As the charge field is pulled from its static position, the magnetic field begins to uncurl counter to the direction of the electrons spin. As it uncurls, it creates a charge potential energy-space. At the apex of the charge potential, the charge energy begins to curl in the opposite direction. This implies a residual momentum in the direction of unrolling, tangential to the charge field. The energy of an electromagnetic propagating field is a sinusoid of energy that coils and uncoils, sustaining itself at the speed of light. When coiled the energy is a magnetic field; when uncoiled the energy is an electrostatic field. The envelope of both fields are sinusoidal in quadrature with one another.

12.7.1,3,1 (Photon space)
The charge-space is no longer attached to its generating source, and propagates creating its own orthogonal energy-space. The direction will therefore be radially away from the center of mass of the emitting electron. Other electrons in orbit about the nucleus will be in orthogonal spaces, and transparent to the emitted photon. Photons are pieces of charge-space and magnetic space separated from its source that reconstitute each other in the direction of propagation. Entangled and unentangled photons are independent of their source, but retain the epoch and coordinates of the source.

12.7.1.3.1.1 (The dimensions of a photon)
The photon is joules seconds/cycle in cross-section, multiplied the wavelength, λ, in cycles, which gives Joules per cycle. Since power is Joules per second, the shorter the wavelength of a photon the greater will be its power. The photon can be readily visualized as a unit of work traveling at ***c,*** of constant volume. stretching a photon out longer will make the cross-section smaller, and the work done per unit time lapse smaller, constituting low power. Compressing the cylinder makes the cross-section larger; the work done per unit time is larger in a shorter distance in less time, constituting higher power.

12.7.1.3.1.1 Quantized Space
photons are quantized, and the spaces they create are quantized. Quantized does not mean the spaces are of the same dimension. The photon's space varies in cross section and length. Each photon does have the same energy, that of one quantum of energy. That one quantum can be associated with the volume of the photon; the cross section is potential and the length is one wavelength. The shorter the wavelength the high power, power being energy per unit time. Time at the speed of light is length.

12.7.1.4. Curling and Uncurling of Electromagnetic Space
The Energy-space concept of magnetic fields is that magnetic fields are curled electric fields. At the point of propagation, the cosinusoidal current oscillates at the transmission frequency driven by the power amplifier. Curling and uncurling of charge-spaces create the orthogonal H- and E-field energy-states at the emission point of the electromagnetic wave. The propagating electromagnetic wave continually regenerates itself by oscillating between these two energies-spaces; the E-field decreases by rolling into the H-field. When the E-field crosses zero it is changing at the highest rate, and the H-field is at its maximum and begins uncurling, reversing the change in polarity. As the H-field unrolls, it straightens into the E-field creating a negative E-field. In this manner, the fields continue to regenerate themselves. The energy exchanges are without loss, and can perpetuates itself through space for billions of years (witness star light). At each point, the sinusoidal charge-space and the cosinusoidal magnetic-space in quadrature reconstitute the photons energy. Although time is frozen in relativistic space, speed is not. As they pass between a point in Galilean space the magnetic and electrostatic potential energies are at their frequency at emission.

12.8 Photon ENERGY-SPACE DEFINITION–
The photon is comprised of charge and magnetic spaces having one Planck constant of energy and one wavelength length. The one quantum of spin is shared in quadrature between charge and magnetic spaces, regenerating each other. The space created is one quanta of energy-space created and filled by the photon.

12.8.1 Electromagnetic Emission
Electromagnetic emission happens when and where there is an acceleration of charge. Such acceleration is present when an electron drops from one energy orbit to a lower energy orbit, when electrons oscillate in an

antenna, when electrons jumping from a cathode stops abruptly at the anode (as in magnetrons X-ray tubes, and early TV high voltage rectifiers), in a stroke of lightening, and in an the primary and secondary effects of a High Energy Electromagnetic Pulse (HEMP) from an atomic bomb exploded above the atmosphere.

12.9 Inter-lepton force transfer–
The electrostatic and magnetic force transfer characteristics between leptons are imbued by the interaction between electron-neutrinos of separated leptons.

12.9.1. Propagation
Electromagnetic energy propagating from a dipole antenna is that of the dynamic energy of the electron being accelerated back and forth in the antenna. For example, consider a center fed dipole antenna:

12.9.1.1. Dipole Emission
Electromagnetic emission from a dipole must begin in a manner that is not dependent upon relativistic speed. Acceleration is a known requirement for propagation. Acceleration requirement is satisfied by the sinusoidal displacement of electrons current in an antenna. The first derivative of the sinusoidal displacement of electrons is velocity, and is mathematically represented by the cosine wave. The second derivative of electron displacement of electrons is acceleration, and is mathematically represented the derivative of the cosine wave, which is minus the sine. The second derivative satisfies the acceleration requirement for emission.

I2.9.2. Propagating Energy Is Free From the Source
In the state of Electromagnetic (E-M) propagation, the energy is independent of the source. in the case of E-M propagation from an antenna, the propagating fields are free of the driving current; propagating energy is free of the emanating electron.

12.9.2.2. E-M propagation
E-M propagation is charge-space and magnetic-space. Both spaces are potential energy. Energy creates the space, and the space transports the energy. There is no mass transported with the E-M energies or the associated spaces. The energy of E-M radiation becomes momentum when absorbed by mass. The mass acquired energy is ½ mv^2

$E = 1/2mv^2$,

$2E = mv^2$,

$2E/m = v^2$

$(2E/m)^{1/2} = v$

$m^{-2}(2E)^{1/2} = v$

$m^{-1}(2E)^{1/2} = mv$, but mv is momentum, p. Therefore:

$p = m^{-1}(2E)^{1/2} = 1/m(2E)^{1/2}$

The momentum transferred to mass, m, is inversely to proportional m times the square root of two time the energy. A small mass will receive more momentum than a larger mass.

12.9.2.2.1. (One energy in two fields)
energy in a propagating wave alternates between Charge field and magnetic field. The energy from the power

amplifier input to the antenna is present in the fields about the antenna as curled magnetic energy with a cosine wave envelope, and linear charge potential energy with a sine wave envelope. The linear charge-energy in the displacement, as it falls from the sine wave apex, transfers to the magnetic domain by curling the energy space into magnetic-space. By moving the potential energy from linear charge field into curled magnetic-field, two orthogonal energy fields are self regenerating. A condition for sustaining oscillation is the feedback must be follow in phase by more than 2π radians or more. This requirement is satisfied by second derivative's relationship to the sine function. When the magnetic field holds all the potential energy, energy is completely rolled into magnetic space. The magnetic energy then unrolls back into liner charge-potential. One unit of energy winds and rewinds to sustain propagation. The conditions for energy propagation at the speed of light are self-regenerative oscillation and absence of mass. These being met, the energy propagates. Which bring up the proposition on emanation:

12.9.2.2.1.-1 (PROPOSITION on emanation):
Energy capable of radiating will emanate.

12.9.2.4 frozen radio waves retain frequency
As the radio wave passes a receiver dipole, the potential energies are transferred to the antenna at the frequency that was imbued in the radio wave upon transmission. The relativistic time of reception is the relativistic time of transmission. The Galilean time of reception is the Galilean time of transmission plus the distance traveled divided by the speed of light c. The frequencies remain with regard to any frame of reference with the relationship to relativistic space, as does the single photon; the frequency is the same with regard to any frame of reference.

12.9.3 Electromagnetic Delay In Transparent Materials
Photons take longer to traverse a lens due to the more dense mass space. Glass is a cooled liquid; the non-crystalline bonds in glass create the more dense space.

12.9.3 Circularly Polarized light
A circularly polarized photon is a rotating energy with orthogonal vectors j and k. From the frame of reference of the photon, it would be an elongated double helix of sinusoidal energy, reacting as if the world was a flat disk. When the reference point is the lens, the circularly polarized photon is a disk of zero thickness and spinning orthogonal vectors of energy of $jH\cos(\omega t)$ and $kE\sin(\omega t)$, where j and k are rotating orthogonal unit vectors in charge and magnetic space respectively, rotating in a plane normal to the direction of propagation. H and K are the magnitudes of magnetic and electrostatic potential energies.

12.10 PHOTON'S WAVE AND PARTICLE CHARACTERISTICS -
With the photon as the frame of reference, the photon is a static sine wave, and in passing an atom flies by at the speed of light with the effect on the atom as having the photon's frequency upon emission. With a lens as the frame of reference, the photon has no length and acts as if it were a particle. Whether the photon acts like a wave or a particle depends upon the frame of reference being relativistic space or Galilean space. when it electron in orbit can absorb the photon, raising it to a higher energy state, the electron will do so. When an entity is sufficient to free the electron from its atom orbit, the arrow will become ionized and the electron will be free.

12.11.1 Lens Focusing
Classical physics explains the lens's warping of light by the slowing of light through the glass. Energy-space explains focusing as a longer optical path in the class space, while maintaining a constant speed of ***c***. Bending of light beams in a lens is a straight path through warped space. In the energy-space explanation, denser glass-space adds a longer space to Galilean space, such that light travels in a straight line at the speed of ***c***, and the increase optic distance causes the time delay.

12.11.2 Photon Space
Chromatic aberration is the result of orthogonal energies of each color creating color-specific orthogonal photon paths. The frequency dependent energy creates frequency dependent photon-space.

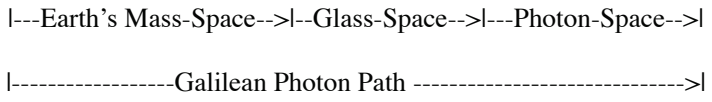

Figure 12.9.1-1 Earth's Mass-Space, Glass-Space, and Photon-Space
This is the photon path of starlight through a telescope with a glass of the objective lens.

12.10 The Dual Slit Phenomenon –
The Beam splitter phenomenon is the dilemma of split photons losing their ability to form interference patterns if either path is sensed, determined, or tampered with in any way. The dilemma is resolved by entangled photon-space. All photons, including their down converted split-off photons, are at one point in the split-created entangled photon-spaces. The initial photon and all down converted photons are at zero displacement from the point of emission in relativistic photon space; they are accessible at all the points in Galilean space. In photon-space, the initial photon and all down converted photons are in one entangled space at one relativistic point and their only relativistic time is that of emission. Relativistic time stops and relativistic distance is of zero measure. No matter where they are touched in Galilean space, they are touched at one point in the measureless photon space. In the relativistic space of entangled particles, the only time is the Galilean epoch of emission, and all entangled entities are at zero measure from the origin. Concurrently in Galilean space, all entities occupy separate positions. The relativistic time of emission and the relativistic time of splitting are of the same epoch since there has been is no time lapse in photon-space.

12.11 Shared Photons Space –
Each individual photon is orthogonal with respect to other photons having different points of origin or epoch of emission; each photon is of zero relativistic measure in the direction of propagation with respect to other photons; each photon has a unique time of emission. Each photon travels at c with respect to other photons. Each photon creates its own space. The entangled photon pair and down shifted photons are the exception. Entangled photons and down shifted photons have common emission coordinates and common epochs of emission.

12.11.1 Non-Interference Of Light Beams
Light beams do not bounce off one another, and have no interaction whatsoever. The individual spaces created by each photon accounts for the non-interference of light; they are separate orthogonal relativistic energy-spaces (as they have separate origins or epochs) having no measure, in that way bypass each other in Galilean space.

12.11.2 Electromagnetic Wave Is Moving Space**–**
An electromagnetic wave (photons are electromagnetic waves) is energy that has separated itself from the source. The energy creates its own space; therefore, electromagnetic waves are pieces of space that are by virtue of the speed of light orthogonal to all other spaces. [Move above to *propagation*.]

12.12. Quantized Space proposal -
Space is quantized to hold one quantum of energy, Planck's constant, h.

12.12*.1. Neutrino's Energy-Space*
Since neutrinos have energy of ½ quantum, two neutrons can occupy one quantum of energy space.

13.13. Unit vector directing light space
E-M energy is the only energy without a force transfer serving agent; the only energy transferred without mass, and the only energy to propagate at **c.** Light has energy, momentum, speed, and direction, but no mass. Because the combined energies of magnetic and charge create as unique space that has no dimension of span and time, it is given a space direction unit vector of l .

12.4. Electron's construct

The two neutrinos that constitute an electron occupy one quantum of space.

12.3.1. Electron's Created Energy-Space
An electron creates mass-potential forces, magnetic potential forces, and charge potential fields; the electron creates and occupies mass-space, magnetic-space, and charge-space.

12.13.3.1.1. *(Energy proposition)*
Mass is energy and energy is mass. The electron's relativistic energies of jcharge and kmagnetic project on to iGalilean Space as mass.

12.13.3.2 Electron's internal energy *proposition*
The electron's internal energy is equal to that of a gamma-ray's energy shared between spins and vibration energy, plus two half-quanta of energy in the spin of the neutrinos. Upon decay of the electron, the internal energy is transferred to the charge and magnetic fields of a gamma ray, leaving each neutrino with dynamic thermal energy and ½ quanta of spin.

12.13.3.3 Electron's positional energy
The electron, as an entity, can occupy a potential energy levels in an atomic orbit. Two oppositely spinning electrons can simultaneously occupy one energy-space in atomic orbit; by counter rotating two electrons can have the exact same center of mass. The opposing rotation of electron-neutrinos of two collocated electrons creates orthogonal spaces.

12.13.4. The Neutrino's Created Energy Space
The neutrino has one-half quantum (ħ/2) of energy and one DeBroglie wavelength. The free neutrino's length is momentum dependent. The neutrinos' speed is temperature dependent. The length of a neutrino is therefore not fixed but variable, dependent upon its recent history. To look for a neutrino frozen in ice is to look for a physical entity that is infinitely long and of cross section approaching zero energy. having no charge or magnetic field, no E-M absorption or reflectivity, and at rest having no momentum the neutrino will be difficult to detect.

18. AGGREGATE CHARGE SPACE

18.1. CHARGE-SPACE –
The energy-space created by a charge is defined by the absolute value of the charge potential field. The charge-force potential is the force of a charge on a unit charge, q. To mathematically account for like charges creating a positive repulsive force, and by unlike charges creating a negative attractive force, and the fact that there is no negative space, the equation for charge-space is the absolute value of the potential force equation, making it independent of polarity sign and capable of calculating force.

$$\text{Charge Space} \equiv \left| f_{charge} / q \right| = \left| Q \check{r} \left[10^{3} E \left(r - a_{2,1} \right)^{-3} + 1F \left(r - a_{2,2} \right)^{-2} + \; + 10^{-12} G \left(r - a_{2,3} \right)^{-1} \right] \right|$$

The reference charge q can be an electron, a statcoulomb, or any arbitrary charge; the coefficients E, F, and G must be scaled to be compatible with the reference charge size and measuring units.

18.2 Particles of Charge Force Exchange –
The particles of charge force exchange are the entangled vibrating neutrinos of leptons. How they interact with other leptons' neutrinos determines positive and negative polarity. Their neutrinos' radial motion defines the charge space. Neutrinos dock with other lepton-neutrinos by sharing a full quantum of space. The two leptons are tied together through entangled neutrino space. The ***c-*** speed of both lepton-neutrinos reduces relativistic force transfer time to a near Denver Instant, and distance to the radial offset. The particles' attractive force between leptons' COM is defined by the mass-force formula's dominant first term, with relativistic separation

only $a_{1,1}$, since r is zero.

18.2.1. The Inverse Square Attribute of Charge-Force
The charge-force created is linear in track and independent from radius of separation. The inverse square radial relationship associated with charge is created by aggregated charges. The docking of many combinations of leptons form one charge to another is enabled by the Galilean time of docking being discrete moments of time, allowing many combinations of docking between the two aggregated charges. In relativistic charge-space, there is no time, and the projection of force back onto Galilean space is continuous.

21. AGGREGATED electrons' CHARGE–SPACE

21.1 THE AGGREGATED ELECTRON CHARGE SPACE –
Aggregated electrons' charge-space is defined by the mass force field potential equation for the electron-neutrinos. Neutrinos have no charge characteristics in themselves, but are the medium that creates charge-space and transfers force. Electron-neutrino's speed and mass have variable values, resulting in the ballooned mass being slightly variable. The mass and size of an electron have not been precisely determined. The charge of the electron is fixed by its composition of precisely two neutrinos.

21.1.1 Estimating Electron-Neutrinos radius offsets
The offset for the electron-neutrino is two-and-a-half times the DeBroglie wavelength:

$$a_{1,1} = 2\ ½\ (4.599286 \times 10^{-23} m) = 2.299643 \times 10^{-23} \text{meters} \qquad \text{RE: 20.2}$$

21.1.2. Electron-Neutrinos Force Direction as a Function of Domain
The neutrino's mass-force formula is the same as the aggregate mass-force formula, only the DeBroglie wavelength changes to give functionality within the electron. The much shorter DeBroglie wavelength required to snuggle the neutrino inside an electron is associated with the dynamic energy of a gamma ray. The neutrino's speed has the functionality of maintaining the mass of the electron at 100 times the mass of one neutrino. The neutrino's orbit has the functionality of maintaining the frequency induced into the entangled electron-neutrinos. The energy of the electron-neutrino is a stable low potential energy point. The frequency of electron-neutrino vibration is maintained for long periods by being in a frictionless charge space. The electron-charge and electro-magnetic spaces are in a stable energy valley at the level of the gamma ray.

***21.1.3. The Electron Construct Proposal*:**
The three energy-spaces of the two constituent electron-neutrinos are charge-space, magnetic-space, and mass-space. Within charge-space and magnetic-space, each neutrino has one-half quanta of charge energy and magnetic energy. Charge energy and magnetic energies are synchronized, both peaking simultaneously at their apogee of vibration. The charge potential from radial electron-neutrino displacement is in j charge-space. The magnetic energy is in tangentially orthogonal curled k magnetic-space. At the electron-neutrino's near-light speed in i mass-space is kinetic energy equal to that of a gamma ray. The two electron-neutrinos rotating in the same direction add their half-quanta of relativistic spin to affect the one-quanta spin energy of the electron.

21.1.4.1. Electron stability
The charge and magnetic energies do not have the magnitude or regenerative phase relationship to propagate as a gamma ray. An external stress must be imposed on the electron to release the dynamic energy of the neutrinos as a gamma ray.

21.1.4.2. *The vibrating frequency of the electron-neutrinos*
The vibrating frequency of the neutrinos is not a requirement for the construct of the electron; the neutrinos are

free to vibrate at any rate at which they might be stimulated. The dynamic energy stored must be that required for ballooning, that provided by a speed of 0.9996 c.

23. Charged Particle Forces

23.1. Electron-LEPTON ATTRACTION –

The neutrino, with only mass-force characteristics, imbues charge characteristics through entangled neutrino interactions between leptons. Entangled neutrinos transfer attractive electrostatic force between electrons and leptons when the electron-neutrino finds a lepton-neutrino of the same spin; the two neutrinos, each with ½h energy, momentarily dock to fill one quantum of mass-space. While the mobile neutrino is docked with the lepton-neutrino, an attractive force of each exists with its entangled mate with a force expressed by the first term of the mass-force equation with $r = (0 - a_{1,1})$. The relativistic dwell time projects onto Galilean relativistic space as continuous.

23.2. ELECTRON-LEPTON REPULSION –

The repulsive force between an electron and a Lepton is transferred in a Denver Instant. When an Electron-neutrino does not find a muon-neutrino with the same-rotation, as in trying to dock with a neutrino of opposite spin (ν^- with $\nu+$), a repulsive force is created between the leptons. A straight path is not a prerequisite of entanglement; therefore, ricochet collisions over a broken-track will transfer a repulsive force between entangled neutrino connected leptons.

23.3. ATTRACTION BETWEEN CHARGES **–**

The force between electron-neutrinos remotely docked with a boson-neutrinos or other leptons, is that contributed by the first term of the mass-force equation, because the individual electron- neutrinos are caught between $a_{1,1}$ and $a_{1,2}$ of the mass-force equation. They are trapped because neutrinos cannot get closer than $a_{1,1}$ about the electron's COM_1, and infinite attraction at $a_{1,2}$. These two radial offsets are momentum dependent, and independent of Galilean radius.

23.4 LINEARITY OF INTER-LEPTON CHARGE FORCE -

At the neutrinos' speed of ***c-***, the radius of separation is near zero in relativistic measure. Therefore, the force between two leptons in relativistic space is nearly independent of the radius of separation. The entangled-neutrinos involved in the force transfer is caught between $a_{1,1}$ and $a_{1,2}$, the force of entanglement is created by the mass-force equation's constantly attractive second term. with the relativistic measure of radius of near zero, the force is constant and the radius limited by the mass-force's second term's radius offset $a_{1,2}$. The force of attraction is therefore limited in magnitude, and independent of Galilean distance.

23.4.1. Charge-Force Equation

The electrostatic particle-to-particle force of an electron is imbued by the mass-force of the neutrino; there is no inherent charge-force attributed to the neutrino. Lepton-neutrinos vibrate in orbits about their center of mass of radius $a_{1,1}$, where repulsive force is maximum. Force between entangled electron-neutrino and a lepton-neutrino pair:

$$f(r = 0) = - Gnn(0 - 2a_{1,1})^{-3}.$$

The lepton-neutrinos, tethered in relativistic space between their parent leptons, momentarily share or do not share a quantum of Galilean space, according to same or opposite spin. When they share same-spin relativistic space, each neutrino occupies ½h energy same-spin space. The vectorily added spaces create a lower combined potential for both neutrinos. The charge force created during docking in relativistic space is transferred in a Denver Instant between leptons, and projects onto Galilean space as continuous, because there is no time lapse

in the direction of rotation while docked, and there is no time lapse in the vibrating orbit at ***c-***.

23.5. ESTIMATING $a_{1,1}$ OF the FREE NEUTRINO at 3^{o} K –

This section is about mass-force of the neutrino. The free neutrino in intergalactic space manifests mass-force characteristics. The mass-force first term radial offset of the free-neutrino, $a_{1,1}$, at 3^{o} K is two-and–a-half times the DeBroglie wave length:

$$a_{1,1} = 2.5\,\lambda$$

The mass and speed necessary to calculate the DeBroglie wavelength (λ) are calculated in the following paragraphs:

23.5.1. Average velocity of Galactic Neutrinos

The average kinetic energy of a gas of a single type particle, free in one dimensions is:

$\frac{1}{2}mv^2 = (1/2)kT$ multiply by 2 where: m = neutrino's mass.

$mv^2 = kT$ divide by m

$v^2 = (1/m)kT$ square root

$v = [(1/m)kT]^{1/2}$ evaluate with:

$m_e = 9.109\,382\,15(45) \times 10^{-31}$ kilograms [1]

Eric Weisstien's "World of Physics"
http://scienceworld.wolfram.com/physics/ElectronMass.html

k = Boltzmann constant = $1.3806503 \times 10^{-23}\ n^2\ kg\ s^{-2}\ K^{-1}$[3]

T = 3 degrees Kelvin [This is a warm estimate of intergalactic temperature.]

$$v = \{[(9.109\,382\,15(45) \times 10^{-31} kg)^{-1}[1]](1.3806503 \times 10^{-23}\ m^2\ kg\ s^{-2}\ K^{-1}[5])(3\ deg\ K)\}^{1/2}$$

The velocity of a free neutrino in intra-galactic space at 3 degrees Kelvin is:

$v = 6.743075 \times 10^{3}$ meters per second.[7] §

λ = The DeBroglie wavelength, λ, of the neutrino at the speed of 6.743075×10^{3} meters per second is:

$\lambda = hT/mv$

$\hbar = 6.582\,118\,99 \times 10^{-22}$ MeVsec ÷ 2π radians/cycle

Dividing the numerator and denominator by seconds (s) yields:

$h = 1.047\,576\,77 \times 10^{-22}$ MeV cycles/sec = $1.047\,576\,77 \times 10^{-25}$ eV

$$\lambda = hT/mv$$

$= \{1.047\ 576\ 77 \times 10^{-25}$ Joule sec$\}(3^{o}K)$
$\div \{(1.782\ 661\ 758(44) \times 10^{-36}$ kg) x (8,348,887.836[.3] meters per second)$\}$
$= 21.115\ 897\ 29$meters

The radial standoff ($a_{1,1}$) for the free neutrino is 2½ λ, therefore:

$a_{1,1} = 2\ ½\ (21.115\ 897\ 29) = 52.789\ 743\ 24$ meters ≈ 52.8 meters

The standoff radius of the free neutrino in intergalactic space at 3^{o} K is 52.8 meters or 173.2 feet.

23.5.2.1. Positive and negative forces, only positive space
A positive charge-force describes a repulsive force; a negative charge-force describes an attractive force. Attractive force and repulsive force equations do not describe positive and negative space, but charge spaces with changing force directions. The force between two aggregate charges depends upon the inverse radius squared between the two aggregate charges, the polarity of the two charges, and the size of each charge. Charge space is the absolute value of the charge-potential, and is always positive. Charge force changes direction; charge space is always positive; there is no negative space.

23.6.1.1 Charge space
This section assigns the electron as the unit charge reference. The sum of all aggregated electrons affects the charge force. With respect to the electron, the previously derived charge force equation applies. The electron is proposed to have a spherical void about the center of mass, surrounded by two frantically vibrating neutrinos. The two entangled electron-neutrinos themselves have no charge, but affect the charge force as being the medium of force exchange by their dynamics and docking with leptons having a single unmatched neutrino.

23.6.1.1.1. *(Aggregated charge)*
The minimum relativistic distance between two entangled neutrinos is $2a_{1,1}$. Their orbiting leaves a spherical void of diameter $2a_{1,1}$ about which they are entangled. Being entangled, there is no relativistic measure of separation between the two electron-neutrinos in relativistic space. The neutrino's radial offset $a_{1,1}$ (set by DeBroglie's wavelength) is dependent upon the momentum of the neutrinos, which within the electron is fixed by the velocity required to maintain the mass of the electron at 50 times the mass of either of its two constituent neutrinos. Within the electron (or any lepton), the exemplificative velocity remains constant. The velocity of the electron-neutrinos is constant and the vibration frequency varies by increased and decreased orbit path lengths. The vibration can only be induced by physical contact with vibrating atoms, as neutrinos have no inherent magnetic or charge characteristics. In electromagnetic stimulation of distilled water to manufacture homeopathic concoctions, the water molecule (with its 105 degree angle between the oxygen and hydrogen atoms) has a electrostatic polarity. Electromagnetic radiation vibrates the water molecule; the neutrinos within the electrons assimilate the vibration of the molecular motion.

24. PARTICLE charge-SPACE

24.1. CHARGE FORCE AND THE ELECTRON -
The charge force of the electron (and all leptons) is imbued by the dynamics of their entangled neutrinos. In neutrino-space the measure of distance is nearly zero and time lapse is nearly instantaneous, and any force generated is limited to $f(0- a_{1,1})^{-3}$.

24.1.1 Electrostatic Attraction

The electrostatic attraction comes from lepton-neutrinos docking with a remote single bosons-neutrino, resulting in an attractive force back to entangled electron-neutron with the maximum force limited by $a_{1,1}$. The force transfers in a Denver Instant, because of the 0.9996c (***c-***) speed of the electron-neutrino reduces distance and distance-dependent time.

24.1.2. Electrostatic Repulsion

Repulsion is the opposing force from no available host space; where neutrinos would normally create attraction with a neutrino of same rotation, finds no host with which to share space. Electron-neutrinos (predominately ν^-) attract down to $a_{1,1}$ with a maximum force back to the electron's COM limited by $a_{1,1}$. The first term of the mass-force is:

$$f_{1,1} = -Gnn(0 - a_{1,1})^{-3} > 0,$$

Where $a_{1,1} = 2.5\gamma\lambda$,

The mass-force' first term, $f_{1,1}$, is repulsive when $r < a_{1,1}$ by virtue of the double minus signs.

24.1.2.1 neutrinos of opposite spin

Electron-neutrino's spin is acquired by circling the electrons' center of mass. An electron neutrino cannot flip its axis of rotation to align with another fermium's spin, as a neutrino, being the smallest particle of matter, is point symmetrical. As to neutrinos of opposite spin come close they are moving in the same direction, and the two are encounter a repelling force at $a_{1,1}$ keep them apart. Two neutrinos of opposite spin (ν- and ν+) cannot dock together to share one quantum of space.

24.1.2.2 neutrinos of same spin

Two neutrinos of the same spin upon approaching are moving in opposite directions at ***c-*** which makes then in orthogonal space, and there is no force between them, allowing them to slip into one quantum space.

24.1.3. Free Neutrino-Space

24.1.3.1. Free neutrinos Galilean Space

Free neutrinos at thermal velocities are in Galilean mass-space with Galilean distance and time. At velocities greater than zero, from thermal velocities up to the speed of light, c, the Lorentz Radical of relativity applies to distance and time. Because neutrinos have mass they cannot reach the speed of light.

24.1.3.2. *Neutrinos***' Relativistic Space**

Neutrinos can exist in two states: entangled and free. Therefore, the neutrino-force field acts as an entangled two-bodied mass-force, and a free, single-body potential mass-force source.

24.3 NEUTRINO ENERGY SPACE –

The near relativistic neutrino-space differs from photon-space in that photons, having no mass, lose their relativistic spaces upon and dissipation of their energy. However, the neutrino retains its space by retaining its near relativistic velocity of c-. One quantum of relativistic space can be shared by two lepton-neutrinos of the same spin. one visiting electron-neutrino can momentarily doc with a boson-neutrino sharing a quantum space, then whip back to its parent electron while the host electron whips back to the boson . The boson that shares ½ quantum will be held in place by its comparatively larger mass. The electron, if free, will move toward the boson with constant acceleration from the constant force of the entangled neutrino's connection.

24.4 NEUTRINO SPACING WITHIN THE ELECTRON –

The vibrating electron-neutrinos are caught in a self created relativistic mass-force space between the radius of

repulsive infinite positive force peaks of the first term and radius of infinite attractive force peaks of the second terms of the mass-force equation. When two neutrinos of opposite spin shares Galilean space, they are at zero separation in relativistic neutrino-space, and at zero separation from the electron's center of mass (COM). The mass-force that electron-neutrinos exert is limited by the dominant first term's denominator's offset distance of $a_{1,1}$. The attractive force at r = 0 is of significant (but not infinite) magnitude by virtue of the radial offset $a_{1,1}$. [$a_{1,1}$ and $a_{1,2}$ are particle-generated DeBroglie wave forms; their measures remain with the particles. The radius of separation ***r*** is not generated by the particle, and is subject to Lorentz's radical four ballooning.]

25. Aggregate Charge-SPACE

25.1. CHARGE, SPACE, AND ELECTRON FIELDS–

A coulomb is 6.24 X 10^{18} electrons; even a small charge is many electrons. The closer two aggregate charges are, the more will be the number of interactions between charges per unit time, and the stronger will be the electrostatic force. Two electrons, each of one quantum of energy, occupy a single energy-space by spinning in opposite directions. The neutrinos generate orthogonal magnetic fields by counter rotation, and generate vectorily additive electrostatic fields by occupying the same COM. The counter spinning electrons have the exact same coordinates for their COM, with two pairs of separately entangled neutrinos, because each pair rotates in the opposite direction they are in separate relativistic spaces.

25.1.1. charge force

The mechanism of charge force is the maximized mass-force between entangled neutrinos in relativisticly-collapsed space. There is no particle charge-force; charge-force is mass-force between neutrinos. The force between entangled neutrinos is maximized because there is almost no measure in relativistic space, almost no measure of length, and almost no measure of time in relativisticly collapsed space.

25.1.5.5.1. (Electron-Neutrinos Radial Space)

The electrons gamma ray energy equivalent dynamic energy creates ballooning speeds at 0.999799980c that create near relativistic characteristics with the relationships depicted by the Circle of Relativity.

RE: γ computed on page 80

25.2.1. Neutrino Energy-Space

The near relativistic neutrino-space differs from photon-space in that photons, having no mass, lose their relativistic spaces upon and dissipation of their energy. However, the neutrino retains its space by retaining its near relativistic velocity of c-in entanglement and when docking momentarily with a same spin nerutrino. One quantum of relativistic space is can be shared by two lepton-neutrinos of the same spin. One visiting electron-neutrino can momentarily doc with a boson-neutrino sharing one quantum space, then whip back to its parent lepton (electron) while the host electron whips back to the boson . The boson that shares ½ quantum will be held in place by its comparatively larger mass. The electron, if free, will move toward the boson with constant acceleration from the constant force of the entangled neutrino's relativistic connection.

25.3 NEUTRINO SPACING WITHIN THE ELECTRON –

The entangled vibrating electron-neutrinos are caught in a self created relativistic mass-force space between the radius of repulsive infinite positive force peaks of the first term and radius of infinite attractive force peaks of the second terms. The two neutrinos of like spin share one quantum space, they are at zero separation from each other in relativistic neutrino-space, and at relativistic zero separation from their center of mass (COM). The force electron-neutrinos exert is limited by the mass-force's dominant second term's denominator's offset distance of $a_{1,2}$. The attractive force at r = 0 is of significant (but not infinite) magnitude by virtue of the radial offset $a_{1,2}$. [$a_{1,1}$ and $a_{1,2}$ are particle-generated DeBroglie wave form ; their offset's measures remain with the particles. The radius of separation r is not generated by the particle, and is subject to Lorentz's radical four ballooning.]

25.6.2. More Complex Leptons proposal

The more complex lepton particles are constructed by adding more neutrinos to the basic electron configuration.

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25.6.2.1. Positron proposal

One additional neutrino added to the electron, with higher energy, greater energy and momentum, resulting in higher momentum and shorter DeBroglie wavelengths, creates a Positron. The additional neutrino provides a docking half-quantum of space where an electron-neutrino can doc. This gives the positron its positive characteristic of attraction toward an electron. The speed of the added neutrino will be noted as ***c-+***: faster than the electron-neutrino's speed of ***c-.*** ***c-+*** is less than ***c.***

25.6.2.2. Muon proposal

The addition of a pair of neutrinos to the basic electron configuration with higher energy, greater energy and momentum, resulting in higher momentum and shorter DeBroglie wavelengths, creates a Muon. The two additional muons rotate oppositely (υ^{-} and υ^{+}) adding no additional spin; the muon has ½ quantum of spin, that of the basic electron structure. The interference probability of neutrino paths results in the short average life time of the muon, 2.2- to 2.3- microseconds. The 207-fold increased mass of the muon over the electron is created by the increased speed of the muon-neutrinos. The speed of the two added muon-neutrinos will be noted as ***c-++***: faster than the Muon-neutrino's speed of ***c-+.*** ***c-++*** is less than ***c.***

25.6.2.3. Tau proposal

The tau particle is proposed to be constructed like a muon particle with added energy to the constituent neutrinos. With the internal energy of the rest mass of 1777 electrons created by increased speed of the neutrino, the increased speed increases the probability of path interference resulting in an average Yau lifetime of 2.96 x 10^{-13} seconds. The speed of the third and fourth Tau-neutrinos will be noted as ***c-+++***: faster than the Muon-neutrino's speed of ***c-++.*** ***c-+++*** is Icloser to but less than ***c.***

25.3.1. Near Perpetual Motion

The lossless timeless travel at c-, and the boundaries of infinite force imbues the electron-neutrinos' near perpetual motion.

25.3.1.1. Frequency not a parameter of electron *construct*

The frequency of the electron-neutrino's vibration is not a characteristic parameter of the electron's construct. Only speed is required in ballooning the neutrinos' mass. The frequency of vibration, having no bearing on the construct of the electron, allows the electron-neutrinos to resonate to external frequencies by adjusting the path length.

25.7.5.1. (Inverse radius squared charge force dependency)

Between two leptons of opposite charge exchanging force through docking neutrinos sustain an attractive or repulsive force on a line (not necessarily straight, but contiguous) between their centers of mass. The connection is relativistic, as the entangled neutrinos travel at speeds just under that of light, c-. in this relativistic space, there is no lapse of time or measure of distance. The relativistic docking and undocking projects onto Galilean time as continuous, and distance projects onto Galilean space as the mass-force radial offset, $a_{1,1}$. The force between each particle is independent of Galilean distance; charge force between particles is constant as radius of separation increases and decreases. The inverse radius squared characteristic of aggregated charge force is affected from the solid angle between the aggregate charges. The inverse square radial dependence comes from the neutrinos' repeated penetrations by of the solid angle between the two charge volumes.

25.7.5.2. Positive charge space with reversing charge force

A negative charge-force describes an attractive force, that being a force in the direction of decreasing radius. A positive charge-force describes a repulsive force, that being a force in the direction of increasing radius. Attractive force and repulsive force do not describe positive and negative space, but charge space with changing

force directions.

25.7.5.3. Charge-force from mass-force

The force potential of a charge decreases as the radius increases from the center toward the $a_{2,1}$ and $a_{2,2}$ offsets, the first and third terms potential contribution approach negatively infinite term contributions; the forces changes direction as r increases through the offset radius. The domains of influence are separated by thousands of radial magnitudes.

$$f_{charge}/q = Q\check{r}\,[E\,(r-a_{2,1})^{-3} + F(r-a_{2,2})^{-2} + G(r-a_{2,3})^{-1}]$$

Inserting the mass-force numerical values for coefficients E, F, and G derived for atoms, into the charge-force formula yields:

$$f_{charge} = Qq\check{r}\,[10^{4}\,(r-a_{2,1})^{-3} + 10^{0}(r-a_{2,2})^{-2} + 10^{-12}(r-a_{2,3})^{-1}]$$

25.7.5.3.1. (Charge force first term potential)

Consider the charge potential formula's first term, when the separating radius magnitude is between zero and the radius of the radius of $a_{2,1}$. When $r < a_{2,1}$ the first term, $10^{4}(r - a_{2,1})^{-3}$, the term is negative, charge-potential is negative and attractive to the same charges. This term keeps positrons within the nucleus.

25.7.5.3.1.1. (Reversing force at $a_{2,1}$)

When $r > a_{2,1}$, the first term, $10^{4}(r - a_{2,1})^{-3}$, is positive, with no leading negative sign the charge-force is positive, and repellent to the like charges. This term will tend to attract electrons and repel positrons approaching the nucleus.

25.7.5.3.1.2. (No reversing force at $a_{2,2}$)

Assume Q is the charge of the nucleus, which is always positive. The charge potential formula's second term, $Q(r - a_{2,2})^{-2}$, potential contribution is negative and attractive to the electron at radii greater than $a_{2,2}$. This term also repulses positrons from the nucleus at all radii greater than $a_{2,2}$. There is a peak in force at $r = a_{2,2}$, assuring no easy entry of positrons into the nucleus. For charges of like sign, the force is repulsive. For two charges of opposite signs, the force is attractive. The mass force holds back the electron by peaking repulsive force at a radius greater than the charge force radius of peak attraction.

25.7.5.3.2.1, (Second Term)

Assume Q is the charge of the nucleus, which is always positive. The second term, $Qq(r - a_{2,1})^{-2}$, is always attractive to the negative electron, $q = e^{-}$. The second term will tend to repel a positron, e^{+}, as it approaches the nucleus. $a_{2,1}$ has the magnitude of orbits and is sized by momentum, the larger orbits having less momentum.

25.7.5.3.3. (The third term)

Assume Q is the charge of the nucleus, which is always positive. The charge potential formula's third term, $Qq10^{-12}(r - a_{2,3})^{-1}$. is attractive to negative electrons when $a_{2,3} > r$, and positive and repulsive to an electron when $r < a_{2,3}$. The third term repulses positrons from the nucleus, and attracts electrons toward the nucleus when $r > a_{2,3}$. $a_{2,3}$ is the size of the nucleus. The coefficient of the third term makes the force contribution in the realm of the nucleus insignificant; the third term becomes significant when charges aggregate.

When $r > a_{2,3}$, the third term, $Qq10^{-12}(r - a_{2,3})^{-1}$, is attractive to negative electrons. This term will tend to repel positrons approaching from infinity. The coefficient 10^{-12} makes the potential contribution of one pair of like charges insignificant, but in galaxies of like charges, the scattering force is galactic.

26. THE FREE NEUTRINO

26.2.1. Proposed Characteristics for The Free Neutrino

Only the mass-force equation is applicable to the free neutrino, and the mass-force divided by the mass of a reference neutrino describes the potential force of the free neutrino which is the mass-space of the neutrino.

$$f_{mass}(\text{Free Neutrino}) = - \check{r}\, n\acute{n}G[A\,(r - a1,1)^{-3} + B\,(r - a1,2)^{-2} + D\,(r - a1,3)^{-1}]$$

$$\text{Potential force} = f_{mass}(\text{free neutrino})/\acute{n} = -nG[10\text{-}4(r - a1,1)^{-3} + 100(r - a1,2)^{-2} + 10\text{-}12(r - a1,3)^{-1}]$$

n = mass of the free neutrino
ń = mass of the reference neutrino
$a_{1,1} = 2.5 \text{ X } 10^{-4}\lambda$
$a_{1,2} = 2.5 \text{ X } \lambda$
$a_{1,3} = 2.5 \text{ X } 10^{12}\lambda$

λ is always momentum dependent, and offsets are large in intergalactic near 0^{o} K environments.

Free neutrino mass-space = ½h quantum
= $6.626 \text{x} 10^{-34}$ Joules per radian ÷ 2π radians/cycle
= $1.054561 \text{ x} 10^{-34}$ Joules/cycle

Free neutrino Charge-Space = 0

Free neutrino mass-space = 1/100 eV = 1/100 x1.60217646 × 10^{-19} Joules
= $1.60217646 \times 10^{-21}$ Joules.

26.2.2. Wavelength of the Free Neutrino

Free neutrino wavelength $\lambda = h \div p = h \div mv$; since mass varies with debroglie's radical, λ, the neutrino's wavelength is dependent on $(\gamma mv)^{-1}$. h is nonrelativistic, as energy cannot be created if destroyed.

26.2.1. The construct of the Neutrino

26.2.1.1. Neutrino Construct HYPOTHESIS 1

The DeBroglie wave can exist as a vibrating wave between two energy spaces with which to exchange energy. The two energies of the free neutrino that support the DeBroglie wave oscillation could be potential and dynamic, as transverse vibrations of a string in tension. The potential energy would require two fixed ends from which a half wave could vibrate. This would not support DeBroglie's concept of a full wavelength of h/mv. The vibration could be about the middle of the wave form, as the vibration mode of a xylophone bar, but this too would be only a half wave form. The neutrino could vibrate in charge and magnetic space as does an E-M wave. Negation: the sine wave of charge and magnetic space would be in phase and not support oscillation. Charge and magnetic space cannot exist with a single neutrino.

26.2.1.2.2. Neutrino Construct HYPOTHESIS 2
The energy sloshed back and forth in the tube of self created space. The neutrino is mass at the nodes and sinusoidal linear kinetic energy between the nodes. Negation: This would give harmonic frequencies not observed,

26.2.1.2.3. Neutrino Construct HYPOTHESIS 3
The ½h spin energy of the neutrino remains constant as energy of rotation. This could be supported by the skip rope configuration of the first harmonic of the half wavelength, where there is a node in the middle. This configuration is a more likely configuration for the neutrino; it has the dynamics of motion to store energy, rotating motion to contain the half-quantum of rotation, and the full DeBroglie wavelength within one energy-space. This would make the neutrino the nexus between energy and mass. Energy at the nodes would have mass characteristics. Energy at the sinusoidal anodes would have the 1/2 h spin characteristic of the neutrino. The axis of the energy rotation would conduct the extended wave characteristics of the three terms of the mass equation that define the space of the neutrino.

26.2.1.1 Energy Spaces of the Free Neutrino
The free neutrino is a figure of revolution of a sine wave, the axis of rotation being the vector of motion directed by the unit vector for mass-space i, as determined by its speed from the circle of relativity. The two spaces in which it oscillates is i space and k space. The node ends of the neutrino and the center are in i space and the rotating sine wave part is in k space. The neutrino's k-space does not consist of magnetic space because space is created in quanta of h; this space can only be described a spin.

26.2.1.2 Standoff distance of the Neutrino
Since the DeBroglie wave varies inversely to momentum, the standoff $a_{1,1}$ of the neutrino, is speed dependent. The first term of the mass force equation will be repulsive within $o<r< a_{1,1}$. No other neutrino can be within $a_{1,1}$.

DeBroglie wavelength, $\lambda = h/p = h/\gamma mv$

Where: h ≡ Planck's nonrelativistic constant = 6.626068×10^{-34} meter γ^2kg/γs, and
$p = \gamma mv$
mass (m) in kg times
speed (v ≡ ś) nonrelativistic speed (the first time derivative of distance, not velocity) in meters per second.

26.2.3. Free Neutrino's Variable Radial Offset
At the near speed of light, c-, the momentum of the neutrino is near maximum, the wavelength short, and the radial offset near minimum. The energy in an galactic neutrino can reach that of a gamma ray, the momentum high, and the radial offset, $a_{1,1}$, extremely small. Therefore, the wavelength and standoff of the free neutrino varies greatly.

26.1. Mass-Force Equation for the Free Neutrino–
The energy-forces created by a Free Neutrino is mass-force. In the mass-force equation of the Free Neutrino, the radial offsets $a_{1,n}$ are determined by the DeBroglie wavelength, the second subscript (n = 1, 2, or 3) designating the term of the neutrino's mass-force equation. All three mass force terms apply to the Free Neutrino. The free neutrino's first term acts as a space holder allowing no other Free neutrino closer than $a_{1,1}$; the second term being always creating attraction at $r > a_{1,2}$, holds galaxies together; and the third term always attractive is the collector of the cosmos at the end of the era. All three terms together create a pressure within the cosmos from a sea of neutrinos that are fluid by virtue of the first term, Compact by virtue of the second term. The neutrino sea is continuously increased by neutrinos released from mass grinders of black holes.

26.2. Construct of the Neutrino–
A neutrinos has ½h quantum of energy that oscillates within its self-created space.

The kinetic energy of the neutrino is one-half mass times velocity squared:

$$E = ½\gamma mv^2$$

Solving for velocity (speed):

$$v = [(2E)(\gamma m)^{-1}]^{1/2}$$

When we take the absolute value of the velocity vector, it reveals the scaler speed without direction.

$$|v| \equiv ś$$

26.2.1. Neutrino Force Field
The only force-field imbued in the neutrino is the mass-force, and the free neutrino's space is that of mass-space. The mass-force radial stand-off of the neutrino is determined the DeBroglie formula for a particles wavelength. Here the radial offset is 2 ½ DeBroglie wavelengths. Unlike fermions where the speed of the particle is estimated by the space that it occupies, a free neutrinos speed is determined form its momentum, which can be estimated from the temperature of the environment, the temperature can only be measured on the dust particles in the neutrinos environs.

26.2.2 . Radii-Offset
In the energy-space equations for the free neutrino, the nomenclature of the mass force radial offsets' subscripts is identical with those of the mass-force offset for macro energy-space mass-force radial offsets. The free neutrino radii-offsets will require recalculation for each and every speed. The slower speed of the neutrino, the longer will be its DeBroglie wavelength, and the farther will be its radial offset. We can expect that neutrinos in inner- and intra-galactic space will have extraordinarily large offsets; there will be (relatively) great distances between thermal neutrinos.

27.3. ESTIMATING THE NEUTRINO'S OFFSETS

27.3.1. Estimating The Mass-Force Offset $a_{1,1}$
The first term of the free neutrino's mass-force equation is two-and-a-half times the DeBroglie wavelength.

$$-ř MmGA (r - a_{1,1})^{-3},$$

The neutrino, the smallest particle in nature, has associated with it DeBroglie wavelengths from which offsets are determined. The radial offset ($a_{1,1}$) of the free neutrino, sets the distance at which the direction of the neutrino's mass-force of infinite repulsion switches from infinite repulsive to infinite attraction. The free neutrino has within $a_{1,1}$ a wave function of repulsion about it. At radii larger than $a_{1,1}$ the mass-force first term changes form repulsive to attractive force, the attractive force diminishes as the inverse cube of the distance from the neutrino.

27.3.2. Estimating the Mass-Force Offset $a_{1,2}$
The second term of the free neutrino mass-force equation radius offset, $a_{1,2,}$ was first estimated for the domain of orbiting electrons. For the free neutrino the estimate for the $a_{1,2}$ was based on the radius of electrons orbiting the hydrogen nucleus. There the radius r of the electron is a thousand times larger than diameter of the

nucleus. The first term's contribution of attraction is smaller than the second term's, by virtue of the second terms coefficient of 10^{-4}; the inverse cube radii is overshadowed by the second term with inverse radius squared and 100 coefficient. In the domain of orbiting electrons, where r >> a1,1, the inverse second degree term, - řMmGB($r - a_{1,2}$)$^{-2}$, becomes the dominant force contributing term. The second term's inverse squared factor makes the factor always positive; the leading negative unit vector makes the second term's force positive and the force contribution attractive all radii.

27.3.2.1. Coefficients
The first term's reciprocal third power radius in the denominator makes the first term's contribution negligible in the domains of second the third terms.

27.3.3. Estimating the Mass-Force Offset $a_{1,3}$

The third term, - řMmGD($r - a_{1,3}$)$^{-1}$, is repulsive between $0 < r < a_{1,3}$, and becomes attractive at $r > a_{1,3}$. The coefficient D of 10^{-12} reduces the force magnitude of the third term, such that, as a single neutrino, it does not overcome the force contributions of either of the first or the second terms. The third term comes into power when there is an inter solar system or inter stellar or inter galactic aggregation of neutrons. Here $a_{1,3}$ is set equal to $a_{1,1}$ because positive force spikes have not been observed outside the nucleus. The force from the third term is always week and attractive outside the realm of the nucleus.

28. the Neutrino

The neutrino exists free and entangled. Each energy space in which it exists as an entity, is without charge or magnetic characteristic; the neutrino creates charge and magnetic spaces by its dynamics. Entangled as an electron and leptons of higher mass, it creates potential charge fields by its radial motion, and magnetic fields by the leptons' spin. As a single free entity, the neutrino creates DeBroglie wavelengths by its momentum, the wavelengths being the mass-space described by the mass-potential formula.

28.1. Known Facts of the NEUTRINO –
The free neutrino has:

1/100 the mass of an electron,
no detectable electric charge and
no detectable magnetic field.
DeBroglie inverse momentum dependent wavelength

28.2. FREE NEUTRINOS AS SPACE HOLDERS —
Neutrinos create repellant mass-space within their radius of $a_{1,1}$. As radius of separation approaches $a_{1,1}$, neutrinos push each other away preventing coagulation. At radii far larger than $a_{1,1}$, the mass-force field's first term would be positive and of a small value, the second term of mass space provides attraction. Neutrinos in space should pack at a spacing of $a_{1,1}$ creating a fluid sea of neutrinos. Neutrinos at the speed of light would pass through this sea with only a small chance of colliding with neutrino of thermal velocity, as they are in an orthogonal spaces by virtue of speed.

30. The Neutrinos in the cosmos

The cosmos is filled with a sea neutrinos. Neutrinos have extremely low rest mass, equivalent to 1/100 electron volt. Light moves around them like an ocean wave around a piling, the sea of neutrinos is incompressible does press outward as more neutrinos are produced and have long range affects from the third inverse radius term.

The dark matter in the universes is neutrinos in galactic numbers; all three mass-force terms provide attraction at radii greater than the radial offsets. The mass-force second order-term, attractive at all radii, imbues gravity characteristics, which cause neutrinos to congregate. The short distance repellant force of the mass-force inverse third order first term formulation keeps neutrinos' from coagulating. In addition, the first terms inverse third-order radius imbues momentum transfer, like squeezing a bag of marbles. The second term of inverse radius square causes attraction characteristics causing neutrino to congregate (especially with larger celestial bodies). The third mass-force term enables galactic collapse when entropy is conplete. Thereby neutrinos by their multiple space characteristics, function as cosmic spacers; create, define, fill, maintain, and expand intergalactic space; and collect the residue of vreatiion for another Big Bang.

30.1 Free Neutrino speeds –
Free neutrino speeds vary from thermal speeds at temperatures near absolute zero to speeds near that of light, ***c-***. Relativistic neutrinos (with velocities near that of light) pass through the sea of thermal velocity neutrinos in an orthogonal relativistic space. Neutrinos with sub-relativistic speeds will collide with other neutrinos, collisions frequency increasingly with the lowering speed. In an elastic collision, kinetic energy is divided most efficiently when the two bodies colliding are of equal mass. In a cosmic sea of thermal neutrinos, relativistic neutrinos will eventually collide a sufficient number of times to reduce the neutrinos to thermal speed. As the frequency of collisions increases, the speed of the neutrino settles down to lower thermal speeds. At lower speeds orthogonality decreases, the frequency of collision increases. As speed lowers momentum lowers, and DeBroglie wavelengths increase in domains of influence of all three mass-force term.

30.1.1. INFINITE UNIVERSE HYPOTHESIS:
The Universe is *infinite,* and improved observation techniques will reveal additional galaxies and perhaps an additional cosmos.

30.1.1.1. INFINITE UNIVERSE NEGATION:
An infinite universe from a big bang herein is meant to be a universe that can expand indefinitely. There are echoes of the Big Bang in sound waves and electromagnetic waves reverberating from the boundaries of the universe. An infinite universe would thin, and expand with outbound energy such that no reverberation would be possible.

30.1.2. FINITE UNIVERSE hypothesis:
The Universe is *finite*.

30.1.2.1. FINITE UNIVERSE AFFIRMATION:
the edge of the universe reflects acoustic waves from the Big Bang.

30.1,3 the cosmos is infinite proposition
There is more than one Big Bang. They are beyond detection with present technology.

30.2.4. GALACTIC TEMPERATURE
Having kinetic energy (mass in motion), neutrinos also affect galactic temperature. Neutrinos cannot radiate, only solid bodies radiate; neutrinos transfer mechanical energy to cosmic dust that radiates detectible infrared.

32.1.2.1. Characteristics of the Electron-Neutrinos
The frequency of vibration is not germane to the construct of the electron. The Galilean dimensions of electrons therefore vary with the frequency of neutrino vibration; the frequency is set by the path length. The charge of an electron is set by exactly two neutrinos, and the mass of of the electron is set by the speed of the neutrinos. The frequency of vibration inducted into the electron-neutrinos is estimated in the proximity of 6 MHz to 60 MHz. In an aggregate of charge, electrons absorb frequencies in the descending order of amplitudes of the stimulating atoms. Additional electrons will absorb frequencies of lesser amplitude until the characteristic frequencies of the stimulating agent is mimicked. Repeated dilution assures that there is sufficient water to mimic the frequencies of the least amplitude. This is the physics in preparing homeopathic concoctions.

32.1.2.1.1. Neutrino's Stability
The total internal energy of the electron-neutrino is ½h, and if the energy were to propagate it must have a full quanta of energy. Also the 1/100 e.V. of mass holds the neutrino rotating below the propagation speed of light. The neutrinos cannot spontaneously decay and propagate as light.

32.1.2.2. The radial offset of the electron-neutrino
The radial offset of the electron-neutrino wavelength is selected to be 2½ times the DeBroglie wavelength. The velocity is derived from the energy of the gamma ray emitted upon destruction of the electron.

32.1.2.3. The electron's ambiguous diameter
'There is a large historical variance in Galilean measure of the electron diameters due to the electron's independence from the variable frequency of vibration. The diameter of the spherical core void is not frequency dependent, as it is fixed by the speed of the neutrinos, which in turn is fixed by the speed of the electron. Historical estimates of the electron's diameter depend upon the electrons exposure to stimulating frequencies, and also on the statistics applicable to the measuring technique. Were the measurements peak, average, root mean square or perigee measurements of the electron-neutrino?

32.1.2.4. frequency storage in electron-neutrino vibrations
The electron-neutrinos' independence from vibration frequency enables storage of discrete frequency information in the electron-neutrinos vibrations as in: allergens, homeopathic preparations, and the uncharitable unlocatable memory of the brain.

32.1.3. Force between Co-Docked Neutrinos
The mechanism of repulsion is that two the meeting of two oppositely rotating neutrinos are repulsed by mass force, increasing in magnitude to infinity at $r = a_{1,1}$. The force is reflected back to the entangled partner through near relativistic entangled electron-neutrino space of no measure, since a straight path is not a requirement of entanglement. Once co-docked with a like-spinning neutrino at the point of docking, force will be transferred over a broken but contiguous path in a Denver Instant .

Upon co-docking, the reflected forces equal the incoming momentum change of stopping the neutrino. The neutrino docks momentarily, then repeats the path back to its entangled partner. The **c-** *speed of the neutrino projects distance back to Galilean space as near zero, and no change in relativistic time projects back as continuous Galilean time.*

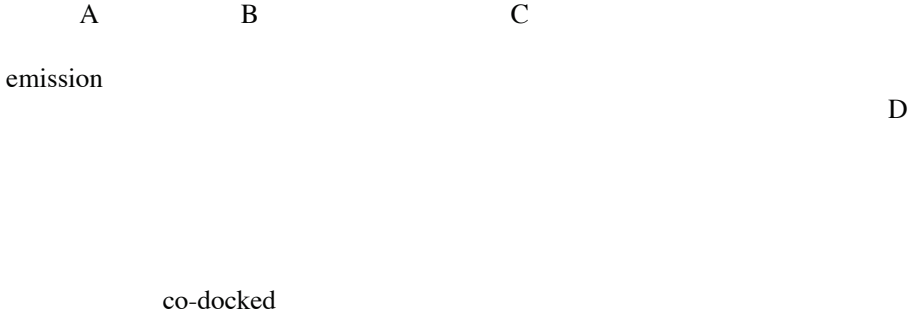

Figure 32.1.3.-1 . Force between Co-docked Neutrinos

A neutrino leaves its entangled partner and proceeds along path A. Upon collision with a neutrino of opposite spin at the junction of path A and B, two perpendicular force components are resolved. The neutrino proceeds along path B with the similar resolution at junction of path B and C. Again similar resolution of forces at junction of path C and D. At the end of path D, the neutrino docks with a same-spin neutrino. An attractive force is created between the origin and the co-docked neutrino is passed back through the leptons passing between the radius offsets of $a_{1,1}$ *and* $a_{1,2}$ *which act like a set of pulleys pushing at* $a_{1,1}$ *and pulling at* $a_{1,2}$*. In this relativistic space, where there is no distance or time, the forces all add vectorily to form a direct attractive force between the end leptons.*

32.2.4.1. Direction of energy circulation in a neutrino

In Charge-space, the direction of spin of two interfacing neutrinos determines the direction of force. For neutrinos to have a spin direction (noted as ν- and ν+) there must be an asymmetry in the neutrino to differentiate the direction of spin. As the smallest particle, a neutrino cannot have an axis. Therefore, a neutrino must be a particle made of energy only, and must spin either cw or ccw. To spin as nonpropagating energy it must occupy two energy spaces which can be exchanged. To have cw and ccw rotation it must have a third energy space as an axis or reference about which it can spin. The third energy space must be at right angles to the first two energy fields. The only non propagating energy fields are charge, magnetic, and mass. The neutrino, having only one-half quanta of energy, cannot enter the energy space of electromagnetic radiation. The asymmetry is in the direction of circulation of energy. The direction of spin of iCharge x jMagnetic x kGalilean has been chosen to be positive. A positive rotating neutrino cannot be turned on any combination of axes to be a negative turning neutrino. This can be easily visualized by extending the thumb, index finger and middle finger of both hands. With thumbs up and the index finger pointing forward, the middle fingers point in opposite direction. No matter which two fingers are aligned, the third fingers point in opposite directions. And, so it is with positive and negative turning neutrinos.

32.2.4.1.–1 Three-phase neutrino hypothesis: *A cw neutrino is ½ quantum of energy circulating through charge, magnetic, and mass spaces, with* 120^0 *phase shift between the energies.*

32.2.5. Electrostatic Attraction Mechanism

An attractive force is developed between Leptons when lepton-neutrinos find a same-rotating lepton-neutrino (ν^- with ν^- or ν^+ with ν^+) with which to dock. The two neutrinos spinning in the same direction, each with 1/2h quanta of energy, create and share a full quantum of space. The attractive force is maximized because the neutrinos' speed is near ***c***, making the relativistic radius near zero.

32.2.6. Mass Repulsive Mechanism

The mechanism of repulsion is that two meeting neutrinos are repulsed by mass force, which increases to infinity at $r = a_{1,1}$. The force is reflected through near relativistic entangled electron-neutrino space without measure in a Denver Instant. A straight path is not a requirement of entanglement, and force will be transferred over a broken but contiguous path. The path need not be straight, as only common epoch, common place of origin, and relativistic speed are required for entanglement. The neutrinos' mass-force is transferred is over the path of entanglement.

32.2.7. Electrostatic Repulsive Mechanism

a repulsive force is developed between the an electron and a lepton when an electron-neutrinos do not find a same-rotating lepton-neutrinos, as in trying to dock neutrinos of opposite spin as ν- with ν+ or ν+ with ν-. The opposite spinning neutrinos cannot share the full quantum space, and a repulsive force is transferred between the two counter rotating lepton-neutrinos.

32.3 Electron's Magnetic-Space-
Previously described forces have been between two entities (I_1 and I_2), and their potential fields being the force formula divided by a unit of the energy source. It is impossible to isolate a north or south magnetic pole.

3.3.1. Electron's Magnetic Space Creation
Space is created by the rotation of an electron. The vibrating neutrinos rotate on one axis at tangential speeds near the speed of light; the collapse of space in the direction of rotation creates magnetic space.

33.3. THE FREE NEUTRINO –
The three forces' radial dominions for independent neutrinos are determined by the exponent power of the radial argument, the three term's offsets, and the magnitude of the coefficients. The direction of force changes with radius as follows:

33.3.1. The First Term
The first term, $-\check{r}MmGA(r - a_{1,1})^{-3}$, is repulsive (positive) when r < a1,1, and attractive (negative) when r > a1,1.

33.3.2 The Second Term
The second term, $-\check{r}MmGB(r - a_{1,2})^{-2}$, is attractive (negative) at all radii because of the squaring of the inverse radius factor and the leading negative sign for the equation.

33.3.2.1 The second-degree inverse radius force
The second-degree inverse radius force of this term, by virtue of the leading negative unit vector contributes an attractive force at all radii. In the domain of orbiting electrons, where the radius r is a thousand times larger and much greater than $a_{1,1}$, the second term is negative, and attractive.

33.3.2.2. Second term dominant in the domain of orbiting electrons
Force Domains of the $-\check{r}MmGB(r - a_{1,2})^{-2}$ (always attractive) adds force to the first term's attraction $-\check{r}MmGB (r - a_{1,1})^{-3}$. In the domain of orbiting electrons (where $r >> a_{1,1}$,) the second term, $-\check{r}MmGB(r - a_{1,2})^{-2}$, having only a second degree inverse radius factor, becomes the dominant term.

33.3.3. The Third Mass Force Term
The third mass force term, $-\check{r}\,MmG\,D(r - a_{1,3})^{-1}$, is attractive at $r > a_{1,3}$, and repulsive at $r < a_{1,3}$. The coefficient D reduces the contributive force of the third term, such that it does not overcome the forces of either of the first two terms. The third mass force term, $a_{1,3;}$ is set equal to $a_{1,1}$ because infinite repulsive force spikes of attraction or repulsion have not been observed outside the nucleus. The force from the third term is always week and attractive outside the realm of the nucleus. The third term is the vacuum cleaner of all matter when the cosmos chills to absolute zero. The third term is the possible cause of the experienced drag observed outside the solar system. Within the solar system, gathering neutrinos would balanced fore and aft pull on a spacecraft. The true value for mass-force coefficient D is probably much smaller than the exemplificative value 10^{-12}, the tremendous quantity of dark mass in the solar system and all galactic systems might cause the systems to collapse from long reaching force of the third mass force term.

33.2.4.3.7.5. Entangled Electron-Neutrinos
Entangled electron-neutrinos travel at 0.999799980c, derived on page 78. The Lorentz ballooning factor of

span and time from relativity space to Galilean space γ^{-1} is:

$$\gamma^{-1} = [1 - v^2/c^2]^{-1/2} = [1 - (0.999799980)^2]^{-1/2} = [1 - 0.999259964]^{-1/2} = 50$$

This was the criteria for the electron neutrinos' speed to balloon each neutrinos mass by 50, so that the electron's mass would be 100 times that of the neutrino.

33.2.4.3.7.5.1. Difference between entangled and free neutrinos
Entangled electron-neutrinos have an exclusive near-orthogonal mass-space of their own, similar to that of entangle photons. The DeBroglie wavelength varies with speed, and the speed in cosmic space is determined by temperature. As temperature decreases, the entangled neutrino's space increases.

33.2.4.3.7.5.2. Free neutrinos
Only the mass-force equation applies to the free-neutrino; the neutrino is the medium through which charge and magnetic forces are imbued. The charge and magnetic force equations are applicable only to aggregated charges. Although the neutrino is the medium of charge and magnetism force, the neutrino has no associated force other than mass.

33.2.4.3.7.5.3. (Galilean radius between free neutrinos)

Free neutrinos in space at 4^{o} K are not relativistic, and have long wavelengths. Their speed can be expressed as fractions of the speed of light with no relativistic reference, for speed is nonrelativistic. The Galilean radius between free neutrinos in space is two-and-a-half times the Galilean DeBroglie wavelength (3.863135×10^{-11} meters) of the neutrino. The SPAN between neutrinos in space is therefore variable and much larger than the space between electron-neutrinos. Their space is one dimensional, and they can interweave into an intense density of matter without interference with each other, and without absorbing, reflecting or radiating light.

$mv^2 = 3Kt$ RE: http://hyperphysics.phy-astr.gsu.edu/hbase/kinetic/kintem.html

$v = [3Kt/m]^{1/2}$

m = mass of a single neutrino = $(10^{-2})(9.10938215(45)\times10^{-31}$ kg) = $9.10938)\times10^{-33}$ kg

K= Boltzmann constant = 1.38066×10^{-23} J/K

$v = [(3)(1.38066 \times 10^{-23}$ J/K)$(4^{o}$K) ÷ $(9.10938\times10^{-31}$ kg)
= 13,486.2 meters/second

The DeBroglie wavelength of the 4^{o}K neutrino is:

$\lambda = h/mv$

h = 1.380650×10^{-23} joule per kelvin (K),

m = 9.10938×10^{-33} kg

v = 13,486.2 meters/second

λ = $(1.380650\times10^{-23}$Joule /Kelvin degree]÷[$(9.10938\times10^{-33}$ kg)(13,486.2 m/sec)]

74.14987×10^{-6} meters

33.2.4.3.7.6. (First Term Offset Radius for the Free Neutrino, $a_{1,1}$)

The radial offset of the neutrino $a_{1,1}$ sets the distance measured from the neutrino at which the Mass-force field changes from repulsive to attractive, and decreased asymptotically to zero at infinity. The repulsive mass-force

in the immediate vicinity of a neutrino keeps them from coagulating in space. The mass-force beyond $a_{1,1}$, is negative causing an attractive force that makes them pack like marbles in a box. The inverse cube order of the term makes the force fall off rapidly with radial distance. The space of the neutrino extends to infinity in Galilean space is of minute length in neutrino space (in the space near the neutrino); because of the near c velocity, neutrinos'

33.2.4.3.7.7. Second Term Offset Radius for the Free Neutrino, $a_{1,2}$

The second term radius offset for the neutrinos is of the same magnitude as the first terms, $a_{1,2} = a_{1,1}$ (argued previously). The second term adds to the mass-force of the first term at $a_{1,1}$ by a factor of one less inverse power of r and decreased by a coefficient that is 10^{-3} smaller. The second term takes effect in at all ranges where r is much greater than $a_{1,1}$. The second term gives the free neutrino the congregational characteristic to collect about individual celestial bodies, and within planetary systems and galaxies.

33.2.4.3.7.8. (Third Offset Radius for the Neutrino, $a_{1,3}$)

The third term radius offset for the neutrinos is of the same magnitude determined for the first and second terms. The third term adds to the mass-force first term at $a_{1,1}$ by a factor that is increased by one inverse power of r and reduced by its 10^{-12} coefficient, making it 10^{-16} times smaller than the coefficient of the mass-force first term. The third term also creates drag on vehicles leaving the solar system.

42. nucleon pARTICLE FORCES

42.1. FERMION SPIN PROPOSAL-

Fermions of opposite spin and electrons in orbit can share relativistic space and cancel spin momentum and magnetic fields. The nucleus may have magnetic spin values of zero or multiples of one-half quanta of energy, according to even or odd atomic numbers.

42.1.2. Charged particle proposition

All masons, baryons, leptons (electrons, muons, and taus) are composed of neutrinos bonded in composite configurations generating attractive and repulsive charge forces, through entangled neutrinos sharing or not sharing near relativistic space, exchanging forces in near Denver Instances.

42.1.2. Muon Construct

Muons decay into an electron and two neutrinos. Two configuration are suggested: 1) Four neutrinos fill 2h of mass-space in two orbits. 2) Four neutrinos fill 4 ½h quanta of mass-space in four orbits. The first configuration would not provide single docking spaces of ½h that imbue charge force. The muon must be an electron with two extra neutrinos of the same spin and higher energy that provide the higher mass and docking spaces for other roaming neutrinos.

42.1.2.1. Neutrinos as charge media of force transfer

The neutrinos functioning as transfer medium of charges-forces are those entangled as electrons or muons. There is no true charge-force; charge-force is mass-force of entangled neutrinos between two leptons. Charge-force between two leptons is at a constant maximum because in relativistic space there is no measure of distance or time. Only the offset generated by DeBroglie wave mechanics remains with the neutrino.

42.1.2.2. Charge attraction

In charge attraction, electrons share neutrinos, as atoms share electrons. The force between and electron and a lepton is created by one of the electron-neutrinos sharing a half-quantum space with a half-quantum space of the lepton-neutrino. The electron-neutrino is held in energy-space docked at a bosons-neutrino; the electron-neutrino and the boson neutrino are at no measure of separation in the relativistic entangled neutrino-spaces, the mass-force attraction is at finite maximum, limited by $a_{1,1}$ of both lepton-neutrino.

42.1.3. Free Neutrinos
Only the mass-force equation applies to the free-neutrino; the neutrino is the medium through which charge and magnetic forces are imbued. The charge and magnetic force equations are applicable only to aggregated charges. Although the neutrino is the medium of charge and magnetism, the neutrino has no associated force other than mass.

The Galilean radius between free neutrinos in space is two-and-a-half times the Galilean DeBroglie wavelength (3.863135 X 10^{-11} meters) of the neutrino. The space between neutrinos in space is therefore variable and much larger than the space between electron-neutrinos.

42.1.2.8. Two neutrinos share one full quantum of mass-space
Two neutrinos of the same spin can share in the creation and sharing of one full quantum of mass-space; the neutrinos spin in the same direction and share each other's vacant one-half quantum of rotation space. From the mass-force formula, neutrinos of opposite spin would repulse at $r < a_{1,1}$, and attract at $r > a_{1,1}$.

36. DARK Matter

36. THE DARK MATTER OF THE UNIVERSE AND ITS FUNCTION - The Dark Matter of the Universe is neutrinos. The rest mass of the neutrino is too small to absorb, reflect, or radiate light. Neutrinos exist in an infinite number of energy states, from a high-energy state with velocities that are near the speed of light, to low energy state with hypothermal velocities. The high-energy neutrinos, those newly formed in stars and black holes; low-energy neutrinos being those that have lost energy to intergalactic dust particles and other slower neutrinos. Neutrinos, having equal mass, divide energy in perfectly elastic collisions. High-energy neutrinos create an orthogonal energy-space of small $a_{1,1}$ that is orthogonal by speed to low energy neutrinos. Unlike photons, they project obliquely on Galilean space by Lorentz's equation; i.e. they are not truly orthogonal onto Galilean space do to their miniscule mass. Neutrinos' rest mass is extremely small but in galactic numbers, low-energy neutrinos can function as intergalactic space holders affected by their mass-space offset energy field from the first term.

36.1.2 Neutrinos do not cong**eal** Neutrinos do not congeal because of the repulsive $-A(r-a_{1,1})-3$ term in the mass-space formula when $r < a_{1,1}$, their infinite repulsion force at $r = a_{1,1}$ will keep them from adhering thereby creating an incompressible liquid. The non-adhering characteristic creates a liquid state for the low energy neutrinos affect the mass-space pressure of cosmic acceleration.

36.1.3. Neutrinos, present in all mass, have a repulsive force at $a_{1,1}$ with all known nuclei and particles that have mass, pressing uniformly on the neutrons. The second and third mass-force terms create long range attractive forces that accumulates neutrinos at ranges where $r \ a_{1,1}$.

36.1.4 Neutrinos accelerate the universe expansion Black Holes provide neutrinos to affect the pressure that accelerates the cosmic expansion. The colder the cosmic temperature the longer is the reach of the mass force first term, the greater is the volume of the incompressible liquid. Neutrinos push fermions and galaxies to accelerate in expansion of the cosmos.

Edge view of the Milky Way

For more Images, Google: "Milky Way."

Proposal: Dark Matter constitutes 80% of its mass. of the Milky

42.3.2. ***Two Electrons Occupying One Orbital Energy Space*** The occupancy of two oppositely-rotating electrons in the same energy level with the same coordinates for their center of mass was predicted and is allowed by the Pauli Exclusion Principal. Two oppositely rotating electrons with parallel axles occupy the same space by each creating magnetic-space in the other's electron's magnetic void. The counter rotating electrons are attracted to each other by the lower potential of combined mass-space as well as their attractive north to south magnetic orientation..

42.3.1. ***Orthogonal Charge Space*** – The radial electron-neutrino's charge-spaces of two collocated electrons are orthogonal by virtue of different epochs of the two pair of electron-neutrinos. The charges do not repel each other.

See Like charges are attractive at distance less than $a_{1,1}$.

42.3.1.1. Electric field strength vector

$$E = \check{r}\,\gamma f\{(\mu_0),(Q),(\cos 2\theta),(r - a_{1,1})^{-3}, (r - a_{1,1})^{-2}, (r - a_{1,1})^{-1}\}$$

Where f{ } indicate that magnetic field strength is a function of the enclosed variables,

θ is the off angle from the spin axis of the position vector r.

$\check{r}$ is a unit vector in the direction of increasing r.

μ_0 is electrostatic permeability of free space.

Q is a charge within the space.

γ is Lorentz contraction radical from transitioning from a Galilean point of reference, to a relativistic point of reference.

43. The neutrino

43.1. What Constitutes A Neutrino – The neutrino consists of something! What particles constitute a neutrino, the smallest detected particle? It might be argued that it is pure energy; because everything is energy and by DeBroglie principle, a wave. A neutrino has one half quanta of spin. what spins?

43.1.1. Neutrino Hypothesis #1: A neutrino is a one-dimensional entity of pure mass, and the space created by its spinning is warped by relativity (similar to the magnetic-space created by electron-neutrino pair) so that it has a counter-rotating void that can be occupied by a counter rotating neutrino. To have rotation cw and ccw there must be an axis about which rotation can be reckoned. The uncertainty comes from the mass having not been observed to incur Lorentz Ballooning. Even at a speed just below that of light (-c) the infinitesimal mass escaped detection until 1996. The mass might have the energy of 1/200 e.V., and the spin might have energy of ½h. Right and left hand spin requires an offset axis from which cw and ccw rotation might be determined. Hypothesis #1 is negated.

43.1.2. Neutrino Hypothesis #2: The mass is spinning to create a relativistic space that is orthogonal to Galilean space. The neutrino would then be orthogonal spinning energy vectors with only the vertex in Galilean space. Two neutrinos could spin in the same direction to create the full quanta of relativistic-space. The constituents could be spinning electromagnetic space that does not propagate because of a miniscule mass holding the neutrino's center of mass. This leaves the dilemma of what constitutes the mass, a smaller particle? a smaller particle violates the belief that the Neutrino is the smallest particle. Hypothesis #2 is negated.

43.1.3. Neutrino Proposition #3: The neutrino is energy that moves from mass to charge to magnetic spaces which could be (im X je X kh) for one rotation, and (im X kh X je) for the opposite rotation, where the cross product (a X b) is (a)(b)cos(θ), and i is the unit vector for mass-space, j is the unit vector for magnetic-space, and k is the unit vector for charge-space. This being the most plausible configuration, it is hereby the proposed model for the neutrino. The mass-space is the pivot point of E-M rotation; the ½h energy would continuously pass through all energy states. The ½h spin energy would dwell in orthogonal e- and h-spaces, and pivot on mass space. As this energy constitutes the neutrino, there is not magnetic, charge, or mass space created. Only the direction of energy is created; the energy visits to mass-space prevents the E-M from reaching the propagation speed of c, stabilizing the neutrino. This is a proposition as this is pure conjugation, with no supporting experimental data, but is the most probable of all three neutrino concepts: A neutrino is ½h of electromagnetic energy-space spinning about a mass-space of approximately 1/100 e.V. as the axis of rotation and the anchor from the E-M space from radiating. Having only half the energy required to propagate, the energy is confined to the neutrino.

43.1 Physical Properties of the Neutrino

43.1.1 **Spin Energy** spin energy = ½h = 3.313034×10^{-34} Joules/radian

= $(3.313034 \times 10^{-34}$ Joules/radian) (2π radians /cycle)

= 2.081640×10^{-33} joules per cycle

43.1.2. **Mass Of The Neutrino** Mass of the neutrino ≡ $m_{neutino}$ (e.V.) = 1/100 electron Volt

$M_{neutrino\ (Joules)} = (10^{-2})(1.60217646 \times 10^{-19})$ joules/e.V.

$N_{eutrino\ (Joules)} = 1.60217646 \times 10^{-21}$ joules

$E = mc^2$, therefore:

$m = Ec^{-2}$

Where: $m = 1.60217646 \times 10^{-21}$ joules = $1.60217646 \times 10^{-21}\ m^2 \cdot kg \cdot s^{-2}$, and

$c = 299\ 792\ 458$ m / s

$m_{neutino} = (1.60217646 \times 10^{-21}\ m^2 \cdot kg \cdot s^{-2})(299\ 792\ 458\ m / s)^{-2}$

$m_{neutino}$ (kg) = 1.782661×10^{-38} kilograms

43.1.3. Neutrino's Wave Space Proposition The neutrino is **a chiral particle (one that cannot be superimposed on its mirror image, as your right hand cannot be superimposed on your left hand). For this to be true, and for the neutrino to have mass and frequency, it is proposed that the energy that is measured as mass oscillates between mass space, charge space, and magnetic space.**

43.1.3.1. Energy cycling The spinning energy of a neutrino is 2.081640×10^{-33} joules per cycle, with the unit vectors and i, j, and k to direct the energy into the three energy spaces of mass, charge, magnetism. positive rotation is the transfer direction of the neutrinos' 1/100 e.V. energy from i mass-space to j charge space to k magnet-space. This follows the mathematical vector product of i mass cross j charge cross k magnet resulting in a positive vector; the positive vector indicating positive rotation. The choice of the electron's polarity as

negative makes the direction of travel opposite to the cross product of j X k . Any other order of energy flow between energy spaces will be negative rotation. There is only one alternate direction of energy rotation. This is the affirmation that negative space does not exist, and v^- has only the meaning: opposite rotation. Vectors can be assigned to be positive on different axis, which would dictate the positive direction of rotation of energy. In macro electrical theory "voltage leads current," it seems logical (but not necessarily true) that charge space would lead magnetic space in electron-neutrino energy transfers, and that mass-space converts back and forth to electromagnetic space. Therefore, j-charge cross k- magnetic was chosen as being the product that set the order of assigning unit vectors.

43.1.3.1.1. (Three phase relationship) *The cross product for* j X k follows the right hand where the index finger points in the direction of j, the middle finger point in the direction of k, and the thumb points in the direction of i . Fleming's Left Hand Rule is **chiralistic, because of the choice in the polarity of the electron. Extrapolating from the electric and magnetic fields created by the entangled neutrinos of the electron, magnetic space exist as a curl of space created by of the neutrinos path tangential path. Charge space is a linear radial space created by the neutrino's radial vibration. Mass space is that of the path of electrons. Each space can exist without a particle: electromagnetic propagating space exist without a mass particle. Mass space exists without electric space. Proposed is that the energy of a neutrino exists in charge space, magnetic-space and mass-space as wave energies in a phase relationship of 120 degrees The wavelength is determined by DeBroglie's formula. Only the mass-space energy is detectable, and that being most prevalent at low speeds.**

12.13.5. Photon's Energy Space

A photon has the value of one quanta of energy; one photon occupies one quantum of energy-space (volume) and is one wavelength long. The photon's one quantum of energy is shared in quadrature between charge and magnetic spaces. The energy of a photon does not project onto Galilean space. RE: The Circle of Relativity.

12.13.5.1 Dimensions of a photon

A photon has the volume of one quanta of energy measured in units of Joule-seconds, the cross section of h/λ. [The lower case letter h is Planck's constant of energy density in Joules per wavelength, the Latin "ħ" is the energy per radian.] The shape of a photon ending at an arc measure of 57^o would have high frequencies harmonics that have not been observed in optical spectrums. Only a photon that completes a cycle of oscillation would give the clean spectrum of one line per photon. A complete cycle of oscillation is therefore the length of a photon. The photon-space closes at the passing of the photon. The closing of the space by the completion of the photon cycle makes necessary a new epoch for the succeeding photon. All photons therefore, by virtue of a photon's unique epoch, create a space that is orthogonal to the space of every other photon. To account for the fact that there is no harmonics created by the beginning and end of a photon's passing, a Gaussian envelope, Γ, is assumed for the photon's charge and magnetic fields. Since charge (or voltage field) leads the magnetic field in antenna theory, it would therefore have an abrupt leading edge; the Gaussian envelope would reduce the harmonic created by this step function.

12.13.5.1.1-1 *(PROPOSal for equation for a photon)*

The proposed equation for a photon is:

$$\text{Photon} = h\lambda f(\omega\xi))\gamma$$

$h = 1.054571E\text{-}34$ joules per wavelength

$\lambda \equiv$ variable wavelength $= \boldsymbol{c}f^{-1}$

$f(\omega\xi) = (j \sin\omega\xi + k \cos\omega\xi)$

$\xi = s$ when $\acute{s} = \boldsymbol{c}$

$[\varepsilon = t$ when $0 < \acute{s} < \boldsymbol{c}\text{-}]$

Γ = Gaussian function's bell shape.

Photon = (1.054571E-34 joules per wavelength)$\boldsymbol{c}f^{-1}(j \sin\omega\xi + k \cos\omega\xi)$

12.13.5.2. Photon's energy inversely proportional to wavelength
A quantum is Planck's constant of work contained in a photon (expressed in Joules per wavelength), stretched out over a length of a photon's wavelength). As the wavelength shortens, the work is condensed in span; this accounts for shorter wavelengths having more energy (potential work per unit time) than longer wavelengths.

12.13.6 Dominions of heat
Heat creates space in the domain of molecular motion. Heat is a form of mass energy, the kinetic energy of molecules. Therefore, the space created by Heat Energy is from macro-forces, the mass-space of molecules in motion, whether held by molecular bonding in solids, liquids, or as free gaseous molecules. Heat expansion of solids and thermodynamics of gasses are well known, formulated, and documented. Energy-space's potential forces add vectorily to heat potential energy-forces. The First Law of Thermodynamics (that heat flows form hot to cold) is driven by energy flowing into increased relativistic space, which amounts to a lower potential for the heat energy and an increase in entropy. Thermodynamic forces add vectorily on molecules with other energy-forces.

14. Unified force field

14.1. Radio Propagation Equation As The Model -
Space is created by all potential energies and defined by potential energy equations. The most completely understood potential energy to date is Radio Propagation. Since all particles have DeBroglie waves, and all waves have similar properties, and since the Radio Propagation Equation must be included in a Unified force equation, it follows that the Radio Propagation Equation is the prime candidate in number of terms and degree of variables for the Unified Force Field Equation.

14.1.1. Generalized Radio Propagation Equation
The generalized radio propagation equation is of the form of an inverse third order equation:

$$E = \Phi r^{-3} + \Psi r^{-2} + \Omega r^{-1}$$

Where: E is the Electric field Potential strength in volts per meter,
r is the radial distance in meters from the energy source (the antenna), and
Φ, Ψ and Ω are coefficients that scale the radiated energy into volts per meter.

14.1.1.1. Generalized coefficients
The electrical parameters of permeability, resistively, dielectric constant have been left out or may be considered to be included in the coefficients Φ, Ψ, and Ω, as they do not contribute to understanding the formula's general format and functionality, and are not present in molecular and particle domains.

14.1.1.2. Electromagnetic radiation
Heat rays, light rays, X-rays, and γ–rays are all of the same essence as radio waves; they are all propagating electromagnetic energy. All particles have associated wavelength described by DeBroglie's equation:

$$\lambda = h/p,$$

Where: h = the energy per wavelength, and
p = momentum.

_14.2. The Vectored Radio Propagation Equation

$$E = \check{r}Pf[\Phi(r)^{-3} + \Psi(r)^{-2} + \Omega(r)^{-1}]$$

first term *second term* *third term*

RE: Electromagnetic Equation

Where: P is the RF transmitter power delivered to the transmitting antenna. In the case of visible photons, it is the energy drop in potential from one energy orbit to another measured in electron volts. X-rays come from the K-orbit electrons being excited to a higher energy level and dropping back. Gamma rays come form the nucleus and from outer space.

f is a function containing all the variables of RF connectivity that have been left out; not necessary for concept understanding, and applicable to the environment where propagation is occurring.

ř is a unit vector positive in the direction of increasing radius.

r is the radial distance from the antenna or point of origin.

14.3. The Corrected Electromagnetic Equation –

The E-M equation yields volts pre meter of antenna, as a function of distance, and is therefore a potential function. At distance the electromagnetic energy is a function of the gain of the transmitter and the receiving antenna, and between the antennas, propagaating electromagnetic energy susceptible to: 1) frequency dependent absorption, where absorption is a function of air constituents including gaseous molecules and moisture, foliage, ground resistivity and dielectric constants; 2) reflected multipath wave interference; and 3) interference of natural sources, industrial artifacts, nearby and harmonic frequencies of transmitters, and purposeful jamming.

The E-M equation does not take into consideration many parameters of the communication channel, such as absorption, transmitter antenna gain, and line losses in the transmission line. This equation would be applicable to a dipole in vacuum transmitting a single frequency. None of these communication variables apply to the particles of physics to which the equation is to be applied.

$$\text{E-M} = 1\check{r}\, f(\omega\xi)[\Phi(r - a_{4,1})^{-3} + \Psi(r - a_{4,2})\text{-}2 + \Omega(r - a_{4,3})^{-1}]$$

$$f(\omega\xi) = (j\sin\omega\xi + k\cos\omega\xi)$$

Φ is the coefficient of the inverse third-order term

Ψ is the coefficient of the universe second-order term

Ω is the coefficients of the inverse first-order term

$a_{m,n}$ is the offset of the m^{th} term of the n^{th} energy .

l is the unit vector to the imaginary space of light propagation

ř is a unit vector indicating the direction of positive increase in radius

14 .3.1. Nomenclature of Term-Dependent Radii Offsets Of The Propagation Formula

Radial offset of $a_{m,n}$ in the propagation formula will shift the trace of the equation in the positive direction, thereby causing the first term to be negative from zero to $a_{m.1}$. Where “m” designates the mass-energy equation when m = 1, and “n” the term position, 1, 2, or 3. The third term closes creation so that when all energy is spent, residual neutrinos will collapse into a primal mass, and another Big Bang will follow.

14.3.2. The Hypothesis Of Inserting $a_{m,n}$ is Proved by Its Functionality.

In the mass force equation, the first term holds fermions on the surface of the nucleus and is paramount in the

construction of the electron and other leptons. In the charge-force equation, it allows protons to be attracted to each other within the nucleus. The second term is Newton's equation; the third is the long range force effective only at extreme range and for galactic numbers of particles.

14.3.2.1. Force by term

At $r < a_{4,1}$, the inverse r-cubed term, $(r - a_{4,1})^{-3}$, of the Electromagnetic Propagation Equation force direction is attractive (negative) as r approaches $a_{4,1}$ from zero, and positive as r decreases toward $a_{4,1}$ from infinity. At radii grater that $a_{4,1}$, the force of the first term is repulsive adding a miniscule amount of third order energy to the propagating energy. As the radius increases much past $a_{4,1}$, the $(r - a_{4,1})^{-3}$ term quickly reduces and becomes negligible. In the third term of the Electromagnetic Propagation Equation, $(r - a_{4,3})^{-1}$, the offset $a_{4,3}$ is set equal to $a_{4,1}$ as no spike in force, negative or positive detected-return-of-transmitted energy (as an echo) has not been experienced, as would have been detected in radar. The second term offset might be zero or equal to $a_{4,1}$; as the sign must be positive past $a_{4,2}$ so as to emulate the inverse square propagation formula in radio engineering. The third term presents a miniscule repulsive force at extended ranges. E-M waves theoretically propagate forever; again, witness starlight.

14.4. The p*ropagation equation format* is ubiquitous

The propagation equation applies to all energy waves. If there is to be a common format for the Unified force, it must encompass the electromagnetic force field. therefore, the assumed format for all energy and particle equations is to be that of the inverse radius third-order radio propagation equation.

14.4.1. Fundamental differences in mass, Charge, and Magnetic Force Fields

All energy-fields herein are in the general format of the Electromagnetic Propagation Equation's third order inverse powers of radius, however fundamental differences in energy characteristics and different customary measuring units in each energy discipline require each energy equation to be custom tailored.

14.4.2. Third Order Harmonic Energy

In radio engineering, third order radio frequency (RF) energy has been observed to return to the antenna. This was observed to occur at about 2½ wavelengths. There was no explanation of the 2½ wavelength offset, and no mathematical accounting in the equation of paragraph 14.1.1. [This reversal in force, causing energy to return in 2½ wavelengths will be a major concept in writing the Universal Force Field equation.]

14.4.3. Scalar to Vector

The original E-M propagation equation was scalar and the direction of propagation assumed to be in the direction of increasing radius from the antenna. The Corrected Propagation Equation is converted to a vector equation by the insertion of the unit vector ř, which is positive in the direction of increasing radius. The Corrected Propagation Formula is a vectored potential energy equation directed by l to orthogonal light space. By choosing appropriately scaled coefficients, its units are Volts per meter. The electromotive force is generated in the receiving antenna's terminals in Volts per unit antenna length.

15. The Unified Force Field Equation

15.1. The Four Unified Forces' Characteristics –

All energy has the common characteristic of creating space. There are four force fields and therefore four unified force field equations. Mass-force field changes its direction of force as a function of radii from repellant to attractive to repellant. Electrostatic force changes direction according to the three polarity combinations. Magnetic force has aligning moment and attraction characteristics. Electromagnetic energy is not confined to source items, as are mass, charge, and magnetism. Each energy-force equation is unified in that one equation hold true for a specific energy from sub nuclear to cosmic domains. Each energy equation requires a unique

formulation of offsets and coefficients.

15.2. The Unified Force Field Equation-
Unified means that one equation applies to all domains of range, from particle physics to astronomical physics. The Unified Force Field Equation is presented as four-equations-in-one to satisfy the historical quest for the unified force field equation. Electromagnetic energy is free from its source, and therefore is not associated with I_1 and I_2. It will be shown herein that there is a common force carrier, that being the neutrino (singularly and two in entanglement) that imbues force. The neutrino is the missing nexus between mass-, charge-, and magnetic-forces. Presented as 4 third-degree equations in one, the equation describes a unified force field of all energy-forces in all domains of radius.

$$\text{The Unified Force Field} = \sum_{m=0}^{4} \sum_{n=3}^{1} \int_{r=0}^{\infty} \{(-1)^n \check{r}\, I_1\, I_2\, f\{(r - a_{m,n})^{-n}\} dr$$

Where: m is the energy source identification number as follows:
0 = mass force for the neutrino
1 = mass
2 = charge
3 = magnetic
4 = electromagnetic (E-M) radiation

n is the term position:
1st term = $(r - a_{m,1})^{-3}$ Applies to realms the size of the nucleus.
2nd term = $(r - a_{m,2})^{-2}$ Applies to realms the size of orbital electrons.
3rd term = $(r - a_{m,3})^{-1}$ Applies to realms greater than the size from atoms to the cosmos.

$f\{r\text{-}a_{m,n})^{-n}\}$ is an inverse radius n^{th}-term of the m^{th}-energy force function.

$(r - a_{m,n})^{-n}$ is the n^{th} inverse radius term corrected with a generalized offset parameter, $a_{m,n}$.

I_1 the first item creating energy-force (absent in e-M radiation).
I_2 the second item creating energy-force (absent in e-M radiation).

There is no Item in E-M space. Only E-M energy-space propagates without mass at the speed of light, $\boldsymbol{c}$.

15.3. Individual Energy-Force Equations -
Each of the four force equations is addressed individually.

15.3.1. The Space for Aggregate Mass
Mass-Space is created by every isolated mass. The potential mass-force field defines the shape of mass-space created. The mass potential force field, expressed as force per unit mass, is obtained by dividing the unified mass-force field by a unit mass. The space created is the absolute value of the potential function; there is no negative space. When the point of interest is in the domain of the first term, the force contribution of the second and third terms are negligible, from the fact that the larger offsets and the lower exponential powers create force contributions that are insignificantly small compared to that of the first term.

14.3.1.1. The mass-force formula functionality

The mass-force's three offset parameters, $a_{1,n}$'s, are to be evaluated for every term, as the offsets are term specific. Determining the radius offsets and the magnitude of the coefficient for each term will complete the mass-force formula.

14.3.1.1.1. (Effects of Inserting $a_{1,n}$ Offsets) The offsets in the inverse radii creates a reversal in force at each odd term's offset. The offset of the first term limits the force at the origin, where $(r - a_{1,2})^{-3}$ $(0 - a_{1,2})^{-3}$ $(- a_{1,2})^{-3}$. the force contribution of the first mass-force term at the origin is:

$$f_{mass}(\text{first term})\ \{r=0\} \quad = \quad - \check{r}\ MmG\ [A(- a_{1,1})^{-3}]$$

Therefore, when $(r = 0)$, $f_{mass}(\text{first term}) < \infty$. When r = zero, the first term is a function of the offset $a_{1,1}$ alone**,** and will have a value less than infinity, because the value of $a_{1,1}$ is fixed finite value. The mass-force's first term, with the leading negative sign, is positive (repulsive) and limited when $r < a_{1.1}$

14.3.2. Estimating Fermion $a_{m,n}$s from The Space They Occupy

This section addresses the radii offsets for fermions (neutron, protons, and electrons) that comprise the atom. The DeBroglie wavelength of a fermion is impossible to estimate from momentum, because momentum of fermions within a nucleus is unknown, and is impossible to measure with today's with today's laboratory instrumentation and today's understanding of the construct of the nucleus. The radial offsets, $a_{m,n}$'s, for each term of the three forces has been estimated from the space they occupy. The DeBroglie wavelengths are not needed for determining offsets, but it should be remembered that wavelengths are the determining variable behind the radial offsets. The DeBroglie wavelengths will vary with momentum, and the momentum will vary with energy, and the energy with the particles position within the atom.. It can be expected that particles of high momentum will comprise the nucleons, as high momentum creates shorter DeBroglie wavelengths. This is supported by observed high energy particles coming from the nucleus. The particle wavelengths create and define the space they occupy; conversely, the space occupied can be used to calculate the particle wavelength.

14.3.2.1. Requirements for $a_{m,n}$

The mass-force radial offset, $a_{1,1}$ must be near the nucleus's radii to change mass repulsion when $r < a_{1,1}$, to attraction when $r > a_{1,1}$.

$$(r_{atom} - \Delta) \ < \ a_{1,1} \ < \ (r_{atom} + \Delta)$$

Using the hydrogen atom for an exemplificative model, the radius of the hydrogen atom ($a_{1,1)}$ is between 10^{-15} and 10^{-12} meters. From $a_{1,1}$ being 2½ times the its DeBroglie wavelength, when the hydrogen nucleus is known, the DeBroglie wavelength can be accurately determined. The uncertainty in the diameter of the hydrogen atom is caused by the wavelength being affected by the heat of the hydrogen gas which in turn is dependent on its recent history. The second and third term's offsets are determined by similar logic.

14.4. FORMULATING THE UNIFIED MASS-FORCE –

In the Mass-Force equation, Newton's inverse radius squared formula is retained in the second term. In the generation of the Unified Mass-Force Formula, a variable of radius r minus an offset of $a_{1,n}$ has been assumed. If the Force formula for mass-space is to be in the general form of the corrected electromagnetic vectored propagation formula, incorporate the radii offsets $a_{1,n}$, and retain Newton's second order equation, it will be of the form:

$$f_{mass} = - \check{r}\, MmG\, [A(r - a_{1.1})^{-3} + B(r - a_{1,2})^{-2} + D(r - a_{1,3})^{-1}]$$

Where:
M is a mass usually associated with the earth, but can be any mass.
m is a mass usually associated with an object near the surface of the earth, but can be any other mass.
G is Newton's Gravitational constant.
r is the variable distance between mass centers.
ř is a unit vector, positive in the direction of increasing radius.

The leading negative sign directs the force opposite to increasing radius, therefore all terms of f_{mass} are attractive when r is greater than all mass offsets, $a_{1,n}$.

14.4.1. Domains for the Unified Force Field

The Unified Force field equation to be developed must describe forces in realms from within the nucleus of an atom, outward into the Galilean world (that which we know and sense), and on to the end of the Cosmos. The unified force field equation must describe three particle-sourced energy force fields (gravity, electric charge, and magnetic) and the Electromagnetic radiation energy field (infrared, visible, ultra-violet, x-rays, and Gamma rays). The electromagnetic force field is a combination of electric and magnetic fields that has a unique photon energy-space that is free of its source.

The first term, $A(r - a_{1,1})^{-3}$, is dominant in the nuclear domain,

The second term, $B(r - a_{1,2})^{-2}$, is dominant in the Galilean space from outside the nucleus to through the domain of the solar system to all cosmos.

The third term, $D(r - a_{1,3})^{-1}$, is dominant in the galactic and cosmic domain.

[To avoid confusion, the upper and lower cases of the single letters C and c are not used herein as algebraic variables. Nothing in the universe is more constant than the speed. Therefore, herein, the lower case bold italic consonant letter ***c*** will denote speed of light, and capital C will not be used as a variable.]

14.4.2. Dominant term's Radial Offset

The offset variables determine the range in which each term in a force formula will be dominant. As radii span many decades, the $a_{m,n}$'s become the separating variable of a term's dominance.

14.4.2.1. Offsets Are Peculiar To Each Particle

In the Unified force Field equations, the offsets $a_{m,n}$ associated with a particle are in the frame of reference of the particle. The offset has the magnitude of 2½ times the DeBroglie wavelength.
In the frame of reference of the particle in motion, it does not shorten with speed. It is SPAN, a dimension that is always present in the frame of the moving particle.

14.4.3. Force changes direction

As the radius increases from zero through an $a_{m,n}$ offset, odd inverse radius terms of force approach infinite magnitudes, and the forces changes direction as r passes through the offset. The domains of influence are separated by decades of magnitudes of radii.

14.4.4. force at the origin must be limited

It is necessary that $a_{m,n}$'s offsets are not zero so that there will not be an infinite mass-force peak at r = 0, locking fermions at the center of the nucleus.

14.4.5. Nucleus Has Radius of First Term Offset $a_{1,1}$

In the mass-force equation, the radius offset, $a_{1,1}$, is equal to the radius of the nucleus. At the surface of the nucleus where $r = a_{1,1}$, the mass-force reverses sign from repulsive inside to attractive outside; therefore the mass-force presses fermions toward the surface of the nucleus.. The push and pull of the first term of the mass-force equation compress fermions onto the nucleus' surface.

14.4.6. Rational for Inserting $a_{1,n}$ Offsets

The rational for inserting offset parameters in the first term of the E-M force equation, $a_{4,n}$'s, was to quantitatively describe the observed return of near field radio energy to the antenna. The offsets are a function of the DeBroglie wavelength, and therefore for particles the wavelength varies with each particles momentum. The wavelength for fermions adjusts to shorter wavelengths at their higher energy.

14.4.7. Offset Reversal Effects

The effect of shifting the mass-force intercept from zero is to reverse the direction of force of the inverse third-order term at $a_{m,1}$ and the inverse first-order terms at $a_{m,3}$. Beyond $a_{m,1}$ and $a_{m,3}$, the first and third terms are respectively positive; the leading negative mass-force unit vector reverses the polarity of the terms force contribution and the force of all three terms is negative, and attractive. The first mass-force teerm is repulsive inside the nucleus and attractive outside the nucleus, and all mass terms are attractive at radii greater than $a_{1,3}$. In the of the second mass tern, the domain of human experience) the second mass-force term's inverse radius is squared (emulating Newton's formula), and with the leading negative sign, mass-force is always attractive.

14.4.7.1. (Realms of Force Dominance)

The first term becomes dominant in and about $a_{1,1}$, repellant within the nucleus, and attractive outside the nucleus.

14.4.7.2. Outside the nucleus, $r > a_{l,l}$

Consider the interval between the nucleus' surface and the K-orbit, where $a_{1,1} > r < a_{1,2}$. When $r > a_{1,1}$, the first term of mass space, $A(r - a_{1,1})^{-3}$, is positive. The leading negative coefficient of f_{mass}, –ř, changes the force to negative, that is attractive. The negative infinite force at $a_{1,1}$ asymptotically approaches zero-attraction as r increases toward infinity.

14.4.7.3. Inside the nucleus In the interval $0 > r < a_{1,1}$, the first term, $A(r - a_{1,1})^{-3}$, is negative; the leading negative unit vector coefficient of fmass, (-ř), makes the mass-force equation positive, approaching infinite repulsion as r approaches $a_{1,1}$.

14.4.8. Estimating Mass-Force Second Term Offset $a_{1,2}$

In the domain of orbiting electrons, where the second term's radius offset is a thousand times larger than the first term offset, the factor $(r - a_{1,1})^{-3}$ adds slightly to the second term's attraction. In the domain of orbiting electrons (where $r \approx a_{1,2}$), the second term $(– řMmG B(r - a_{1,2})^{-2})$ becomes the dominant term, having only a second degree inverse radius factor. The second-degree inverse radius force of the second term, by virtue of the leading negative unit vector, is an attractive force contributor at all radii. The diameter of the Cesium atom (having the largest atomic orbit) is used as the exemplificative value for the second term's radius offset, $a_{1,2}$. The cesium atom's largest orbit has an atomic radius of 3.34 Angstroms.

14.4.7.3.1. (At the surface of the Nucleus)
Mass-forces inside the nucleus presses fermions outward toward a1,1; mass-forces outside the nucleus press fermions inward onto the surface of the sphere r = a1,1.

14.4.7.4. (Outside the Nucleus, $r > a_{1,1}$)
When $r > a_{1,1}$, the first term of mass-force, A(r – a1,1)-3, is positive; the leading negative coefficient of fmass, –ř, changes the force contribution of the first term to negative and attractive. As r increases from $a_{1,1}$,, attractive mass force contribution from the first term asymptotically approaches zero.

14.4.8.1 (Mass-force's second term)
The mass force's second term offset, $a_{1,2}$, is exemplificative:

3.34 Angstroms ≡ 3.34 X 10^{-10} meters

14.4.8.1.1. (Lorentz's radical γ evaluated)
The value for Lorentz's radical γ must be re-evaluated for the speed of the electron in the outer most orbit for the cesium atom. The energy of the outermost electron is estimated as having the energy required for ionization, that being 3.89 Volts.

1 Electron Volt = 1.60217646 × 10^{-19} Joules (J)
3.89 eV = 6.376662 x 10^{-19} Joules

http://www.google.com/search?hl=en&q=angstrom+meter&btnG=Google+Search&aq=f&oq=

Solving E = ½ mv^2 for v:

$v = [2E/m]^{1/2}$

$v = [2 \times (6.376662 \times 10^{-19} J) / 9.10938188 \times 10^{-31}$ kilograms$]^{1/2}$

= 1,183,224.770 m/s

14.4.8.1.2. The Lorentz contraction radical for this speed is

$\gamma = [1 - v^2/c^2]^{1/2}$

$\gamma_{\text{cesium orbit 6s1}} = [1-(1{,}183{,}224.770 \div 299{,}792{,}458)^2\ ]^{1/2} = 0.99999221$

14.4.8.1.2.1. (Insignificant change in 2½ $a_{1,2}$ *to fit cesium orbit 6s1*)
The Lorentz's radical's contraction for the cesium diameter is insignificant considering the two decimal resolution of the value for $a_{1,2}$, therefore the assumed value for $a_{1,2}$ will be:

$a_{1,2}$ = 3.34 x 10^{-10} meters.

14.4.8.2. Estimating Mass-Force radial Offset $a_{1,3}$

The third term, - řMmGD($r - a_{1,3})^{-1}$, is repulsive between r = 0 and r = $a_{1,3}$, and becomes attractive at r > $a_{1,3}$.

14.4.8.2.1. (The universe is closed PROPOSITION)
If $a_{1,3}$ were large, the third term would provide a repulsively small force at great distance, that would account for the expanding universe. But beyond $a_{1,3}$ the force would be positive and attractive, that would provide a closed universe, collecting matter when entropy had depleted all energy, for another Big Bang. As temperatures approach O^o K, the DeBroglie wavelength approaches infinity pushing $a_{1,3}$ to infinity, collecting all neutrinos. THE UNIVERSE IS CLOSED.

14.4.8.2.4.2. The mass space formula
The shape of mass-space is the absolute value of potential mass-force. The potential mass-force is the force per unit mass:

$$|\text{mass-force/m}| = |- ř\, MG\, [10^4(r - a_{1,1})^{-3} + 1(r - a_{1,2})^{-2} + 10^{-12}(r - a_{1,3})^{-1}]|$$

The inverse third-order first term, $(r - a_{1,1})^{-3}$, accounts for the e-M energy in the third order harmonics returned to the antenna when the radius is within 2½ λ. As r approaches the radial standoff of the first term, $a_{1,1}$, mass-force approaches positive infinity, making space greater at this radius:

$$r \rightarrow a_{1,1} \qquad |(r - a_{1,1})^{-3}| \rightarrow +\infty.$$

The DeBroglie wavelength will increase with the lowering of temperature. At the end of entropy, when all mater is reduce to neutrinos, the wavelength will approach infinity, and the radial standoffs for all force-terms will increase. The farthest neutrino will be reached.

$$r \rightarrow a_{1,3} \qquad |(r - a_{1,3})^{-3}| \rightarrow +\infty.$$

The last term of mass-force of will be maximum. There will be no charge-force as there will be no leptons. There will be no magnetic forces because there will be no electrons. There will be no light, because there will be no atoms to create light. The intense force contribution of mass-force will collect atoms into a cosmic black hole.

15. Aggregate charge

15.1. CHARGE-FORCE –
Charge polarity is with respect to the electron, which historically was arbitrarily designated (possibly incorrectly) negative. Charge-force direction depends on the polarities of the two charges. The force between two like charges is positive; positive force is in direction of increasing radius. The force between two unlike charges is repulsive and positive; the negative force is in the direction of decreasing radius. The sign of the charge force is independent of charge-space. The polarities of charges q and Q determine the force direction. Like-charges result in positive, repulsive forces, unlike charges result in negative, attractive forces. The potential force fields are with respect to the negative electron. If unknown charge produces a positive (repulsive)

force on the electron, the unknown charge is negative; if the force on an electron is negative, the charge is positive.

15.2 CHARGE-SPACE –
Charge-space is always positive; there is no negative space. Charge space is created by charge particles exchanging neutrinos, but is independent of the direction of force created.

15.2.1. Aggregate Charge Force Equation – Aggregate charge-force is from a collection of leptons. To describe the charge force equation, the force from an exemplificative aggregation of electrons is analyzed. The radii offsets of leptons (other than electrons) are proportional to the momentum-dependent DeBroglie wavelengths. The dominion of each term's force contribution is unique for each lepton.

15.2.1.1. Estimating coefficients E, F, and G
As radii varies over many decades, the $a_{2,n}$'s become the separating variable for each term's dominance; The following equations for charge-force apply to aggregate charges in j charge-space where Q and q are in large numbers. The force between charges Q and q is evaluated for the following equation:

$$f_{charge} = jQq\check{r}\,[E\,(r - a_{2,1})^{-3} + F(r - a_{2,2})^{-2} + G(r - a_{2,3})^{-1}]$$

15.2.1.1.1. (Coefficients for charge are the same as coefficients for mass)
The logic in scaling charge-force coefficients E, F, and G in the charge-force equation is the same as that for the mass-force coefficients A, B and D. Therefore $A = E = 10^{4}$, $B = F = 1$, $D = G = 10^{-12}$.

15.2.1.1.2. (Final Charge-force equation)
Inserting the exemplificative numerical values for the coefficients gives:

$$f_{charge} = Qq\check{r}\,[10^{4}(r - a_{2,1})^{-3} + 1(r - a_{2,2})^{-2} + 10^{-12}(r - a_{2,3})^{-1}]$$

As the radius increases from zero through an $a_{2,n}$ offsets of inverse radius, each terms in the charge-force equation approaches infinity; the charge-force odd terms change direction.

15.2.1.3. Charge-Force Polarities
The existence of two polarities (+ and -) of charge requires force formulation changes from the mass-force. The charge force equation's common term, řQq, changes sign and therefore charge-force changes direction as a function of the polarities of Q and q. Charge-force can therefore be either attractive or repulsive according to the two charge polarities being like or different.

15.3.1.3.1. (Like Charges)
For like charges at radii less than $a_{2,1}$ the first term is negative, and the force contribution is attractive. For like charges at radii greater than $a_{2,1}$ the first term is positive, and the force contribution is repulsive. Two like charges attract when $r < a_{2,1}$, when both charges are within the nucleus., and repel when $r > a_{2,1}$, which is when one is inside the other outside the nucleus.

15.3.1.3.2. (Unlike Charges)
The charge force equation's common term, řQq, changes sign and therefore, the direction of charge force changes as a function of the signs of Q and q. The mathematical sign convention for multiplication of positives and negatives holds true in the charge-force formulation. The charge-force can therefore be either attractive or repulsive according to the two charge polarities. The charge force magnitude is a function of the produce of the

charges and inverse cube, the inverse squared, and the inverse measure of separation.

15.3.1.3.2.1. (For unlike charges at radii less than $a_{2,1}$)

For $r < a_{2,1}$, the first term is negative, the leading charge-force sign is negative, and the charge-force is positive and repulsive. At radii greater than $a_{2,1}$, the first term is positive, the unlike charge product is negative, the charge force remains negative, and the direction of force is attractive. Two unlike charges repulse within the nucleus when $r < a_{2,1}$, and attract outside the nucleus when $r > a_{2,1}$.

15.3.1.3.2.2. (charge-force first term, $(r - a_{2,1})^{-3}$)

It is the charge-force equation's multiplicity of direction as a function of r that allows two charges of the same sign to remain in close proximity in a nucleus, and on any conductor when $r < a_{2,1}$. But given any radius of separation greater than $a_{2,1}$, the term $(r - a_{2,1})^{-3}$ reverses its force contribution from attractive to repulsive.

15.3.1.3.2.3. Offsets $a_{1,1}$ and $a_{2,1}$ are off balance

When a proton approaches a nucleus from positive infinity ($a_{2,1} \leftarrow r_{+\infty}$), the dominant first term of charge-force approaches positive (repulsive) infinity. When a proton approaches $a_{2,1}$ from inside the nucleus ($0 \rightarrow r \rightarrow a_{2,1}$), charge force approaches negative (attractive) infinity. A proton having both mass and charge, on approaching a nucleus from outside $a_{2,1}$ has attractive mass force and repulsive charge force. In order that the proton is prohibited from entering the nucleus, f_{mass} must reverse its attractive force to keep the proton outside of the nucleus. Therefore the mass-force radial offset $a_{1,1}$ is larger than the charge force radial offset $a_{2,1}$, so as to cause an infinite mass repulsion before the infinite charge attraction.

Therefore: $a_{1,1} > a_{2,1}$

15.3.1.3.2.4. (protons repelled from entering the nucleus)

A proton outside the nucleus, again for like charges, where $r > a_{2,1}$, and the first charge term, $10^4(r - a_{2,1})^{-3}$, is positive, the contribution of the first term of charge-force is positive, and the force contribution repulsive. Protons will be repelled from entering the nucleus by infinite charge-force.

15.3.1.3.2.5. (Protons within the nucleus attract.) Inside the nucleus, where $r < a_{2,1}$, the first charge term, $10^4(r - a_{2,1})^{-3}$, is negative, with no leading negative sign the charge-force is negative, and the force attractive. Protons within the nucleus are attracted to each other. As the radius approaches zero the radius offset limits the first terms contribution to a finite value of $E(0 - a2,1)^{-3}$.

15.3.1.3.2.6. (The Second term, $(r - a_{2,2})^{-2}$)

The second term, $(r - a_{2,2})^{-2}$, is positive at all magnitudes of radii. It is this term that affects Coulomb's Law of repulsion for like charges and attraction for charges of different polarities. The offset is insignificant at radii in which Coulomb observed and experimented.

15.3.1.3.2.7. (The Third Term $(r - a_{2,3})^{-1}$)

The third term, $(r - a_{2,3})^{-1}$, is positive inside the radius of nucleus, $r < a_{2,3}$. The coefficient assigned, 10^{-12} renders the term's force contribution insignificant in the domain of the nucleus. The third term's reign of

dominance is only for large aggregations of charges at large distances. Attractive to opposite charges and repulsive to like charges. the third term will disburse large numbers of like charges, and collect for cancellation large numbers of unlike charges.

15.3.1.3.2.8. (Balance of energy-forces on protons in and near the nucleus)
at the coordinate origin, term $(r — a_{2,1})^{-3} = (0 — a_{2,1})^{-3}$. The charge-force reaches a large but finite attractive force. This force of charge attraction can be overcome by the repulsive mass-force; the mass-force approaching infinity as $r = a_{1,2}$.

$$f_{mass} = — ř\, MmG\, [A(r — a_{1,1})^{-3} + B\,(r — a_{1,2})^{-2} + D(r — a_{1,3})^{-1}]$$

$$f_{charge} = ř\, Qq\, [E(r — a_{2,1})^{-3} + F(r — a_{2,2})^{-2} + G(r — a_{2,3})^{-1}]$$

15.3.1.3.2.8.1. Protons and neutrons will be attracted within the nucleus by virtue of the mass-force. Electrons will be repelled from protons in the nucleus by charge-force, to the radius of $a_{2,2}$, the K-orbit.. Protons within the nucleus will be attracted to each other by mass-force where $r < a_{1,1}$, and infinitely repelled by charge-forces inside side $a_{2,1}$ but held at radius of $a_{2,1}$ by infinitely attractive mass-forces outside $a_{1,1}$. By logic $a_{1,1}$ is approximately equal to $a_{2,1}$,

$$a_{1,1} \approx a_{2,1} \text{ or}$$

$$|a_{1,1} - a_{2,1}| < \text{DELTA},$$

where DELTA is a small but significant real value that remains to be determined. The slight difference, DELTA, in offset allows protons and neutrons to randomly wander (by Heisenberg's Uncertainty principle, and through the nodes in Schrödinger-like probability functions) outside $a_{2,1}$ and be repelled by repulsive charge-space force.

*1*6. ELECTRON CONSTRUCT

A pair of vibrating entangled neutrinos (both υ^-) comprise the electron that has the mass of 100 neutrinos. Upon disintegration of the electron, the artifacts are two neutrinos (both υ^-) and a gamma ray. The electron's charge was arbitrarily assigned a negative polarity.

16.1. LORENZ'S BALLOONING–

The mass of each of the two neutrinos is increased by 50 by Lorenz's ballooning transformation factor, γ.

16.1.1. Electron Spaces

The electron has three energy-spaces: mass-, charge-, and magnetic-spaces. One-quantum of energy is in gyroscopic spin, which is the sum two one-half quantum of spin for each neutrino. The mass of the electron is equal to the rest mass of 100 neutrinos. The mass of the electron is the result of Lorentz's ballooning radical, γ^{-1} increasing the mass of each neutrino 50 times its rest mass. Spinning in the same direction paces the neutrinos in one magnetic k-space about void of the center of mass, as they store their spin in circling the COM. The neutrinos are pulled by the first and second mass-force term toward the com and repelled infinitely at the first term offset. The residuals upon the disintegration of an electron are a gamma ray and two neutrinos. The electron is proposed herein to be two neutrinos with the kinetic energy of the gamma ray held by relativistic mass-force in the energy created mass-space. The gamma ray gets its energy from the dynamic motion of the

two neutrinos revealed in the collapse and destruction of the electron. When the two neutrinos fall to rest, the dynamic energy of both neutrinos creates a gamma ray, and leaves the neutrinos with thermal velocity.

16.1.2. Electrons' **Charge- And Magnetic-Spaces**
The two entangled electron-neutrinos, themselves having no charge or magnetic fields, create relativistic charge-field and relativistic magnetic-space field by their dynamics. The electron rotates on a spin axis; the near relativistic tangential speed collapses space in the direction of rotation creating a curled magnetic space in the direction of rotation. in the direction opposite to rotation, there is a void. The two entangled electron-neutrinos orient so that their rotation of ½ h add energies to occupy one quantum of space. Each neutrino has ½ quantum of spin energy from orbiting. electron-neutrinos orbit each other in synchronized orbits creating kmagnetic space. In near relativistic magnetic space, where there is near zero magnetic time and near zero magnetic distance, the neutrino is only momentum in nearly pure imaginary span.

16.1.3. Orbiting ***A Spherical Void***
In Galilean space, neutrinos execute a do-se-do orbiting the center of mass (COM) on perpendicular planes to form the electron-neutrino space of an electron. The neutrinos cannot get closer that $a_{1,1}$ in relativistic space, leaving a spherical void of that diameter about the COM.

16.1.3. Orthogonal Spaces
The electron's relativistic electrostatic and magnetic spaces are mutually orthogonal from the perpendicular orientation of creation, radial and tangential.

16.1.4. Relativistic Spaces
The electron-neutrinos dynamic energy, equal to the gamma ray (detectable upon disintegration) gives the neutrinos their near relativistic speed, just below that of light.

16.1.5. Entanglement
Having synchronized orbits and speeds near that of light, the two electron-neutrinos create an entangled space. Electron Neutrino entanglement is the result of a common epoch at the perigee of each vibration cycle, and their near relativistic speed of ***c-*** holds the two entangled neutrinos together as an electron.

16.1.6 Relativistic and Galilean measures.
At their perigee, neutrinos closest relativistic span of separation from the electron's center of mass is $a_{1,1}$. Entangled, there is no relativistic measure of radial separation between the two electron-neutrinos; the radius r_G projects onto relativistic space as zero: $r_R = 0$.

16.1.7. The Frequency Of Vibration
The frequency of vibration is present but not a factor in the construct of the electron; it can be and is variable.

16.1.8. Electron-neutrino Ballooning
The speed provides ballooning of the electron-neutrinos mass by 50. The speed of the electron-neutrinos has been estimated to be 0.9996 times the speed of light to balloon the mass of the two neutrinos 50 times so that two neutrinos will equal the mass of the electron. The mass of the electron has not been precisely set because electrons' vary in mass by electron-neutrinos absorbing frequencies form its environment.RE: 24.1.5.

17. Atomic Construct proposal

17.1. DEBROGLIE WAVELENGTHS SIZEs ATOMIC nuclei ORBITS –
Protons within the nucleus attract orbiting electrons by finite value of the charge force's second term's radius offset, $a_{2,2}$. The various energy levels of the electrons atomic orbit generate DeBroglie wavelength to match the nuclear functionality and the orbital functionality. Energy sets the magnitude of $a_{2,2}$, which in turn sets the

size of the electron's orbit. The nucleus being a smaller Galilean space requires more dynamic energy and higher momentum in the fermion particles to create smaller DeBroglie wavelengths. The nucleus is a more energetic space, and from the higher speeds creating larger masses, and larger relativistic space. Supporting this is tht fact that particles and radiation emitting from the nucleus are higher in energy than energy emitted from orbiting electrons.

17.1.1. Relativistic and Galilean Spaces within the Electron

Electron-neutrinos vibrate radially at random angles of Rθ and RΦ, redirected on each vibration by the Heisenberg Uncertainty Principle. Because the force is constant (there being no measure of distance and time in relativistic space), the motion is not sinusoidal. The motion of neutrinos that comprise the electron is not describable in Galilean mathematical terms. The motion is that of being here and there without measured time or distance. Only the energy is constant and measurable, and the internal dynamic energy of an electron is estimated to be that of the gamma ray emitted upon annihilation of the electron. This energy is the source of the speed that balloons the neutrinos to the mass of the electron. From the first law of thermodynamics (energy cannot be created or destroyed) the energy is the same in both relativistic and Galilean spaces. From the axiom that speed is the same from every frame of reference, the speed of the neutrinos in the electron are traveling the same speed in relativistic-space as in Galilean-space.

17.1.2. Electrons' *Charge Fields*

Potential electrostatic fields' relativistic space is created by the entangled pair of neutrinos' radial vibration. The velocity of the neutrinos is held just below **c** by the neutrinos miniscule mass. The random distribution of the electron-neutrinos' excursions over the unit sphere distributes the charge field affects the inverse square law. The charge field has Lorentz's radial shortening of Galilean measure of time and distance; the radial rate, dr/dt, remaining constant at ***c-***, irrespective of the magnitude of r. [Spooky Space!] The charge force is created by the manner in which the electron-neutrino interacts with other leptons-neutrinos.

17.1.3. Electrons' *magnetic Fields*

Magnetic fields' relativistic space is created by the tangential speed of the electrons-neutrinos' rotation. The magnetic field has Lorentz radical contraction of Galilean measure of time and distance; the tangential rate, r(dr/dθ)(dθ/dt), remaining at c-, irrespective of the magnitude of r. As radius increases Galilean speed increases, relativistic time slows and relativistic distance shortens maintaining the same measure of speed. Speed remains at ***c-***, independent of the radius. The spinning electrons-neutrinos have the speed of ***c-*** all along the spinning radius. In the direction of rotation, relativistic magnetic space is created. In the opposite direction of rotation, there is a magnetic void. The magnetic void can be occupied by an electron spinning in the opposite direction. Two electrons orbiting at the same quantum state can be concentric in Galilean space, while orthogonal in relativistic magnetic-spaces.

18. AGGREGATE CHARGE SPACE

19. Aggregate Magnetic-Space

~~17.1. MAGNETIC SPACE~~

~~Magnetic space is created by the spinning of leptons. Electrons are the simplest and most common source of magnetic force and will be used to explain magnetic space's creation and force exchange.~~

~~19.1.1. Electrons Spin Forever~~

~~the electron spins while its electron-neutrinos vibrate. The spinning starts with offset in the neutrinos path returning toward the center of mass, offset by the Heisenberg Uncertainty Principal. After several chance offsets in the same direction of spin, and there being absolutely no resistance to spinning, the angular rotation reaches a tangential speed that is just below that of light, c-. Having reached c-, and there being no resistance to slow or stop, the electron spins indefinitely. This would be forever except, for the electron-neutrino in relativistic space~~

there is no time.

19.1.2. Time slows and distance shortens as radius increases
As radius increases, the tangential speed of electron-neutrinos remains at ***c***-. The constancy of tangential speed is from the dependency of time on speed; neutrinos travel at ***c***- at all radii by slowing time and shortening distance in tangential motion. Electron-neutrinos' tangential speed, at any radius, from any point of reference, is ***c***-.

19.1.3. The Characteristics of magnetic ***Attraction***
In the direction of electron rotation, electron-neutrinos create a relativistic space. The tangential speed is nonrelativistic (measured as the same from all frames of reference) with the tangential distance shortening proportional to radial speed slowing time proportionally. The magnetic space is created by nonrelativistic tangential speed, orthogonal to charge space by direction of creation: radial and tangential. In the direction opposite to rotation, there is a magnetic void. In the direction of rotation, one quantum of spin space can contain two electron-neutrinos, each electron-neutrino having one-half quantum of spin.

Looking at the poles of two magnets in attraction (one north pole, one south pole), the neutrinos are rotating like two meshed gears. As the neutrinos come together, they mesh to create and fill one quantum of mass space. The conjoined neutrinos create an attractive force back to both COMs in a Denver Instant. As they pass their closest point of approach, they continue to pull until the force of mass attraction is broken.

19.1.4. Transfer of Magnetic Force
Two lepton-neutrinos from separated sources, spinning in the same direction (both cw or both ccw) due to their opposing relativistic speed are in orthogonal spaces. Each neutrino creates and occupies one-half quantum of relativistic magnetic space.

19.1.5. Inverse Radius Fourth Power Magnetic Attraction
At longer radius the dwell time is less. Since it takes two magnetic sources to create magnetic force, the force between two leptons is distance dependent proportional to the inverse radius squared. In an aggregation of magnetic sources, with the same argument made for charges in aggregation, the interaction between separated sources is also inverse radius squared related. The attractive force between aggregated magnetic sources (the product of two inverse radius squared relationships) is inverse radius to the fourth power.

19.1.6. Magnetic Repulsion
Where there is opposite rotation in the two sources of magnetic fields there is no sharing of neutrino quantum space. Instead, the oppositely orbiting lepton-neutrinos encounter opposing lepton-neutrinos. The maximized repulsive mass-force of two neutrinos spaced at $a_{1,1}$ distance is reflected back to the COM of the two leptons in a Denver Instant.

19.2. ***ELECTRONS INTERACTIONS WITH MAGNETIC FIELDS***
(a) Visualize a copper coil conducting electrons powered by a battery. The electromotive force aligns each electron such that the electrons' south poles are pointing toward the positive terminal and the electrons' north magnetic poles are pointed toward the negative terminal. All electron-neutrinos are rotating ccw when looking from the electrons' north poles. A magnetic field is formed about the coil, a sea of neutrinos that comprise the electrons all moving radially and tangentially at the speed of light. This ordered array of spinning-vibrating-tangentially rotating neutrinos, without time or measure of distance creates a magnetic field, which is magnetic space orthogonal to all other energy-spaces. The charge field is mostly contained within the conductor.

(b) Visualize an electron fired through this magnetic cloud. The electron magnetically aligns with the magnetic polarity of the magnetic cloud, south pole toward the magneto-motive source's (mms's) north pole, and the electron's north pole toward the MMS south pole. If the electron moves in the sea, by virtue of the relativistic absence of distance and time, it encounters spinning neutrinos that form the magnetic space of the of the MMS of the coil. Those MMS-neutrinos that spin in the same direction as the electron-neutrinos are in the same frame of reference and repel from each other. Those neutrinos that approach rotating in the opposite rotation are

~~orthogonal by virtue of speed. The result of moving an electron in a magnetic field is that the electron has force at right to the direction motion.~~

~~Figure 19.2. (b) – 1 Electron Moving In A Magnetic Field~~

~~The electron-neutrinos of the free electron aligns its spin so that its magnetic field is opposite to the magnetic field of the magneto motive source (mms). The mms field is generated by electron-neutrinos with spin oriented to support the north to south direction of flux. No matter what direction the electron is moving, it has force away from electron-neutrinos that are moving in the same direction, and no force from electron-neutrinos moving oppositely. The force is at right angles to the direction of motion and is the source of the left hand rule for electrons.~~

Gravitational HYPOTHESIS

The neutrino consists of mass energy that manifests itself in spin and axial vibration. The energy in spin transfers to energy in axial vibration, fore and aft along the path. The axial bounds of transition are the mass-force offsets of $a_{1,1}$ and $a_{1,2}$. An elastic jumping rope with a centered vibrational node is exemplificative of a neutrinos state of existence; wile in rotation the rope ends are extended between two limits. The length of the rope is analogous to the DeBroglie wavelength. As temperature cools, the neutrino loses energy, the ends are squeezed apart for a longer wavelength. The vibrational energy is reduced per unit length by reduction of the sinusoidal amplitude of vibrations. The off-axis dimensions are Galilean. This energy is a waveform likened to E-M waves, in that the two energies recreate themselves. . The angular moment of rotation is stored energy of h/2 in rotation of the sinusoid about the neutrinos track. The neutrinos illusively small mass is the force transfer particle of gravity. The smallness in neutrino's mass is complimented by massive number of neutrinos in the cosmos. The near-relativistic speed creates a relativistic space that enables instantaneous transfer of force between planets that has confounded kinematics of planetary motion; why and how do two heavenly bodies know instantly where the other is? The neutrino mass at speed of ***c*-+** creates a relativistic space of SPAN with zero Galilean distance, and a harmonic wave of sinusoid of revolution about the track in Galilean space. The SPAN of the neutrino extends beyond 2π radians in Galilean space, while maintaining a zero displacement in relativistic space. The free neutrino's relativistic space enables force transfer in a Denver Instant, faster than light, despite the fact that the creating particle is moving at speed slower than light. Gravitational paths, as long as the time of creation, provide instantaneous trans-cosmos gravitational force transfer. The axial speed of the neutrino is near-relativistic, allowing faster-than-light of gravitational force.

Gravitational Force Transfer Mechanism

The particle of force transfer is the neutrino. The neutrino's Galilean mass speed is not the speed of importance; it is the phase speed of internal vibration of the energy from a sinusoid of revolution to path oriented elongation and contraction that moves with a relativistic speed of ***c* --** that maintains the relativistic path from source to destination.

Particle gravitational relationship
Each free neutrino momentarily connects with other neutrinos, both entangled and free, by sharing the one half quantum of void. In the neutrino's relativistic space, there is no distance and no dwell time. The force transfers to Galilean space as maximum and continuous. The first term offset in the mass-force equation, $a_{1,1}$, is set by temperature. Intraspace force is reduced by Intraspace temperature. Black matter gravitation is multiplied by the infinite number of neutrinos.

Inverse square radial gravitational force
The simple chaos of neutrinos in the cosmos and their infinite population provide connectivity between masses that penetrate a co-centered unit sphere about aggregates of mass creates the inverse radii squared relationship between aggregates of mass, in the same way entangled neutrons create inverse square radial charge-force. Whereas charge force is created from entangled neutrinos from within the unit circle about charge, the neutrinos in simple chaos create gravitational force by penetrating the unit circle from outside. The connecting method is by the neutrinos momentarily sharing in Galilean time one quantum of mass-space.

The Galilean mass-space of the free neutrino
The neutrino progresses from a disk shaped when the energy is in a sinusoidal node at phase angles of $\pi/2$ and $3\pi/4$ and no transitional energy along the path.

Visualizing the progress of the neutrino in Galilean space
As the neutrino extends energy forward, the h/2 space lengthens making the disk become two. As the energy moves from a sinusoid of revolution into dynamic energy, the amplitude of the sinusoid becomes smaller. when all the energy is in dynamic motion, the neutrino is a straight line. The energy space at this time is the DeBroglie wavelength. That which limits of the span is $a_{1,1}$ and $a_{1,2}$ of the mass force equation. That which makes the path contiguous is the repletion of zero displacement in time and distance for the epoch of each unit of space. The Galilean path of a free neutrino can be likened to that of a caterpillar, contracting and expanding into its continuing path, each step extending its relativistisity.

The Relativistic mass-space of the free neutrino
Relativistic space is maintained by the ***c-*** speed in transition and rotation. The transitional speed makes distance in the path zero. By the logic of entanglements, relativistic space is continuous over the path of the neutrino from its origin to its termination. The relativistic neutrino is transparent other neutrinos except those that have the same spin and orientation. Like the photon, it will travel indefinitely until a compatible neutrino is found. The force between the neutrino at the origin and the neutrino at the termination is that of mass-force at $a_{1,2}$. Mass-force is maximum between the origin and the termination. Relativistic time being dependent on distance, the time for force transfer is a Denver Instant.

20. ELectron Dimensions

20.1 The DeBroglie Wavelength of the Electron-Neutrino -

DeBroglie's wavelength λ:

$\lambda = h/m\acute{s}$

Where: $h = 4.13566733(10)\times10^{-15}$ $\underline{eV}\cdot\underline{s}$

$m = 1½$ eV

http://en.wikipedia.org/wiki/Electronvolt

Speed of the electron-neutrino: $\acute{s}_{electron\text{-}neutrino} = 299{,}732{,}493.5$ m/s

RE: ***25.6.1. Speed of Entangled Electron-Neutrinos***.

$\lambda = h/m\acute{s} = (4.13566733(10)\times10^{-15}\ \underline{eV}\cdot\underline{s})\div(1.5)(299{,}732{,}493.5m/s)$

$= 9.198574 \times 10^{-24}$ meters.

20.2. Electron-Neutrino Offset $a_{1.1}$

$$a_{1.1} = (2.5)\lambda = (2.5)(\ 9.198574 \times 10^{-24}\ \text{meters}) = 2.299643 \times 10^{-23}\text{meters}$$

20.4. Comparison to QMS Electron Diameter
The electron radius, $a_{2,1}$, estimated by the Energy-Space method, is compared to the accepted best-estimate-to-date diameter of the electron of the QMS program.

20.4.1 Electron Void Core Diameter The void core diameter is two times the radial offset:

$$\text{Void core Diameter} = 2a_{1,1} = 4.599286 \times 10^{-23}\text{meters}$$

The ratio of the void core to the QMS is:

$$4.599286 \times 10^{-23}\text{m} \div 5.695415 \times 10^{-13}\text{m} = 4.037710 \times 10^{-11}\ \text{Void Core / QMS.}$$

The void core of the electron is 4.037710×10^{-11} the size of the electron.

20.1.1.2. Diameter of the electron's void center Since $a_{1,1}$ is the mass-force offset distance at which no other neutrino can approach, it is the radius of the spherical void about the center of mass of the electron. The diameter of the void does not change with the frequency of the electron-neutrinos' vibration; by DeBroglie's equation it is dependent upon momentum only.

20.2 Emulating Allergens –
The magnitude of the excursion radius of the electron-neutrinos is dependent on frequency. The electron-neutrinos can assimilate frequency of vibration from its environs. Higher frequencies have shorter excursions; lower frequencies have longer excursions. These frequencies can be imbued upon electron-neutrinos by close approximation to allergen electron-neutrino's frequencies (as in homeopathic dilution) or by electromagnetic stimulation. An allergen frequency input to a broadband amplifier, and the amplifier's output directed into distilled H2O is a homeopathic practice to make distilled water mimic allergens. The frequencies are in a lossless environment, resulting in electrons maintaining the frequencies until reset by distillation or overpowered by E-M (electromagnetic) force.

21.2. Mass Force Direction

21.2.1. First Mass-Force Term Direction
The first mass-force term, $-\check{r}\acute{n}nG10^{4}(r - a_{1,1})^{-3}$, is positive when $r < a_{1,1}$, making its force contribution repulsive. When $r > a_{1,1}$, the first term is negative, and the leading negative sign makes the first term's force contribution attractive.

21.2.2. The second mass-force term Direction
The second mass-force term, $-\check{r}\acute{n}nG(10^{0})(r - a_{1,2})^{-2}$, because of the squared inverse radius factor is always positive, and the leading negative sign makes the term negative, and the force contribution attractive at all radii.

This force term was that discovered by Isaac Newton. Isaac had no way of knowing of the existence or atomic dimension of $a_{1,2}$.

21.2.3. The third mass-force term Direction

The third mass-force term, $-\check{r}\acute{n}nG10^{-12}(r - a_{1,3})^{-1}$, when $r < a_{1,3}$, is positive making its force contribution repulsive. When $r > a_{1,}$ the leading negative sign makes the third term negative, and its force contribution attractive. With $a_{1,3}$ in galactic measure, will pressure the cosmos to expand until the universe cools, then the attractive force will collapse the residual neutrinos for the next big bang.

22. FREE NEUTRINOS

22.1 Free Neutrinos -

The neutrino has no associated fermions when free or entangled (as in an electron), therefore the unique offsets for electron-neutrinos does not apply to free neutrinos. The free neutrino's speed dependent first term offsets, $a_{1,1}$, remains two-and-a-half DeBroglie wavelengths, and being inversely dependent on momentum, requires momentum explicit evaluations of DeBroglie's wavelength.

The mass-force offsets: $a_{1,1} = a_{1,2} = a_{1,3} = 2½\ \lambda$, and

the DeBroglie wavelength: $\lambda = h/\gamma mv$.

$v \equiv \acute{s}$ (nonrelativistic scalar speed)

$\gamma = (1 - v^2/c^2]^{1/2}$

The slower the neutrino moves, the longer the domain of the force of $a_{1,1}$. The mass-force equation applies to free neutrinos with the same direction of force contribution with respect to offsets.

The range of free neutrinos' DeBroglie wavelengths is greater than the electron-entangled neutrinos' wavelengths. Electron neutrinos' speed is fixed by the necessity to maintain the invariant mass of the electron at 100 times that of the neutrino. Free neutrinos' wavelengths range from extremely short wavelengths form nuclear reactions to the long wavelengths of intergalactic neutrinos at temperatures near absolute zero.

22.2. Estimating free neutrino Mass-Force Offsets $a_{1,n}$

The ratio between radial offsets for the three terms of the mass-force equation for fee neutrinos remains the same for functionality reasons. If all the offsets were zero, the forces contributions for the three terms would start at zero and there would be no reversals over distance. There is no experimental data on free neutrinos from which radial offsets can be deduced. Assuming the same ratio for mass force equation offsets as for atomic nucleus mass-force equation offsets provides reasonable functionality for galactic attraction and cosmic expansion. The lack of data on free neutrino interaction makes this a weak argument, but the assumption that the three term inverse offset radii wave formula applies to macroscopic LF radio waves and to inner nuclear fermion waves, has revealed rational solutions to physic dilemmas, The assumption that proportionally reduced radial offsets apply to the reduced scale of neutrinos is justified by rational functionalities; the justifiability of the assumption is in the functionality provided. The exemplificative coefficients A, B, and D for free neutrinos remain the same as for electron-neutrinos, and nucleon-building neutrinos.

22.2.1. The Force Domains of the Free Neutrino

The domains of neutrinos are set by their DeBroglie momentum dependent wavelengths. Neutrinos in small domains will have high velocities, resulting wavelengths appropriate to the environment in which they reside and function. Free neutrinos have velocities ranging from near absolute zero in Galilean i mass-space, to velocities near the speed of light (ballooned toward infinite mass) when emitted from black hole's matter annihilation process. The high velocities increase the mass, adding to the dark mass in the universe.

22.2.2. No Calculated Set Cutoffs for Free Neutrino's Mass-Force Equation
The free neutrino's wide range of speed makes the calculation of radial offsets a fruitless endeavor. The 3-degrees K temperature was chosen for an exemplificative calculation of intergalactic wavelength. Three-degree Kelvin is warmer than most of outer space. The exemplificative temperature produced an estimate of a short thermal neutrino DeBroglie wavelength to be expected in space. Regions of cooler space would produce longer particle wavelengths.

23.5.2. Negative & Positive Mass-Force *Only With Entanglement*
The potential force of mass is repulsive within the $a_{1,1}$, and attractive outside the $a_{1,1}$. Therefore, the potential force of mass can be negative (tending to reduce r) or positive (tending to increase r) depending on the magnitude of r. Although the potential space is created by the free neutrino, it would only create force with another neutrino of the same rotation. There is no force created by a free neutrino. Thermal neutrinos therefore can pass through atomic mass without interaction.

23.5.2.1.1. (All space is positive)
Space is scalar, positive, and independent of force direction. Where the force is negative, the space remains positive, algebraically indicated by the vertical absolute value bars, | |, bracketing the force formula divided by a unit or the creating item. There are no negative spaces. All mass space is positive; all energy-space is positive, all space is positive. There are three orthogonal spaces where energy can go and return. Mass-, charge- and magnetic-spaces, mathematically directed by positive unit vectors i, j, and k, are always positive. In the Circle of Relativity, dimensions for span in distance, project onto Galilean and relativistic axes as a function of speed. Speed is scalar and non relativistic, and the spaces indicated in the Circle of Relativity are also scalar, while directed in orthogonal vectors according to the method of creation.

23.6. ENERGY CREATED SPACES -
All energy created space lowers potential energy for like energies by adding spaces. Two energy sources moving into the increased energy space generated, their conjoining of spaces lowers potential energy and increase entropy. The tendency of nature is to move to increase entropy, a more disordered state; energy moving into increased relativistic space is more disordered.

23.6.1. Earth's Force-Field
Because space is created by energy, the potential force field defines the created space. As an example, Newton's gravity equation defines the attractive force between two masses; however, each mass creates its own space. The potential energy formula of a solitary mass can be expressed mathematically by dividing out one mass from the force formula and assigning the out divided mass a unit value to yield for instance pound force per pound mass (true at the Earth's surface, but not in outer space). Without the second mass, the single mass produces no a force. The earth's mass-force of attraction is gravity. The potential force formula quantifies the force that would be exerted per pound on a second mass. Therefore, the mass-force formula of gravity divided by a unit mass formulates the potential force of gravity. Since potential force defines the mass-created space, Earth's gravity defines the mass-space of Earth. The slope of space at the Earth's surface is one slug divided by one pound weight, or 32 pounds mass per 1pound force.

24.1.4. Charge Force Transfer Speed
Charge force between two leptons is independent of the separation in span because the entangled neutrinos conveying force, by virtue of their speed, create a relativistic space in which the measure of Galilean distance is

near zero, and the Galilean lapse of time is near zero. The charge-force of leptons (being independent of ***r***) is constant in magnitude over distance, is limited by $a_{1,1}$, and is conveyed in a near Denver Instant.

24.1.4.1 Leptons-Neutrinos Quantum Space

Boson's single neutrino occupies only half a quantum space. This half quantum space can momentarily host another Lepton's neutrino in the other half-quantum space. This provides a relativistic space between the host Boson and the remote Lepton. The radius of separation in relativistic space is $a_{1,1}$ within the entangled neutrino-space where relativistic measure of radius is zero ($a_{1,1}$ is wavelength-generated and remains with the particle); the force therefore is maximum and the dwell time is without measure. The force between a boson-neutrino and an electron-neutrino projects onto Galilean space as continuous, finite, and independent of ***r***. The independence from ***r*** in the relativistic space of entangled neutrinos makes the force in Galilean space constant over distance. The solid angles between the charge bodies and repetitive randomly distributed visitations of the electron-neutrinos implements the inverse distance squared characteristic of aggregate charge-force. The force between an individual electron and a boson or electron is independent of ***r***, as long as the space created by the two neutrinos is relativistic by entanglement. Their continued spinning while docked sustains relativistic entanglement. Entangled electron-neutrinos remain entangled; individual neutrinos remain separate. Entangled electron-neutrinos are calculated herein to have a fixed vibration speed of 0.9992c. Other leptons having more neutrinos will have different neutrinos speeds which can be deduced from the leptons mass and particle components upon destruction.

24.1.5. Lorentz's radical within the electron The Lorentz electron-neutrino contraction radical, γ, is:

$$\gamma = [1 - v^2/c^2]^{-1/2} = [1 - 0.9996]^{-1/2} = 0.02$$

24.1.5.1. Intra-electron space

The Lorentz electron-neutrino inverse radical (ballooning factor), γ^{-1}, is:

$$\gamma^{-1} = 50.0$$

Entangled electron-neutrinos share an exclusive near-orthogonal mass-space, similar to that of entangled photons. The relativistic-space measure of span is projected onto Galilean- space expanded by Lorentz's ballooning inverse radical, γ^{-1}.

24.1.5.2. The span of electron's radial offset

Within the radial distance $r < a_{1,1}$, the first term of the mass force equation is dominant and repulsive. The Galilean measure of $a_{1,1}$ is the relativistic measure ballooned by γ^{-1}.

$$(\gamma^{-1})(a_{1,2}) = (\gamma^{-1})(7.831228 \text{ X } 10^{-9}) = 3.92 \text{ X } 10^{-7} \text{ meters} = 0.392 \text{ microns.}$$

24.1.5.3. Forces within the electron

$(\gamma^{-1})a_{1,1}$ is the radius at which the force between entangled electron-neutrinos reverse direction. When $r < (\gamma^{-1})a_{1,1}$ the mass-force is repulsive, when $r > (\gamma^{-1})a_{1,2}$ the mass-force is attractive. The reversal in direction, and the absence of energy loss, and the absence of measure in distance and time allows continuous vibrations of the electron-neutrinos.

24.1.5.3.1. (Electron-Neutrinos at the perigee)

The inverse cubed term sharply reversing the force direction at $r = \gamma^{-1}a_{1,1}$. as r approaches $a_{1,1}$ from r

$\gamma^{-1}a_{1,1}$, the force is repulsive. Within the electron, the entangled electron-neutrino pair is captured between infinite repulsive force around the center of mass (COM) and infinite attractive force at the radius $\gamma^{-1}a_{1,2}$. As the neutrinos approach the COM, they swing in a do-si-do above the surface of the void, where the repulsive jerk force of the first term's inverse third order adds to the centripetal force of circling about the perigee to balance the always-attractive force of the inverse second-degree term's attraction.

24.1.5.3.2. electron- Neutrinos at the apogee
At the apogee, the inverse square character of the second order inverse radius returns the neutrino in sinusoidal acceleration back to the perigee around the COM. The neutrino's trajectory approximates a sinusoid at the apogee, and jerk reversing of a yo-yo at the perigee.

24.1.5.4. Electron spacing
Electrons can congregate within 0.392 microns to form aggregate charges without repulsive forces forcing them apart.

24.1.5.5. Electron-Neutrinos Rotational space
The electron's half quantum of spin, with tangential speed near that of light, qualifies electron-neutrino as a rotationally sourced relativistic particle. With rotational speed having tangential speeds near that of light (c-), the neutrino has rotational relativistic properties, therefore the circle of relativity applies to rotational distance and time; time being the dependent variable subordinate to distance.

24.1.5.5.1. Electron-neutrinos radial space
The electrons gamma ray energy equivalent dynamic energy creates ballooning speeds at 0.9996***c*** that create near relativistic characteristics with the relationships depicted by the Circle of Relativity.

24.2. Electron's Fields HYPOTHESIS –
The electron's charge and magnetic fields are radial relativistic charge-space and tangential relativistic magnet-space, created by an entangled neutrino pair, vibrating radially at a random i longitudinal angle (Rθ) (spherical coordinates assumed) and random lateral angle (RØ) with a velocity always just below the speed of light (c-) by virtue of its miniscule mass, and a magnetic spin of ½h. [h is the symbol for Plank's quantum of energy in Joules pre cycle per second.][Rθ is a random longitudinal angle between zero and 360°, and RØ is a random latitudinal angle between zero and 180°, R standing for random, a number between zero and one.] In the random orientation of a charge cluster the electrons-neutrinos' excursions (flux) is distributed over a unit sphere such that the inverse square law is affected. Each electron rotates and vibrates at ***c-*** regardless of magnitude of the radius. Lorentz transformsthe relativistic tangential magnetic motion and variable randomly directed radial excursions at ***c-*** regardless of radius, because tangential measure and tangential time are both reduced by Lorentz's radical.

Tangential velocity = $\gamma(r\delta\theta)/\gamma\delta t) =$ ***c-***.

Rotational speed is constant at ***c-*** independent of radius.

25. Aggregate Charge-SPACE

25.1. CHARGE, SPACE, AND ELECTRON FIELDS–
A coulomb is 6.24 X 1018 electrons; even a small charge is many electrons. The closer two aggregate charges are, the more will be the number of interactions between charges per unit time, and the stronger will be the electrostatic force. Two electrons, each of one quantum of energy, occupy a single energy-space by spinning in opposite directions. The neutrinos generate orthogonal magnetic fields by counter rotation, and generate

vectorily additive electrostatic fields by occupying the same COM. The counter spinning electrons have the exact same coordinates for their COM, with two pairs of separately entangled neutrinos, because each pair rotates in the opposite direction they are in separate relativistic spaces.

25.1.1. charge force
The mechanism of charge force is the maximized mass-force between entangled neutrinos in relativisticly-collapsed space. There is no particle charge-force; charge-force is mass-force between neutrinos. The force between entangled neutrinos is maximized because there is almost no measure in relativistic space, almost no measure of length, and almost no measure of time in relativisticly collapsed space.

25.1.5.5.1. (Electron-neutrinos radial space)
The electrons gamma ray energy equivalent dynamic energy creates ballooning speeds at 0.999799980c that create near relativistic characteristics with the relationships depicted by the Circle of Relativity.
RE: γ computed on page 80

25.2. Electron's Fields HYPOTHESIS –
The electron's charge and magnetic fields are radial relativistic j-charge-space and tangential relativistic k-magnet-space, created by an entangled neutrino pair, vibrating radially at a random longitudinal angle (Rθ) (spherical coordinates assumed) and random lateral angle (RØ) with a velocity always just below the speed of light (c-), limited below c by its miniscule mass. and a magnetic spin of h. [Rθ is a random longitudinal angle between zero and 360°, and RØ is a random latitudinal angle between zero and 180°, R standing for random.] In the random orientation of a charge cluster the electrons-neutrinos' excursions (flux) is distributed over a unit sphere such that the inverse square law is affected. Each electron rotates with a tangential speed that always remains just below that of light at c-, and vibrates at c- over radial excursions; in both cases at c- regardless of magnitude of the radius. Lorentz transform relativistic tangential magnetic motion and variable randomly directed radial excursions at c- regardless of radius. Tangential distance and tangential time are both reduced by Lorentz's radical; keeping the tangential nonrelativistic, and at c- at all radii.

Tangential speed = $(r\gamma\delta\theta/\gamma\delta t) = r\delta\theta/\delta t$.

Rotational speed is constant at c-; the tangential speed is directly dependent of radial magnitude.

Tangential velocity = $(r\gamma\delta\theta/\gamma\delta t) = r\delta\theta/\delta t$.

Rotational speed is nonrelativistic, tangential speed is constant at ***c-***, and the path is an involute that curves counter to the direction of rotation.

Electron's Construct Proposal Move up under Electron Construct
25.5. ELECTRON CONSTRUCT ANALYSIS –
The electron-neutrino proposal is analyzed to determine the feasibility of a mass-force between entangled neutrinos as the origin of electric charge fields. The charge-force proposal is based on mass-force in relativistic space. The medium of exchange of the electron's charge field is a pair of entangled neutrinos, herein called electron-neutrinos (each with their inherent ½ quanta of spin) imbuing the electron its full quanta of spin.

25.5.1. Known Facts about the Electron

The following are known facts about the electron:
a) The electron was arbitrarily assigned a negative in potential.
b) The electron has one full quanta h of spin energy.

$\hbar \equiv$ Plank's constant $=$ $6.62606896(33) \times 10^{-34}$ Js per radian
$= 4.13566733(10) \times 10^{-15}$ eV sec/cycle.

c) The mass of an electron is = $9.10938188 \times 10^{-31}$ kilograms.

d) The electron decays into two free neutrinos (both ν^-), and a gamma ray.

~~25.5.2. Planck's Constant for Photons~~

~~Planck constant is defined in energy per radian. A radian is arc length divided by the radius of the arc. The radian is a man-made concept of arc, easy for man to visualize and understand as seamingly fundamental. In nature, frequencies are in cycles. If Truth describes nature, then Planck's constant, in Truth, should be expressed in energy per cycle. Therefore:~~

~~$\hbar/2\pi = h = 1.054571 \text{ X } 10^{-34}$ Joules sec / cycle [Joules per cycle per second]~~

25.6.2.1 Ballooning speed

Text

25.6.2.1. Exact ballooning speed

Suspect is the accuracy of the calculated velocity required to balloon the mass of two neutrinos by a factor of 50. Not suspect is the logical conclusion that two neutrinos at some speed will balloon to the mass of an electron. The electron-neutrinos are the smallest known particle, and travel very close speed of light. [See the proposal for the construct for the boson with an even faster neutrino.] The notation herein for the speed of the **electron**-neutrino is c-. The notation herein for the speed of the second pair of **boson**-neutrinos is c-+, indicating a faster speed than c-, but less than c.

25.6.2.1.1. *The electron-neutrino's speed is not set or constant.*

The electron-neutrinos speed and frequency of vibration are absorbed from its environs. Therefore, the electron's mass and size vary with its environmental history.

25.7. ELECTRON-NEUTRINO SPACE DIFFERS FROM PHOTON SPACE –

The near-relativistic entangled electron-neutrino space differs from photon-space in that photons, having no mass, lose their relativistic spaces upon and dissipation of its energy. The entangled electron-neutrino retains its space by retaining its near relativistic velocity of c-, and sharing neutrino-space with other lepton-neutrinos with which it docks while spinning, then returning to orbit the COM of its electron.

25.7.1. Frequency of vibration

The frequency of vibration applies only to Galilean space; in relativistic space there is no measure of time, therefore frequency is not a requirement of the construct of the electron. Therefore, Galilean frequencies can be induced in the vibrations of the two entangled electron-neutrinos that mimic the characteristic of an allergen. The allergen's frequencies are in a loss-free medium, and continue vibrating at the induced frequency until overpowered by another frequency or randomized by distillation or boiling.

25.7.2. Electron space

The third order mass-force term affects random distribution of longitudinal Φ angles and latitudinal θ angles, by its mutual divergence from the electron-neutrinos having head on collisions about the COM, resulting in imbuing the spherical inverse radius squared charge-space characteristic of the electron as well as assuring near perpendicular planes of vibration; the Heisenberg Uncertainty Principal causes random planes in Φ and θ.

~~25.7.3. Electrons' Magnetic Space~~

~~The magnetic field of the electron is quantized by the two neutrinos, both vibrating radially and spinning rotationally near the speed of light, both speeds being invariant. Speed of *c-* creates a near relativistic space without measure of distance and time the relative position and path of the two neutrinos is not analytical. The relativistic velocity of spinning electron-neutrinos generates a magnetic field. Because each of the two neutrinos contributes one-half quantum of magnetic spin space, the spin value of one electron is one full quantum of rotational magnetic energy-space.~~

25.7.4.2. Electrons' particle charge-space
multiple electrons' vibration space is linearly additive because the vibration spaces are orthogonal by unique epochs of origins and path directions imbue orthogonality.

25.7.4.1. Positive charge space / **reversing charge force**
A negative charge-force describes an attractive force, that being a force in the direction of decreasing radius. A positive charge-force describes a repulsive force, that being a force in the direction of increasing radius. Attractive force and repulsive force do not describe positive and negative space, but charge space with changing force directions.

~~26.3. mass coefficient exemplificative values~~
~~The mass coefficients are estimated for electrons in atomic structures. Each mass particle will have DeBroglie wavelength that are set by momentum to fit the function. Since every energy level in an atom is unique, the wavelength will be appropriate for that energy level.~~

~~26.3.1 Exemplificative values are just that; actual values will be estimated in a similar manner. Debroglie wavelengths appropriate for nuclear fermions will be estimated for the dimensions of the nucleus. Wavelengths for orbiting electrons will be appropriate for the orbits they occupy. Exemplificative values are used to show the method of calculation, and the approximate magnitude of the coefficients in the force equations.~~

~~26.3.2. Coefficient A = 10^4~~

~~Coefficient A is assigned an exemplificative value of 10^4 to assure the override the positive (repulsive) third f_{mass} term when $r < a_{1,2}$. The ratio of nuclei radius to the K orbit radius drives the magnitude of A. The magnitude A must overcome the ratio of the diameters (10^3) and the difference in the power of the denominators of the first and second mass-force terms of 10^1. Therefore A is assigned the value of 10^4. The first term's reciprocal third power radius makes the term's contribution negligible in the domains of second the third terms.~~

~~27.2.4. Coefficient B = 1~~
~~Where the second term is dominant, it must emulate Newton's Gravity Function, argued previously.~~

~~***27.2.5. Coefficient*** D = 10^{-12}~~
~~The third term is made insignificant at the earth's surface by assigning a value to D much much smaller than B. With $a_{1,3}$ equal to the K orbit, there is never a radius outside the domain of atoms where the force from the third term is positive, repulsive, or infinite. The third term always contributes a slight attractive force. The third term mass force is dominant, but small, at large distances by virtue of its variable being of the reciprocal first order. D is arbitrarily assigned a value of 10^{-12}.~~

~~27.2.5.1. At *intergalactic temperature*~~
~~At the near absolute zero thermal degrees velocities of intergalactic space, the momentum of the free neutrino is near its minimum; the DeBroglie wave length is near maximum, and $a_{1,1}$ is two and a half times the DeBroglie wavelength, λ. The conclusion is that there may be considerably less neutrinos in inter galactic space than in intra solar space; the accelerating pressure for cosmic expansion coming from fewer colder neutrinos, the colder neutrinos having a greater force radius (range). Cosmic acceleration is from an intergalactic sea of fluid state slow moving neutrinos. Neutrinos are always being added to the cosmic sea from Black Holes in cosmos filling numbers.~~

27.2.5.1.1. (Intergalactic functionality)

Intra-solar-system neutrinos, too small to absorb solar radiation directly, receive solar energy through collisions with dust particles heated by stellar radiation, and by splitting momentum in collisions with high speed Black Hole neutrinos. The cross-section of dust particles with high speed neutrinos is reduced by relativistic space, and the size of the neutrinos. Neutrinos pass through almost everything, and split their kinetic energy most efficiently with particles of equal mass, i.e. other neutrinos.

27.2.5.1.2. Neutrino's minimum approach

In the range of radius of the diameter of a hydrogen atom's nucleus (that of a proton) two free neutrinos can never touch each other, as a1,1 the radius of repulsion is larger than the smallest nuclei. The intense repulsion of the first term at r < a1,1 insures separation of neutrinos, they cannot coagulate; they must remain fluid. The exact offset radius is temperature dependent.

27.2.6. Direction Of Force

The following statements show the changing direction of the three terms of the mass-force formula, regardless of their velocity or entanglement. In the following six statements, the leading coefficients, řMmG, are extended onto each term discussed so that the negative unit vector will not be forgotten in evaluating the direction of force contribution. This set of mass-forces that apply to the free neutrino is the same as for particles associated with an atom except there is no force for r = 0, as there is no nucleus from which to measure distance. Within the atom, there was no known momentum from which to calculate DeBroglie wavelength. The wavelength for particles within the atom was estimated from dimensions of position and function in the atom, The free neutrino's wavelength velocity is known from measures of physical phenomenon or estimated from temperatures. The Free neutrino's radial offsets in the following term descriptions vary with speed. The offset radius will always be estimated to be 2 ½ DeBroglie wavelengths. Positive force is in the direction of increasing radius,

27.2.6.1. When $r < a_{1,1}$

When $r < a_{1,1}$, the first term of f_{mass}(neutrino) = $-$řMmG $A10^{4}$ $(r - a_{1,1})^{-3}$ is positive, and repulsive.

27.2.6.2. When $r > a_{1,1}$

When $r > a_{1,1}$, the first term of f_{mass}(neutrino) = $-$řMmG $A10^{4}$ $(r - a_{1,1})^{-3}$ is negative, and attractive.

27.2.6.3. *when $r < a_{1,2}$*

when $r < a_{1,2}$, the second term of f_{mass} (neutrino), řMmGB10^{-} $(r - a_{1,2})^{-2}$ is attractive.

27.2.6.4. when $r < a_{1,2}$

when $r < a_{1,2}$ the second term of f_{mass} (neutrino), řMmG Bfo,2$(r - a_{1,2})^{-2}$ is attractive.

27.2.6.5. when $r < a_{1,3}$

when $r < a_{1,3}$, the third term of f_{mass} (neutrino), řMmG Dfo,3$(r - a_{1,3})^{-1}$ is repulsive.

27.2.6.5. when $r < a_{1,3}$

when $r < a_{1,3}$ the third term, of f_{mass} (neutrino), řMmG D$(r - a_{1,3})^{-1}$ is attractive $_{,3}$.

Note that the second term implements Newton's Law when the radius is greater than $a_{1,2;}$ with the leading negative sign, gravity is always attractive.

28.3. The Electron-Neutrino DEBROGLIE WAVELENGTH ..
DeBroglie's wavelength of a neutrino in Galilean measure is:

$\lambda_G = \hbar / m\ v$

$\hbar$ joules per radians,
m, (in grams), and
v, (in meters per second) $6.62606896(33)\times10^{-34}$ J·s

28.3.1. The Galilean Debroglie Wavelength of One Electron-Neutrino
The mass of the electron has not been determined, nor has the diameter. In the following calculation of the wavelength of the electron-neutrino, the electron's mass is that of the average electron. The DeBroglie wavelength of one electron-neutrino in Galilean measure requires changing the Planck's constant from $\hbar$ **radians** per second to h **wavelength**s per second:

λ_G(electron-neutrino) = h radians ÷ [(mass $_{neutrino}$)($v_{electron\text{-}neutrino}$)]

Where: electron-neutrinos

$\hbar$ (Planck's Constant) = $6.62606896 \times 10^{-34}$ radians m^2 kg / sec

h (Planck's Constant) = $1.05457147 \times 10^{-34}$ cycles m^2 kg / sec

$\hbar$ = $6.62606896 \times 10^{-34}$ radians m^2 kg/sec [wavelengt½hπrad]

h = $1.05457147 \times 10^{-34}$ wavelengths m^2 kg/sec

$mass_{neutrino}$ = $\gamma(9.1093818 \times 10^{-33}$ kg)

$\gamma = 50$

$v_{electron\text{-}neutrino\ (e\text{-}n)}$ (speed) = 299,732,493.5 ms^{-1}

RE: ***25.6.1. Speed of Entangled Electron-Neutrinos***

Substituting for h, and n, the Galilean measure of the DeBroglie wavelength of the electron- neutrino is:

λ_G(electron-neutrino) = $(1.054571X10^{34}m^2kg/sec)÷[50(9.1093818\times10^{-33}kg)(299,672,541m/sec)]$

λ_G (electron-neutrino) = 7.726270×10^{-13} meters

28.4. Comparing the energy-space Electron diameter to the r_{QMC} Estimate..
The energy-space size of the electron's void center is assumed herein to be its entangled neutrino's offset, $a_{1,1}$, There has never been a consensus on the exact size of an electron because of its variable and fuzzy nature. To be entangled the two electron-neutrinos must have the same epoch and coordinates. Because each electron-neutrinos has a standoff of $a_{1.1}$, the closest they will get in 90 degree planes of vibration is $a_{1,1}$. At ***c-***, time nearly stops and distance approaches zero, but speed remains constant; therefore, each neutrino pushes away from itself in its vibration plane in its path about the electrons core. The result is the core of the electron is a spherical void of diameter of $a_{1,1}$.

28.4.1. Electron best standard diameter
The r_{QMC} radius is assumed to be the best estimate of the electron diameter for comparison.

$$R_{QMC} = 6.70\times 10^{-13} \text{ m.}$$

Also, Galilean measure for the energy-space based estimation of the electron's radius has been calculated in paragraph 28.3.1.

The ratio of the Energy-Space electron's void core diameter to the RQMC electron diameter is:

$$(7.72627 \text{ X } 10^{-13}) \div (6.7 \text{ X } 10^{-13}) \approx 1.153$$

28.4.1.1. (Surprising Accuracy)
The ratio of the calculated diameter of the electron to the R_{QMC} diameter being 1.153 indicates surprisingly agreement, considering the range of historic estimates of dimensions reported in the literature and the new proposition herein of the electron construction based on DeBroglie wavelengths. Also of historical uncertainty is what was estimated by the R_{QMS} for the electron's diameter, the void core or the peak, root-mean-square, or average excursions of the electron-neutrinos. Also, the mass of the electron is affected by the speed of the electron-neutrinos, which in turn is subject to the environmental history where the neutrinos resonate to frequencies of its environs.

~~28.5; Gravitational waves~~
~~As the photon is both a wave and a particle without mass, the neutrino is both a wave and a particle with mass. Gravitational waves propagate in the intergalactic sea of googles of googles of neutrinos. The complete mass-force equation applies to the free neutrino.~~

$$~~F_{mass \text{ (free neutrino)}} = -\check{r} MmG [10^{4}(r - a_{1,1})^{-3} + 10^{0}(r - a_{1,2})^{-2} + 10^{-12}(r - a_{1,3})^{-1}]~~$$

~~(Only entangled electron-neutrinos are caught between $a_{1,1}$ and $a_{1,2}$.)~~

~~28.5.1. Gravitational waves Proposal~~
~~The push and pull of gravity waves are transmitted through a sea of free neutrinos.~~

~~28.3.2. Outer Space Forces~~
~~The first term of the mass force equation provides a repulsive force at $r < a_{1,1}$, and attractive $r > a_{1,1}$. The repulsive force prevents a nucleus from collapsing to form a Black Hole. The attractive force is transferred from one neutrino to another to create the attraction that holds the solar system together, holds the Milky Way together and pulls constellations into collision, and holding one neutrino against its neighbor to make an incompressible sea of low speed neutrinos. The radius standoff $a_{1,3}$, in the cold of the end, when of entropy approaches infinity, when the DeBroglie wavelengths are extreme; at $r > a_{1,3}$, the third term of the mass-force will collect all neutrinos, to create the primordial accumulation of all mass and energy for the next big bang.~~

~~28.3.2.1. Speed of intergalactic gravitational waves~~ **~~HYPOTHESIS~~**
~~The speed of sound through a medium is proportional to the force between particles, and inversely proportional to the mass of the constituent particles. The mass of the neutrino is near zero and the forces approach infinite as r approaches the offsets at $a_{1,1}$ and $a_{1,3}$. Being of pico-pico-nano kg mass with spring equivalent force near infinity, acoustic velocities in the sea of neutrinos are near the speed of light. The mass of neutrinos is know, but the offset $a_{1,1}$ based on DeBroglie's wavelength varies inversely with momentum, and momentum depends on temperature, making speed, and therefore the wavelength, variable. The gravitational waves in intergalactic space, like sound waves in the ocean, they reach far beyond their source.~~

~~28.3.2.2. The speed of force transfer by neutrino PROPOSAL~~

~~***The first and second mass-force terms of neutrinos transport repulsive and attractive gravitational forces in a Denver Instant. the third mass force term of neutrinos spewing from Black Holes accelerates the expansion of the cosmos with force transferred near the speed of light. The neutrinos wave characteristic exerts force terms all along the length of the DeBroglie wave by the neutrino particle that is moving back and forth along the track of the wave at speed near that of light. The forces are delivered instantaneously along the length of the wave; the neutrinos-space provides the conduit along which force is transferred in a Denver Instant.***~~

29. Quantized Doppler

29.1 History of Quantized Doppler–

29.1.1. ***Edwin Hubble Edwin Hubble Discovered Quantized Doppler In 1929****.*

RE: William G. Tifft 1970's. William G. Tifft,
University of Arizona / brightness, and red-shift.

29.2. PREFERRED VALUES OF RED SHIFT –
Galaxy red-shifts take on preferred or "quantized" values. First revealed in the Coma Cluster red-shift vs. brightness diagram, it appeared as if red-shifts were in some way analogous to the energy levels within atoms.

29.2.1. Preferred Red-Shift Jumps Caused by source HYPOTHESES
Several well-studied galaxies, including M51 and NGC 2903, exhibited two distinct red-shifts. velocity breaks, or discontinuities, occurring at the center of these galaxies (where rotational speed is zero). Even more fascinating was the observation that the jump in red-shift between the spiral arms always tended to be around 72 kilometers per second, no matter which galaxy was considered. Later studies indicated that velocity breaks could also occur at intervals that were 1/2, 1/3, or 1/6 of the original 72 km/s value. There are many wavelength determined paths through the prism of different length caused by the shape of the prism. This causes a phase delay proportional to the wavelength, and light to be separated into its constituent colors.

29.2.1.1. Dispelling arguments
The fact that the quantized red shift occurs in light from the center of all galaxies, and from arms that proceed and recede at different rates, implies that source speed is not the cause of quantized Doppler. The position of the galaxy in the cosmos is also not the cause, as red shifted light of the same speed comes from all galaxies throughout the cosmos. Distance is also not a factor, as Galaxies vary in distance. Proceeding and receding stars would create blue and red shifts.

29.2.1.2 Compression wave *in space itself may be the cause of red shift HYPOTHESIS*

29.2.1.2 **Dispelling arguments**
Compression waves in neutrino density affecting a wave density in space, could not affect the preferred Doppler shift, as the Doppler would be a sinusoidal smear, not uniformly quantized.

29.2.1.2.1. Red shift cause is caused by source *Conclusion*

Nothing in the source or in intervening space can cause quantized Doppler. Sinusoidal compression waves would cause a continuous spectrum shift between no Doppler and 72 kps, and not the quantized shift reported by Tifft; also blue shift as well as red shift would be present.

29.3. Third Order Mass-Force Equation HYPOTHESIS
Compression waves in neutrino density causes quantized Doppler shifts. The third order mass-force equation affects the second and third order subharmonics' Doppler "preferences" of red shift.

29.2.1.3.1. (Dispelling argument)

Although the nonlinearity required in the path of light to affect multiplication is provided by the prism faces, the Doppler calculated using the mass-force equation is 10^4 times too fast. The hypothesis does account for the factoring of Doppler speeds by ½, 1/3, and 1/6 of the dominant Doppler speed. For this reason math is presented, not as a truth, but a nexus to truth. It is also possible that the 72 x 10^6 feet per second quantization was incorrectly reported as 72 x 10^3.

29.2.1.4. Mass-force equation: the source of heterodyning HYPOTHESIS
The three degree mass-force equation is the causation of the sub-harmonic division of the true Doppler speed, and further heterodyning of the first products create the 1/2 and 1/3 subharmonics. The one-sixth sub-harmonic is from the heterodyning of 1/2, and 1/3 subharmonics.

29.2.3.4.1. Supporting argument
Heterodyning is the multiplication of frequencies, a process that multiplies amplitudes and adds and subtracts frequencies. The discontinuity at the junction of air and prism glass provides a nonlinearity that enables multiplication. The quotient of squaring an inverse sine is halving the argument frequency. The quotient of cubing an inverse sine has a cube root of amplitude and a frequency divided by three.

The information in the incoming light is the absorption spectrum of intervening atoms. The information is Doppler shifted by the receding galaxy. At the speed of light distance replaces time and the light waves are traced in distance only. The information is in side bands to the center frequency of the white light spectrum, in the manner of amplitude modulated radio waves. The frequency of the amplitude modulation squared, and the frequency is added and subtracted from the initial frequency. At $\boldsymbol{c}$, distance replaces time, and frequency is $A\sin(\omega \boldsymbol{c} \Delta s)$. Doppler is $\omega-\delta\omega$ is the modulation; modulation is not distorted in heterodyning. $\omega+\delta\omega$ would indicate speed faster than $\boldsymbol{c}$, and is excluded. In the squaring of inverse $A\sin(\omega \boldsymbol{c} \Delta s)$ the argument is halved and the amplitude is the square root.

$$\{[A\sin((\omega-\delta\omega)\boldsymbol{c}\Delta s)]^{-2} = A^{-2}\sin((1/2(\omega-\delta\omega)c\Delta s))$$

When exiting the prism, the heterodyning again takes the square root of the amplitude and divides the frequency by two:

$$[A^{-2}\sin((1/2(\omega-\delta\omega)c\Delta s))]^{1/2} = A^{-4}\sin((1/4(\omega-\delta\omega)c\Delta s))$$

The inverse third-order first term produces a third order quotient of

$$A^{-3}\sin((1/3(\omega-\delta\omega)c\Delta s))$$

The heterodyning of the inverse second and third order quotients produces

$$A^{-6}\sin((1/6(\omega-\delta\omega)c\Delta s))$$

When projected back onto i-Galilean space

$$A^{-2}\{[\sin(\omega)(1/2c\Delta s)][\cos(-\delta\omega)(1/2c\Delta s)] - \cos(1/2\omega)1/2c\Delta s][\sin(-\delta\omega)1/2c\Delta s]\} =$$

$$A^{-2}\{(\sin\omega 1/2c\Delta s) (\cos(-\delta\omega 1/2c\Delta s) – \cos[(\omega)(1/2c\Delta s)]\sin[(-\delta\omega)1/2c\Delta s)]\}$$

The division of the angular arguments has been associated with the distance equivalent to time.

Upon the light's exiting the prism, there is a second discontinuity that causes a second square rooting of

amplitude; again halving the frequency, producing the following equation for the exiting light:

$$A^{-4}\{\sin(\omega/4\ \delta t)\cos(-\delta\omega/4\ \delta t)\}-\{\cos(\omega/4\ \delta t)\sin(-\delta\omega/4\ \delta t)\}$$

$$A^{-3}\{\sin(\omega/3\ \delta t)\ (\cos(-\delta\omega/3\ \delta t)-\cos(\omega/3\ \delta t)\sin(-\delta\omega/3\ \delta t)\}+$$

$$A^{-6}\{(\sin\omega/6\ \delta t)\ (\cos(-\delta\omega/6\delta t)-\cos(\omega/6\ \delta t)\sin(-\delta\omega/4\ \delta t)\}$$

The index of refraction of the prism accounts for the further slowing of the quantized Doppler and the reduction in amplitude. Further heterodyning of frequency quotients generates lower Doppler of smaller amplitudes.

One fourth the speed of light accounts for Doppler speed of 72×10^6 feet per second (the published Doppler is 72×10^3 feet per second. For argument's sake 72×10^6 feet per second is assumed to be the correct Doppler shift). The index of refraction of the prism (μ) is estimated (approximately, $\approx$) to be:

$$\mu = (72{,}000{,}000\text{feet/sec}) \div (74{,}948{,}114{,}5) \approx 0.961\ 948\ 080$$

29. 4. REVIEW AND SUMMARY –
Heterodyning at the entrance edge and exit edge of the prism is affected by the nonlinearity of the mass-force equation. The inverse third-order and inverse second-order force fields terms produce second and third order sub-harmonics of the incoming light. The squaring of a frequency produces a sine wave of twice the frequency displaced from zero such that it is positive, a sine wave sitting on the negative peaks. The third order product is zero biased. These two frequencies beat with the original Doppler frequency (shifted by the receding source) to produce within the prism, the original frequency, the sum and the difference frequencies. The process is repeated at the exit edge of the refracting prism. The higher Doppler frequencies would indicate a speed that exceeds that expected from the receding universe; the lower frequency would indicate Doppler frequencies one-half, one-fourth, and one-sixth the speed of light. There are additional frequencies produced by the heterodyning of the products. In each heterodyning, the energy of the generated frequencies is split between the upper and lower products; this and the roots of amplitude account for the decreased amplitudes. The index of refraction of the prism accounts for the difference in the calculated Doppler and the observed Doppler.

29. 3. Conclusion –
The Third Order Mass-Force Equation HYPOTHESIS is a logical explanation for the source of the 1/2, 1/3, and 1/6 sub-harmonic frequencies. That the quantizing of Doppler is at the prism surfaces, not at the source of light or in the intervening space, or created by pulsating masses. What remains a dilemma is the factor of 10^3 separating the calculated quantized Doppler of 72×10^6 and the reported quantized Doppler of 72×10^3 feet per second.

31. Charge-force

31.1. THE ELECTRON-NEUTRINO AND THE FREE NEUTRINO –
Entangled electron-neutrinos function differently from a free neutrino because electron-neutrinos exist in a self-created entangled space caught between $a_{1,1}$ and $a_{1,2}$. The electron-neutrinos are the generating and transfer medium of electrostatic and magnetic force. Free neutrinos operate without a point of reference; offsets are measured from their position.

31.1.1. Charge Force by Docking of Electron-Neutrinos
Charge-force is created by electron-neutrinos that dock with other lepton-neutrinos of like spin. Between

leptons exists a relativistic charge-space of entanglement, where force is independent of distance and transferred in a Denver Instant. Charge-space is created by lepton-neutrinos whether their neutrinos doc or do not dock with other Leptons-neutrinos. Charge-space includes static charge, and dynamic charge of electron current and ionic current.

31.2. unified charge-force equation–

31.2.1 Aggregated Charges -
The charge-force equation is applicable to two independent charge aggregations of two charge signs combinations; like signs repel, opposite signs attract. The mass-force equation is applicable for independent charge particles, where the charge-force transfer media is neutrinos,.

31.2.1.1. single charge force exchange between lepton-neutrinos
Charge force is conveyed by lepton-neutrinos. The force is independent of separation, r, because of the near speed of light of the entangled neutrinos. There is no measure of distance at c-, and the magnitude of the charge force is constant between independent charges. In particle to particle force transfers, the force is along the separating radius, and the inverse square law does not apply. The force is limited by the radial offset, $a_{1,1}$.

31.3.1.2 Accumulations of random forces between aggregations of charges

31.3.1.2.1. (Mass force equations without leading negative sign)
The charge-force equation is of the inverse radius third order form, the same as mass-force, except there is no leading negative sign, and Q and q replace M and m. Combinations of the polarities of charges Q and q determine the mathematical sign of charge and therefore the direction of the charge-force, repulsive or attractive.

$$f_{charge} = \sum_i \sum_j Q_i q_j \check{r} [E (r - a_{2,1})^{-3} + F (r - a_{2,2})^{-2} + + G (r - a_{2,3})^{-1}]$$

Where Q and q are two separated aggregated electrostatic charges and f_{charge} is the sum of all combinations of Q_i and q_j,

ř is a unit radius vector positive in the direction of increasing radii.

The first term, $E (r - a_{2,1})^{-3}$ applies to forces in nuclear domain.

The second term, $F (r - a_{2,2})^{-2}$ applies at orbiting electron domain.

The third term, $G (r - a_{2,3})^{-1}$ applies at extra atomic distances.

r is the distance between the charge centers. (Where the radius is small and the geometry of the charge bodies irregular, a more complicated integration of each charge particle and radius must be calculated.

31.3.1.2.1.1. Force between two charge particle
Leptons are positive muons that have, amongst many paired neutrinos, a solitary neutrino with a spin of ½h (the characteristic spin of a single neutrino) distributed evenly between positive and negative. Within a cloud of positive charges, there is a sea of positive and negatively spinning neutrinos, ν+ and ν-. From a cloud of negative charges, there are electrons that have vibrating neutrinos with positive and negative spin. When the ½h electron-neutrinos enter by chance, the quantum space of muon-neutrinos with the same rotation, the one-half empty quantum space i=of the muon neutrino is momentarily filled by the remote ½h electron-neutrino. The track between the docked electron-neutrino remains entangled with its electron-neutrino mate. The measure of distance is nearly zeroed by the near relativistic speed of the neutrinos. Again, near relativistic and nearly zeroed is because the neutrino has mass.

25.7.5. aggregate and Particle Force Disambiguation
an aggregated charge creates forces between massive numbers of individual charge particles. Even a small charge can consist of millions of leptons. Lepton-neutrinos from within a charge randomly penetrate a surrounding unit sphere to affect the inverse radius squared force field.

31.3.1.2.1.1.1. mass-force is between neutrinos
While the docked neutrino co-occupies space with the remote proton or positron, the maximum attractive mass force developed between the docked neutrino and its entangled mate (because the relativistic radius between the entangled neutrino pair is zero) is:

$$f_{mass/neutrinos} = -\check{r}n\acute{n}G[10^{4}(0 - a_{1,1})^{-3} + 1(0 - a_{1,2})^{-2} + 10^{-12}(0 - a_{1,3})^{-1}].$$

In the realm of a nucleus, the second and third terms are made insignificant by their coefficients and smaller inverse exponents. The charges Q an q have been dropped, substituted by nń the masses of two neutrinos, and the mass-force subtitle mass/neutrino used, because the mass-force that exists between neutrinos is what implements the charge-force. Charge-force equation is applicable to aggregate charges, and mass-force equation is applicable to neutrinos. Neutrinos themselves have no charge fields and no magnetic fields.

31.3.1.1.2.1. (Proposition I-A)
An electron's charge-force is mass-force between entangled neutrinos docking or not docking to share a quantum of space with a remote neutrino, the direction (attraction or repulsion) of the force depending on the host Lepton having or not having a single neutrino of the same spin.

31.3.1.1.2.2. (Proposition I-B)
An electron's charge-space is the mass-space created by two entangled electron-neutrinos, the entanglement providing a potential force between the electron neutrinos and possible remote-neutrinos.

31.3.1.1.2.3. (Proposition I-C)
Aggregate charge space is proportional to the inverse squared radius of separation.

31.3.1.1.2.4. (Proposition I-D)
The inverse square nature of charge-potential is due to the random latitudinal angles, Rθ, and random longitudinal angles, RΦ, for the radial path of the vibrating neutrinos.

31.3.1.1.2.5. (Proposition II)
An electron is invariant in charge because precisely two neutrinos compose the electron.

31.3.1.1.2.6. (Proposition III)
The entangled electron-neutrinos are forever caught between the relativistic offsets of $a_{1,1}$ and $a_{1,2}$, which do not project expectedly onto Galilean space, because the frequency of vibration of the electron-neutrino is not a criteria for the electron, and the track of the neutrino need not be straight line.

31.3.1.1.2.7. (Proposition IV)
The net force between two aggregate charges is the vector sum of many electron-neutrino pair bonds between the two charges.

31.3.1.1.2.8. (Proposition V)
The magnetic moments of a charge cluster is zero because of north to south magnetic poles paring of electrons.

31.3.1.1.2.9. (Proposition VI)
Neutrinos are the carrier of both attractive and repulsive electrostatic force.

31.3.1.2. Repulsion

Repulsion is the opposing force from neutrinos finding no single neutrino as host with which to dock and share space. Electron-neutrinos that cannot find a co-rotating single neutrino where they can share entangled space with other fermions, are left outside the radius $a_{1,2}$, where they exert a maximum repulsive force back to the electron at a relativistic distance of $a_{1,1}$ and force of:

$$F_{charge} = \check{r}\, qq\varepsilon_0(1+\chi)\,[10^{-4}(0-2a_{1,1})^{-3} + 1(0-2a_{1,2})^{-2} + 10^{-12}(0-2a_{1,3})^{-1}]$$

Where:

ε_0 is the permeability of free space.

χ is the susceptibility of material to increase permeability.

$F_{charge,}$ in the domains of $r > a_{1,3}$, at the speed of ***c-,*** relativistic r is zero, and $f_{charge\ s}$ contributions of all terms, is a repulsive.

31.3.1.2.1 No place to dock

When an electron-neutrino does not find a same-rotating muon-neutron, a repulsive force is transferred between the electron and a lepton in a Denver Instant. A straight path is not a condition of entanglement, therefore ricochet collisions and a broken track will transfer the repulsive force through the electron-neutrino's entangled connection.

31.3.1.2.2. (Relativistic force projection onto Galilean space)

In relativistic-space, regardless of Galilean distance, the dwell time with the host is created by repeated visitations of transfer tine of a Denver instant. Since time is distance dependent, and the relativistic distance is near zero, the force projects back onto Galilean space in expanded measure as nearly continuous.

31.3.1.2.3. (Free neutrinos)

For free neutrinos, only the mass equation is applicable, because the neutrino has no charge or magnetic characteristics itself. In relativistic space, the electron-neutrino has no particle at the COM from which to estimate the measures of radial offset; the mass force offsets are scaled from DeBroglie wavelengths, DeBroglie wavelength being inversely proportional to the momentum of the neutrino.

31.3.1.2.3 (Free neutrino space)

Free neutrinos float throughout cosmic space, within planetary systems, constellation, and inter constellation space. Black Holes spew out neutrinos as the residue of ground up galaxies. Since the neutrino is the fundamental building block of matter, there are a lot of neutrinos coming out of Black Holes.

31.3.1.2.4. (Entangled neutrinos)

The entangled electron-neutrinos have near constant speed, therefore constant wavelengths. Electron neutrinos vary slightly in speed, making the electron's mass variable.

31.3.1.2.4.1. (Nonanalytical projection onto Galilean space)

The electron-neutrino's relativistic vibrational tract ***projection*** onto Galilean space is non-analytical. Therefore, the wavelength is determined from the speed required to balloon the mass of the neutrino fifty-times so that the two neutrinos that comprise the electron achieve the mass of the electron.

31.3.1.2.4.2. (Axiom on neutrino mass force direction)

neutrinos repulse at $r < a_{1,1}$, and attract at $r > a_{1,1}$.

31.3.1.2.4.2.1. (Attraction)

The entangled electron-neutrinos transfer attractive electrostatic force between electrons and Leptons when the

electron-neutrino finds a lepton-neutrino of the same spin; the two neutrinos with ½h energy momentarily share a full quantum of space. While the mobile electron-neutrino is docked with the lepton-neutrino an attractive force of each exists with its entangled mate with a force expressed by the first term of the mass-force equation with r = 0, because at the near speed of light there is no measure of distance. The dwell time of docking in relativistic space projects onto Galilean space as continuous. The electrostatic attraction comes from electron-neutrinos docking with a single like-spin lepton-neutrino, resulting in an attractive force back to the electron-neutron's COM with the maximum force from the offset $a_{1,1}$.

31.3.1.2.4.2.1.1. positive and negative leptons
Leptons with an even number of neutrinos are negative, Leptons with an odd number of leptons are positive.

31.3.1.3.1. Charge force effects in and about the nucleus
When Q and q are of the same sign, at radii greater than $a_{1,1}$, f_{charge} is repulsive. At radii less than $a_{1,1}$ the force is attractive. Neutrons within $a_{1,1}$ of each other, having no charge, are attracted to each other, while neutrons outside $a_{2,1}$ are repelled from each other. The attractive force within the nucleus, as radius approaches zero, is limited to a minimum force set by the offset radius $a_{2,1}$ to the value $Qq\check{r}(-a_{1,1})^{-3}$. The attraction of protons for one another will be finite at r = 0 (limited from infinity by the offset $a_{1,1}$), and therefore will not preempt the presence of other fermions toward the center of the nucleus. The mass-space equation's first term will be repulsive and hold off protons to a distance from absolute center. Offsets $a_{1,1}$ and $a_{2,1}$ determine if mass or charge forces will be greater; the forces that cause Schrödinger-like probability distributions will vectorily add in the intranuclear force balance.

31.3.1.3.2. (The charge potential equation of an electron)
The charge potential is the force that would be exerted on an electron from an aggregate of charges; the predominate charge determining the Charge-Force direction. The force between a test charge of a single electron, e-, and the charge, Q, is:

$$f_{charge}/e- = \check{r}\, Q\varepsilon_0 \left[10^{-4}(r - a_{2,1})^{-3} + 10^{0}(r - a_{2,2})^{-2} + 10^{-12}(r - a_{2,3})^{-1}\right]$$

Where:

f_{charge} is the force between the electron, e-, and an aggregate of charges, Q.

The charge magnitude of an electron is e^-' its minus exponent assigns the negative polarity to the electron. The force of e^- against a positive charge Q is negative and attractive.

ř is a unit vector, positive in the direction of increasing radius.

r is the measure of distance between charges.

$a_{2,n}$ are the radial offsets for the **aggregate** charge equation.

Q is the charge of a aggregation of electric charges.

31.3.1.3.3. Mass force between free neutrinos
A positive proton has a pair of neutrinos and a solitary neutrino with spin energy of ½h. In an aggregate charge of protons, the characteristic spin of neutrinos is distributed evenly between cw and ccw. Consequently, within an aggregation of protons there is a sea of single cw and single ccw neutrinos. When a half quantum electron-neutrinos by chance enters the space of a same rotating half quantum muon-neutrinos, a one-quantum space is momentarily filled by the remote-docked electron-neutrino and the local single host proton-neutrinos, sharing

one quantum of energy space. The force between the docked electron-neutrino remains entangled with its remote mate. while the docked proton-neutrino co-occupies space with the remote electron-neutrino, maximum attractive force is developed between both the docked neutrino and its entangled mate and the proton's center of mass, because the all radii between entangled relativistic neutron pair are zero. The mass-force between entangled neutrinos is:

$$f_{mass} = -\check{r}nn'G[10^{4}(0 - a_{1,1})^{-3} + 1(0 - a_{1,2})^{-2} + 10^{-12}(0 - a_{1,3})^{-1}]$$

Entangled neutrinos never get past $a_{1,2}$, therefore the third mass-force term is a non-contributor to entangled force.

31.1.3.4. Atomic orbit Charge-Force Offsets $a_{2,1}$, $a_{2,2}$, and $a_{2,3}$

The charge force equation is applicable to orbiting electrons. Extant orbits are used to evaluate radii offsets. The DeBroglie wavelength is estimated from the diameters of the orbits they occupy, radial offset is 2 ½ DeBroglie offsets. ***25.5.2. Planck's Constant for Photons***

Planck constant is defined in energy per radian. A radian is arc length divided by the radius of the arc. The radian is a man-made concept of arc, easy for man to visualize and understand as seamingly fundamental. In nature, frequencies are in cycles. If Truth describes nature, then Planck's constant, in Truth, should be expressed in energy per cycle. Therefore:

$$\hbar/2\pi = h = 1.054571 \text{ X } 10^{-34} \text{ Joules sec / cycle [Joules per cycle per second]}$$

The offsets estimates are based on the dimensions of the atom.

31.1.3.4.1. offset, $a_{2,1}$

The charge-force first term's offset, $a_{2,1}$, is fixed by the diameter of the nucleus. At radii $r < a_{2,1}$ (inside the nucleus) the charge force is attractive; two like-charges (protons) will attract. At radii $r > a_{2,1}$ the charge force is reversed: two like-charges of the same sign (Protons) will repel. Charges of opposite sign (example: positive nucleons and orbiting electrons) will attract.

31.1.3.4.2 . Offset $a_{2.2}$

The charge-force second term's offset, $a_{2,2}$, estimated by the K-orbit electrons are repelled from protons in the nucleus; outside the K-orbit electrons are attracted toward the nucleus. The nucleus of the largest stable elemental that $a_{2,1}$ must accommodated is that of lead, atomic number 209. The forces that affect Schrödinger's electron probability distribution add vectorily to charge-force.

31.1.3.4.2.1. Fixing $a_{2,1}$

The diameter of elements with larger nuclei will require a larger $a_{2,1}$; because the magnitude of $a_{2,1}$ can be extended to accommodate larger nuclei without negating the proposed concept of the mass force equation. Uranium will be used as the exemplificative atom for $a_{2,1}$. Therefore:

$$a_{2,1} = 15 \text{ X } 10^{-15} \text{ a will go on this} \text{meters (diameter of the Uranium atom)}$$

"The diameter of the nucleus is in the range of 1.6 femtometers (1.6×10^{-15} m or 1.6 fm) (for a proton in light hydrogen) to about 15 fm (for the heaviest atoms, such as uranium)."

http://en.wikipedia.org/wiki/Atomic_nucleus

31.1.3.4.2.2. Offset $a_{2,2}$

Offset $a_{2,2}$ is larger than the nucleus. $a_{2,2}$, and less than the largest orbit of the largest diameter atom. This would be the lithium atom in its most excited state:

$$a_{2,2} = 2 \text{ X } 10^{-10} \text{ meters}$$

31.1.3.4.2. 3. Offset $a_{2,3}$

It is important that there is an offset in the third charge term so that there will not be a infinite attraction at r = 0, the center of the nucleus. Also, there are no charge-force spikes beyond the radius of the electron orbits of the atom. Therefore $a_{2,3}$ is set equal to $a_{2,2}$, and the scaling coefficient reduces the force contribution of the third term to insignificance in comparison to the second term. Therefore:

$$a2,3 = a2,2 = 2 \text{ X } 10\text{-}10 \text{ meters}$$

31.2 Electron's force-field proposal -

Two same-rotating neutrinos (υ^-) of ½h each, occupy one quantum (1h) of energy-space. Two energy-spaces and two energy-forces are simultaneously created by rotating and vibrating electron-neutrinos: 1) the electric charge-force and charge-space; 2) and by rotating the magnetic-force and magnetic-space. Because the neutrinos are entangled, the radial force transfers in a Denver Instant. Because of c- tangential rotation, the electron's magnetic-force travels at the near speed of light, c-. The electron's electrostatic and magnetic spaces are mutually orthogonal by perpendicular generation. The neutrinos frantic motion is the source of energy for the gamma ray emitted upon the electron's destruction.

31.2.1. Dwelling Space Of The Electron-Neutrinos

The entangled electron-neutrinos dwell in the space between the first and second terms' radial stand offs ($a_{1,1}$ and $a_{1,2}$) of the mass-force equation. There is no loss of energy because the forces act over **zero distance** in relativistic space.

31.2.2. Relativistic measure of Separation

When one electron-neutrino docks with a single remote lepton-neutrino of like spin, it shares ½h mass-space with the ½h mass-space of the lepton-neutrino. The Relativistic measure of separation of the remote docked electron-neutrino from its entangled mate is of zero measure, because att eh speed of light there is no measure of distance between the remote docked electron-neutrinos and the center of mass (COM) of its electron. The attractive mass-force at r = 0 is limited by first term denominator's offset distance of $a_{1,1}$.

$$F_{charge} \text{ (entangled-neutrinos)} = \text{Fmass } (r = 0) = — Gnn'[(0 — a_{1,1})^{-3} + (0 — a_{1,2})^{-2}]$$

31.2.2.1. The first term

When $r < a_{1,1}$ the first term is negative, and the term's contribution in the mass-force equation is positive (repulsive).

31.2.2.2. The second term

The second term is always positive and the term's contribution in the mass-force equation is negative (attractive)

31.2.2.3. The third term

The first term repulsion from zero to $a_{1,1}$, and attraction from $a_{1,2}$ to positive infinity, these opposing forces hold the neutrino between $a_{1,1}$ and $a_{1,2}$. The gamma ray internal energy electron makes the electron-neutrinos

vibrate. Both electron-neutrinos are caught (until the electron's destruction) between $a_{1,1}$ and $a_{1,2}$. *Entangled electron-neutrinos are excluded from the domain of the third term of the mass-force equation.*

31.2.3. The Track Of The Electron-Neutrino

The motion of the electron-neutrino is not sinusoidal, it is returned from the domain of the of the second term (where r approaches $a_{1,2}$) by the second order inverse square mass-force term. The trajectory would be sinusoidal if it were not modified by the first term's inverse third order force contribution that imbues a hard surface repulsion at the surface of the spherical void. The motion of the electron neutrino is most easily described as a vibration.

31.2.3.1. The electron's illusiveness

The electron-neutrinos' dynamic energy of a gamma ray, the Heisenberg Uncertainty Principal, and the variable orbit path length are the underlying causes of the electron's elusive diameter. The Electrons ability to resonate frequencies of the vibrations of its neutrons makes the mass of the electron mass illusive.

31.2.4. Forces Between Leptons Pairs and Aggregated Charges

The charge-force developed above, analytically describes the individual mass-force between negative electrons and positive Leptons. The closer the distance between two **aggregated** charges, the greater will be the number of interactions per unit time between charge particles, and the stronger will be the electrostatic force. The relativistic measure of separation between two entangled electron-neutrinos will always be $a_{1,1}$, as there is no measure of radial span in the entangled relativistic space. However, the force between two **aggregated** charges will have an inverse radius squared relationship. The Galilean force between individual leptons will be through a neutrino-neutrino relativistic space projected as constant maximum delivered in a Denver Instant.

32. The Electron's Construct

32.1. Two entangled neutrinos –

The inner surface of an electron surrounds a spherical void of radius $a_{1,1}$. The center of spherical void is the (mathematical) center of mass (COM) of the electron. Each vibration of the neutrinos starts an epoch at the surface of the void. Relativistic distance, and therefore also time lapse in the vibration are both zero; frequency projects onto Galilean space proportionate to energy (energy cannot be created or destroyed) and continuous in time, as time is dependent on distance.

32.1.1. Electron's Charge-Force Is relativistic Mass-Force

There is no true charge particle; only charge-force. Charge-force is mass-force between entangled neutrinos of two leptons. The essence of charge force is the maximum mass-force between entangled neutrinos in relativisticly collapsed neutrino-space. The force is maximized because there is no measure of Galilean distance in relativistic space. Because SPAN remains constant, the almost zero measure of time lapse projects onto Galilean space as a continuous force. Time is a dependent variable of distance; distance projects from Galilean to relativistic space as zero and from relativistic space to Galilean space as full measure. Time, dependent upon distance, likewise projects from relativistic space onto Galilean space as continuous.

32.1.2. Charge attraction

In charge attraction, leptons share neutrinos, as atoms share electrons. The remote neutrino is held in a lepton's orbit defined by DeBroglie waves and Schrödinger probability distribution. In the case of attraction, it is the sharing of a boson's ½h energy-space single ν^- neutrino's space and the ½h energy space of same-rotating ν^- electron-neutrino's space to complete one h of energy-space. The electron's roaming neutrino and the boson's single neutrino of the same spin share one full quanta of neutrino space. The electron and the boson are at no measure of separation in relativistic neutrino-space: the particle charge-force is maximum particle mass-force attraction and independent of distance and time. The electron-neutrinos are momentarily held in one quantum of mass-space; the electron-neutrinos are at no Galilean measure of separation from both COMs or each other in their respective relativistic entangled neutrino-space; the mass-force attraction is at finite

maximum, limited by $a_{1,1}$ of both electron-neutrinos.

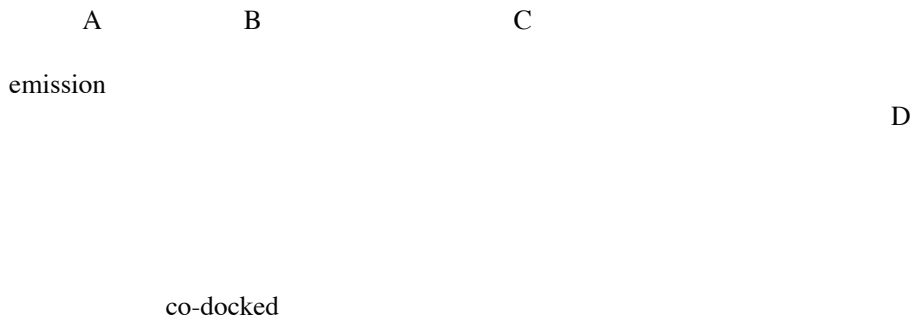

Figure 32.1.3.-1 . Force between Co-docked Neutrinos

A neutrino leaves its entangled partner and proceeds along path A. Upon collision with a neutrino of opposite spin at the junction of path A and B, two perpendicular force components are resolved. The neutrino proceeds along path B with the similar resolution at junction of path B and C. Again similar resolution of forces at junction of path C and D. At the end of path D, the neutrino docks with a same-spin neutrino. An attractive force is created between the origin and the co-docked neutrino is passed back through the leptons passing between the radius offsets of $a_{1,1}$ and $a_{1,2}$ which act like a set of pulleys pushing at $a_{1.1}$ and pulling at $a_{1,2}$. In this relativistic space, where there is no distance or time, the forces all add vectorily to form a direct attractive force between the end leptons in a Denver Instant.

33. Charge force
.

REPULSIVE
FORCE

First term

$x10^{4}$ $x10^{0}$

$x10^{-12}$

Third term

Log Radial SPAN
COM Nuclus K Orbit Li outer orbit

$a_{1,1}$ $a_{1,2}$

$a_{1,3}$

First term Second term Third term

Second term

ATTRACTIVE
FORCE

Figure 33-1.
Graft of f_{charge}

33.1. CHARGE-FORCE equation-
The attractive and repulsive force between an electron and a remote boson is that of entangled neutrinos, the electron-neutrino (υ) and the boson-neutrino (ύ) of like spin. The electron neutrino docks with a single boson neutrino of like spin. The force between electron-neutrinos and boson-neutrinos while docked is described by the mass-force equation, because the neutrinos have no force themselves, but are the conveyors of force. the Galilean radial measure is set to zero (r = 0), because there is almost no measure at c-. With respect to the neutrino, the offset distance $a_{1,1,}$ being a wave created distance, remains with the neutrinos:

$$f_{charge} = -G\upsilon\,\acute{\upsilon}\,\gamma^2\,[10^4(r - a_{1,1})^{-3} + 10^0\,(r - a_{1,2})^{-2} + 10^{-12}(r - a_{1,3})^{-1}]$$

$a_{1,1}$, $a_{1,2}$, and $a_{1,3}$ are the relativistic mass-force terms' stand-off radii.

The mass of the neutrino, and the distance from the COM of the nucleus depends upon the speed of the particle. The neutrinos' masses are ballooned by $\gamma = 50$, and their radii are reduced by $\gamma^{-1} = 0.02$.

The charge-force, f_{charge}, is in relativistic space, where there is no measure of distance; therefore r is not present in the equation, $r_R = 0$; being in relativistic space, Lorentz's radical, γ, appears twice (once for each neutrino mass), because mass increases with speed. The force is between two entangled lepton-neutrinos. It will be the same for each pair of docked lepton-neutrinos. The radial offset $a_{1,1}$ is with respect to the lepton-neutrinos, and is not reduced by Lorentz inverse radical. The force between entangled neutrinos is to increase separation as they approach $a_{1,1}$ from a greater distance, and to shorten radius as it approaches $a_{1,2}$ from a lesser distance. An entangled neutrino is captured between $a_{1,1}$ and $a_{1,2}$. Two entangled neutrinos act more like waves than particles at 0.9992***c***. An analogy to entangled neutrinos motion is waves in a watering trough, sloshing between the ends; the trough is the tube of space, the water is the neutrinos.

33.1.1. Neutrinos as Charge-Force Transfer Medium
The neutrinos functioning in charges-forces are those of entangled neutrinos of single electrons. Two electrons occupying the same space by rotating oppositely have no single neutrinos with which to share neutrinos. Single electrons can provide docking space for roaming neutrinos to momentarily dock. There is no true charge-force; charge-force is mass-force of entangled neutrinos between two electrons. Charge-force between two electrons is at a constant maximum because in relativistic space there is no measure of distance or time. Only the offset generated by DeBroglie wave mechanics remains with the neutrino.

33.1.2. Aggregate Charges Attraction
Aggregate charge forces are outside the domain of the first mass-force term and within the domain of the second mass-force term. The third mass force term is insignificant in the domain of the second term, and becomes important only for free neutrinos in the great quantities as in cosmic space.

The energy-space of aggregated charge-forces is Galilean; the force of attraction between positive and negative charges is proportional to the inverse radius squared. The direction of force is determined by the polarities of Q and q. The charge-force is directed by charge polarity combination, following the multiplication rule for + and — sines.

$$\text{Force} = \check{r}Qq(r - a_{1,1})^{-2},$$

Attractive (negative) if Q and q are of opposite sine, and repulsive (positive) if Q and q are of the same sine. The first and third terms contribute insignificant forces in the Galilean space.

33.1.2.1. propositions 33.1.2.1.-1 on Particle Forces –
All leptons are two entangled neutrinos. Electrons having 0.511 MeV of dynamic radial energy, muons having 105.7 MeV dynamic radial energy, and tau particles having 1.777 GeV of dynamic radial energy; all charge space being directed by unit vector j, All three leptons spin at the maximum tangential radial speed of ***c-***, creating ½h of spin energy in magnetic space directed by unit vector k . The defining DeBroglie wave length is smaller with each increase in energy. The frequency of vibration remains undefined for each of the three lepton particles. The entangled neutrinos' speeds are associated with the three defining energy levels, but are not fixed; the mass any particular lepton is dependent on its environmental history.

33.1.3. The Inverse Square Law Of Static Electricity
The radius of separation is $a_{1,1}$ in entangled neutrino-space, where time stops and distance (r) is zero, the maximum force is limited only by $a_{1,1}$, and the dwell time is near zero. The charge-force between host lepton-neutrinos while docking repetitively project back onto Galilean space as continuous. The solid angles between aggregated charges and repetitive randomly distributed visitations of the neutrinos implements the inverse distance squared force characteristic of aggregated charge-force.

33.1.3.1. Filling One Quantum Of Space
The ½h spin-spaces of each of the two neutrinos from the boson and the negative lepton complete one quantum of space. The combining spin-spaces of the two neutrinos sharing one quantum of mass-space lowers the potential energies of both neutrinos, which is the driving factor for their combining.

33.1.3.1.1. (PROPOSITION on boson construct)
The Boson has two paired and one unpaired neutrino. The unpaired neutrino can momentarily host roaming neutrino. This provides an entangled connection between the host boson and a remote roaming neutrino, imbuing the boson with its positive charge characteristic.

33.1.4. Particle Charge Attraction
The mass-force first term's force contribution ($f_{1,1R}$) between electron-neutrino's is attractive when $r > a_{1,1}$:

$$f_{1,1R\ (\text{electron neutrino})}\ (r > a_{1,1}) = G(n)(\acute{n})(r - a_{1,1})^{-3}, \qquad \text{negative and attractive}$$

33.1.4. No charge force
When a lepton-neutrino finds no single neutrino it returns to its COM with no force exerted, neither attractive or repulsive. Charge space is created and occupied by the lepton-neutrino. Particle **charge** force ($f_{2,1}$) is **mass** force ($f_{1,1}$) of the neutrino.

33.1.4. Mass Force Created Charge Force

Take note of the subscripts 1,1. The charge force between particles and charge potentials are implemented by the mass equations. There are no charge characteristics in a solitary free neutrino. Force comes from the position and dynamics of entangled neutrinos: speed and spin direction creating an entangled space between leptons. Repulsive charge force is generated when r is less than $a_{1,1}$ and when an entangled neutrino finds no single neutrino. When no leptons or ions are present, no force is created. [The charge equation ($f_{2,n)}$ is applicable to aggregate charges only.]

33.1.4. Charge Potential Is Created By Mass Potential Of Entangled Electron-Neutrinos

Charge potential is created by the presence of a lepton. Charge potential defines charge space:

$$\text{Charge Potential} = f_{\text{electron neutrino}} \div (\acute{n}) = G(n)(r - a_{1,1})^{-3}$$

Charge space can exist without a resultant force.

33.1.5. **Charge Force is Created by the Electron-Neutrino's Mass Force**

Charge force is created by mass force between two neutrinos.

$$\text{Charge force} = f_{1,1R\ (\text{electron neutrino})} = G(n)(n)(r - a_{1,1})^{-3}$$

33.1.5.1. Neutrino's entangled space

In entangled electron-neutrino relativistic space, distance is of near-zero measure and the time nearly stops, and attractive inter-lepton force transfers in a Near Denver Instant.

33.1.5.2. Path of force transfer

As a single lepton-neutrino encounters another lepton-neutrino, their developed force is transmitted back to the two COMs through the contiguous broken path of the neutrinos in a Near Denver Instant; a Galilean straight path is not a criterion for entanglement.

33.1.5.3. Electrostatic Attraction

Electrostatic Attraction is the summation of charge forces from an aggregation of charge particles. Charge force is an intraparticle phenomenon, attractive or repulsive, along a line between the particles. Electrostatic force is an aggregate charge phenomenon that evokes inverse radius squared relationship. In charge aggregation the two dimensional excursions of neutrinos over the solid angle of every lepton in the aggregate imbues the inverse square characteristics of Coulombs Law. The electrostatic attraction comes from negative lepton-neutrinos docking with a like spinning proton-neutrino, resulting in an attractive force back to both co-docked neutrinos' COM, with the maximum force of $-G(n_{\nu\text{-}})(n_{\nu\text{-}})(-a_{1,1})^{-2}$ with zero time delay.

33.1.5.4. (Neutrinos' functionality)

An atom's orbiting electron's neutrino will penetrate into the nucleus of an atom and co-dock with a protons single neutron of like spin. The connection has no relativistic distance and dwells for zero time; concurrently time and distance projects back onto Galilean space as continuous and the diameter of the orbit. The frequency of the neutrinos vibration sets the radius of the orbit. Two electrons occupying the same energy space rotate in opposite directions. The rotation of the electrons' vibrating neutrinos does not change the radial (charge) functionality of the neutrinos. When the electron's neutrinos are co-docked with proton neutrinos, the vibrating neutrinos are pulled back to their respective proton and electron COMs through their entangled space.

33.1.6. Magnetic Cancelation in an Aggregation Of Electrons

In the macrocosm of a static charge, the electron-neutrinos' magnetic fields align north to south, cancelling the net magnetic field, leaving only radial neutrinos' vibrational motion to create the charge-field.

33.2. CHARGE-space –
A negative charge-force describes an attractive force; positive charge-force describes a repulsive force. Attractive force and repulsive force do not describe positive and negative space, but charge space with changing force directions. The direction of force between charges depends upon the polarity of two charges and the magnitude of force depends upon the magnitude of the two charges and distance between them in accordance with the charge-force formula. Charge space is always positive; space is always positive.

33.2.1. charge-Force within the Nucleus
within the nucleus charge-force will attract protons to each by the negative attractive first term of the Charge-force equation:

$$r < a_{2,1}, \qquad f_{charge} = Qq\check{r}\, E(r - a_{2,1})^{-3} < 0.$$

33.2.2. Charge-Force Outside The Nucleus
The first term of the mass-force Equation is positive (repulsive) for all fermions within the nucleus:

$$r < a_{1,1}, \qquad f_{mass} = -GMm\check{r}\, A(r - a_{1,1})^{-3} > 0.$$

***33.2.1. Nucleus Location of fermions* (TBD)**
Protons will be positioned in accordance with a Schrödinger-like probability distribution wave function applicable to the nucleus, still to be determined (TBD). Protons of opposite spin will share relativistic space by pairing electrons north to south, thereby canceling their magnetic fields. Within the nucleus, the charge forces are attractive. Atoms of even atomic numbers have zero magnetic spin; atoms of odd atomic numbers have magnetic spin of one-half quanta of energy.

33.2.1.1. Schrödinger-type nucleon wave equation (TBD)
An anticipated new Schrödinger-type nucleon wave equation will determine the distribution probability of protons and neutrons and their quantized spaces within the nucleus. The new nucleon wave equation will limit the number of neutrons that can be captured.

The Schrodinger-type nuclear wave equation will define probability function for fermions energy-spaces.

33.2.2. Fermion spin proposal
Fermions of opposite spin can share relativistic space and cancel spin momentum and magnetic fields. The nucleus will have magnetic spin values of zero or multiples of one-half quanta of energy.

33.2.3. Charged particle proposition
All masons, baryons, leptons (electrons, muons, and taus) are composed of neutrinos bonded in composite configurations of paired or single neutrinos generating attractive or repulsive charge particles through entangled neutrinos sharing or not sharing Lorentz shortened near relativistic space, transferring forces in near Denver Instances.

33.2.4. Conclusions from Muon Decay
Muons decay into an electron and two neutrinos. Two configurations for the muon are suggested: 1) Four neutrinos fill 2h of mass-space in two orbits. 2) Four neutrinos fill four 1/2h quanta of mass-space in four orbits. The first configuration would not provide single neutrinos that would provide 1/2h docking space that would imbue positive charge force. The muon must be an electron with two additional neutrinos of opposite spin and higher energy (and shorter DeBroglie wavelengths) that provide the higher mass of the muon with docking spaces for other roaming neutrinos.

33.3. AGGREGATED CHARGE –

The Unified force field for charge was hypothesized and formulated as created by an aggregation of electrons, with the electron as the exemplificative source of electric charge. Therefore, the first effort in defining charge-force is proposing a model for the electron that affects repulsion for like charges and attraction for unlike charges in the domain of Galilean space. Galilean space herein is from the atomic outer electron orbit to the furthest galaxy.

33.3.1. Aggregate of Charges

The force direction between two charges is dependent upon the charges being of like or opposite in sign, like charges repelling, unlike charges attracting. The absolute value of each source's charge-potential defining its charge-space. While force direction is dependent on two polarities, space is always positive; there is no negative space.

33.3.2 Aggregated Charge-Force

The force between electrons is conveyed through the entangled neutrinos' created relativistic space, similar to photon-space, with the exception that the leptons' spinning neutrinos keeps the relativistic space active. [upon the photon's absorption and loss of propagation speed, photon-space collapses.]

33.3.2.1. Radial offset is nonrelativistic

The minimum relativistic distance between two entangled neutrinos is $a_{1,1}$; the radial offset is nonrelativistic. Therefore minimum Galilean distance between two entangled neutrinos is$a_{1,1}$; the square root of two is a factor because it accounts for the fact that the two neutrinos' planes of vibration are at right angles. Entangled, there is no relativistic measure of radial separation between the two electron-neutrinos, but the measure of radial offset is indigenous to the neutrino.

33.3.2.2 Force of Attraction Between Positive Boson and Negative Leptons

The attractive between the electron and a remote boson is that of entangled neutrinos, the electron-neutrino and the boson-neutrino. One of the entangled electron-neutrino docks at the single (un-pared) boson neutrino. The force between electron-neutrinos and boson-neutrinos while docked is described by the mass-force equation without the Galilean radial entity. In relativistic charge-space there is no measure of distance; r is zero in the charge-force equation. The offset $a_{1,1}$ is with respect to the electron-neutrino, and remains in the equation:

$$f_{Charge}\,(r_R \equiv 0) = G\,nń\,[10^{4}(0 + a_{1,1})^{-3} + 10^{0}\,(0 + a_{1,2})^{-2} + 10^{-12}(0 + a_{1,3})^{-1}]\,,$$

Where r_R is the relativistic distance between the electron's COM and the electron's neutrino. The radial offset is created by and germane to the neutrino's wave characteristics, and therefore moves with the particle, not reduced by Lorentz's radical. "$r_R \equiv 0$" formulates relativistic distance as zero, and replaces r_R by " 0" in the charge-force equation above.

33.2.2.3 the relativistic stand-off distance created by one neutrinos is $a_{1,1}$. However, two neutrinos sharing one quanta of energy space while co-docked, rotate side by side with a common COM, sharing one quanta of i energies space.

33.2.2.4. Neutrino proximity PROPOSITION

Two nonentangled, not synchronized in spin, neutrinos cannot get closer than the radial offset.

33.2.2.5. medium of charge force transfer

The neutrino is the transfer medium of lepton charge-force, whether tau, boson or electron. All charge-space is neutrino space; the direction of force depends upon the radius of Galilean separation and the polarity of the charge source. The neutrinos' relativistic space is "almost" orthogonal by virtue of it's "near" light velocity ***c-***;

the projection of entangled neutrino space onto Galilean space is minuscule. A positive force field describes radially *repulsive* force in a positive charge-space for like charges. A negative force field describes an *attractive* force in a positive charge-space for unlike charges. Space is created by occupancy, and space (always positive) is independent of the direction of the force.

33.2.2.5.1 particle force transfer proposition The charge force transfer medium is entangled-neutrinos in relativistic space. Charge force transfer happens in a Near Denver Instant. The charge-force intensity is this limited in amplitude by the offset $a_{1,2}$, and therefore independent of Galilean separation.

33.2.2.6. The electron-neutrino force direction
Entangled electron-neutrinos share near-orthogonal mass-spaces, similar to the mass-space of entangle photons. Within the radial distance $r < a_{1,1}$, the first term of the mass force equation is dominant, positive and repulsive. Attraction begins at the measure of $r > a_{1,2}$.

$$a_{1,2} = 7.831228 \text{ X } 10^{-9} \text{ meters}$$

the Galilean radii at which the mass-force between entangled electron-neutrinos reverse direction is $a_{1,1}$ and $a_{1,2}$. When r approaches $a_{1,1}$ from $a_{1,2}$, the mass-force approaches infinite repulsion; when r approaches $a_{1,2}$ from $a_{1,1}$, the force approaches infinite attraction. The electron-neutrino pair are captured between infinite repulsive force at the $a_{1,1}$ and infinite attractive force at the radius $a_{1,2}$. The reversals in force direction, the absence of energy loss, and the absence of measure in distance and time enables continuous (never stopping) vibrations of the electron-neutrinos between these two limits. The Gamma-ray's dynamic energy is stored in the two electron-neutrinos the vibration between $a_{1,1}$ and $a_{1,2}$. When an entangled electron-neutrino reaches either boundary, the force direction changes and the neutrino appears at the other boundary in a near Denver Instant.

33.2.4.3.6.1. (Closest approach of electron-neutrinos)
Electrons at thermal speeds can accumulate within 7.831228 X 10^{-9} meters, $a_{1,2}$, to form aggregate charges without repulsive forces forcing them apart. Electrons as current in wires and charges on a conductor and insulators can congregate without blowing each other off the conductor.

33.2.5. Electron-space proposition
Energy-forces of an electron are mass-force, charge-force, and magnetic-force. The three co-created spaces are relativistic Galilean mass-space, relativistic charge-space, and relativistic magnetic-space. The two entangled neutrinos, vibrate radially at a random (R) lateral angle of Rθ (spherical coordinates assumed) and at random longitudinal angle RØ, and rotate with a tangential velocity of $rd\theta/dt < c$. The sum of the relativistic radial energy and the relativistic tangential energy of the electron neutrinos is the energy of the gamma ray that is emitted upon the decay of the electron. The rotational motional creates relativistic magnetic field with spin energy of ½h. The radial and tangential velocities are below the speed of light, c-, because of the neutrino's miniscule mass.

33.2.6. Energy Distribution within the Electron
The charge space in the electromagnetic gamma ray is the charge space created by the dynamic energy of the electron-neutrino radial motion. Magnetic space in the gamma ray is the magnetic space created by the rotational motion of the electron-neutrino. Mass-space in the electron is created by the presence of mass in the electron-neutrino. These energies cannot propagate because they include the mass of the neutrinos, therefore the energy cannot reach propagation speed of light..

33.2.7. Planck's Constant ***per Radian***
The scientific symbol for Plank's constant of quantized energy, ħ, in joules per **radian** is:

$\hbar = 6.626068 \text{ X } 10^{-34} m^2 kgs^{-1}$

33.2.7.1. Planck's Constant ***Per Wavelength***
The scientific symbol and value for plank's constant of quantized energy per **wavelength** is h:

$h = \hbar/2\pi = 1.280265 \text{ X } 10^{-34} m2kg\ s^{-1}$

33.2.7.3. Mass-force of an electron-neutrino
Entangled electron-neutrinos have no associated fermions; there is no nucleus from which to estimate radial distance. Their radial offsets for the first and second mass-force terms are determined by their DeBroglie wavelengths, which in turn are dependent on the speed of the neutrinos, which is fixed at that necessary to achieve the 100 Lorentz ballooning radical that sets the almost constant variant mass of the electron. Although entangled electron-neutrinos have a unique range of existence between offsets $a_{1,1}$ and $a_{1,2}$, the Galilean span of range between offsets $a_{1,1}$ and $a_{1,2}$ is momentum dependent.

42.1.2.2.3. (The Boson Snap)
Internal Boson forces increase as they are pulled toward $a_{1,1}$; as they are pulled through $a_{1,1}$ the attractive force suddenly becomes repulsive. This results in the observed physical snap.

42.1.2.3. Aggregate charge-force attraction
Aggregate charge forces are outside the Galilean domain of the first mass-force term, and within the domain of the second mass-force term. The third mass force term is insignificant in the domain of the second term, and becomes important only in great quantities of neutrinos in cosmic space (which is not aggregated charges but a conglomeration of particle forces).

42.1.2.4. Charge particle attraction
Particle attraction is conveyed by entangled neutrinos between individual charge particles.

42.1.2.4.1. (Electron-boson attraction)
Because there is no measure of distance in relativity space of aggregated charge-forces (r = 0), the force of attraction between charges of opposite sign is:

$$\text{Charge-Force}_{\text{electron-neutrino \& boson-neutrino}} = GMm(0 - a_{2,2})^{-2},$$

and attractive because the boson (M) is positive and the electron (m) is negative. The maximum force is limited because the neutrinos are at a relativistic separation of $a_{2,2}$. The first term's maintains separation of $a_{2.1}$. The electron-neutrino and the muon-neutrino momentary (in a space that has no time) share one quantum (h) of space. The ½h spin-spaces of each of the two neutrinos complete one quantum of space. The combining spin-spaces lower their potential energies of both neutrinos, which is the driving factor for their combining.

42.1.2.4.2. Bosons have unpaired neutrinos that can momentarily host an electron-neutrino. This provides the entangled connection between the host boson and the remote electron-neutrino. The radius of separation is $a_{1,1}$ in entangled neutrino-space, where time stops and distance (r) is zero, the force is maximum limited only by $a_{1,1}$, and the dwell time without measure. The charge-force between boson and electron-neutrinos while docking repetitively projects back onto Galilean space as continuous. The solid angles between aggregated charges and repetitive randomly distributed visitations of the neutrinos implements the inverse distance squared force characteristic of aggregated charge-force.

42.1.2.9. Particle charge-force attraction

The electrostatic attraction comes from negative electron-neutrinos docking with an unmatched positive bosons-neutrino, resulting in an attractive mass-force back to entangled neutrinos' COM with the maximum force of:

$$F_{n,,\acute{n}} = -G(n\bar{v})(\acute{n}\bar{v})(a_{1,1})^{-3}$$

42.1.2.10. Proton – electron attraction

The electron has been described as a pair of entangled neutrinos that are locked about a spherical void. They are attracted to a put that has a single neutrino of like rotation. Attraction comes from one electron-neutrino's momentarily docking with the proton' s single (unpaired) neutrino.

42.1.2.10.1. Proton proposal

A proton is an electron with an additional neutrino of higher speed, resulting in a smaller $a_{1.1}$ radius offset. The third proton-neutrino orbits' perigee is within the electron's centre of mass creating a smaller spherical void. This third neutrino has no entangled proton-neutrino with which to share its half quantum of space.

42.1.2.10.1. Proton energy analysis

The electron's mass is = $9.10938188 \times 10^{-31}$ kilograms [,3]

The proton's mass is = $1.67262158 \times 10^{-27}$ kilograms [,2]

The mass of the additional proton-neutrinos is 1.671711×10^{-27} killograms.

The ballooning factor γ^{-1} is:

γ^{-1} = $(1.671711 \times 10^{-27}$ kilograms) ÷ $(9.10938188 \times 10^{-31}$ kilograms) [,3]
= 1,835.153 092621

$\gamma^{-1} \equiv [1 - v^2/c^2]^{1/2}$, Squaring

$\gamma^{-2} = [1 - v^2/c^2]$ Solving for v

$v = +/-c(1 - \gamma^{-2})^{1/2}$

$= 299{,}792{,}458\ [1 - (1.835153 \times 10^3)^{-2}]^{1/2}$

v = 299,792,413.5 m/s, the velocity required to balloon the third proton neutrinos.

γ = .000000074

γ^{-1} = 13,513,51351,3…

The Galilean mass of the added neutrino is the mass increase of the proton's third neutrino by Lorentz's ballooning inverse radical, γ^{-1}.

42.2. AGGREGATE CHARGE-FORCE AND CHARGE-SPACE
Addressed is an aggregate of charges sources. Not addressed is the source of the charge-force and charge-space, this is addressed in the "Electron Construct" paragraph.

42.2.**1 Charge-Force Within the Nucleus**
Within the nucleus protons will be attracted each other, and toward the center of the mass by the negative (attractive) first term of the Charge-force equation:

$$r < a_{2,1}, \qquad f_{charge} = Qq\check{r}\, E(r—a_{2,1})^{-3} < 0.$$

42.2.2. **Mass-force within the nucleus**
The first term of the mass-force Equation is positive (repulsive) for all fermions within the nucleus:

$$r < a_{1,1}, \qquad f\ mass = -GMm\check{r}\, A(r—a_{1,1})^{-3} > 0.$$

42.2.2.-1 **Nucleons' Position PROPOSITION**
All nucleons will be on the surface of the nucleus.

42.2.2.1. Nucleon magnetic Spin
Protons will be positioned in accordance with a Schrödinger-like probability distribution wave function applicable to the nucleus. Protons of opposite spin will share relativistic space and cancel magnetic fields. The nucleus should have magnetic spin values of zero or one-half quanta of energy.

42.2.2.2. The new Schrödinger-type nucleon wave equation is anticipated to determine the distribution probability of protons and neutrons and their quantized spaces on the surface of the nucleus. This equation will limit the number of neutrons that can be maintained in a nucleus, its stability, and decay half-life.

43. boson construct

32.1. Known Facts about the Boson.
"Bosons have integer spin. The fundamental forces of nature are mediated by gauge bosons, and mass is *hypothesized* to be created by the Higgs boson. According to the Standard Model (and to both linearized general relativity and string theory, in the case of the graviton) the elementary bosons are:

Name	Symbol	Antiparticle	**Charge (e)**	Spin	Mass (GeV/c^2)	Interaction mediated	Existence
Photon	γ	Self	0	1	0	Electromagnetism	Confirmed
W boson	W^-	W^+	−1	1	80.4	Weak interaction	Confirmed
Z boson	Z	Self	0	1	91.2	Weak interaction	Confirmed
Gluon	g	Self	0	1	0	Strong interaction	Confirmed
Higgs boson	H^0	Self?	0	0	> 112	None	Unconfirmed
Graviton	G	Self	0	2	0	Gravitation	Unconfirmed

Note that the graviton is added to the list although ***it is not predicted*** by the Standard Model, but by other theories in the framework of quantum field theory.
The Higgs boson is ***postulated*** by electroweak theory primarily to explain the origin of particle masses. In a

process known as the Higgs mechanism, the Higgs boson and the other fermions in the Standard Model acquire mass via spontaneous symmetry breaking of the SU(2) gauge symmetry. In some theories the Higgs mechanism does not require the existence of a Higgs boson.[*citation needed*] ***It is also the only Standard Model particle not yet observed*** (the graviton is not a Standard Model particle). Assuming that the Higgs boson exists, it is expected to be discovered at the Large Hadron Collider. Moreover, the Minimal Supersymmetric Standard Model (MSSM) predicts several Higgs

http://en.wikipedia.org/wiki/List_of_particles#Bosons

44. ENERGY-SPACE DEFINITION

44.1 PHOTON -
Since the photon is energy without mass, it creates and occupies one unit of space. The photon is comprised of charge and magnetic spaces having one Planck's constant of energy and one wavelength length. The one quantum is shared in quadrature between charge and magnetic spaces, regenerating each other. The space created is one quanta of energy-space created and filled by the photon.

42. Particle Construct

42.1. Neutrino As The Building Block -
The neutrino is the smallest particle. Neutrinos are assumed to be the building block of all mater. This section describes the construct of the more simple nucleons. It is left to the Physics Community to finish the description of more complicated physical entities.

42.1.1. *Boson Construct*
The boson is three neutrinos, two in entangled electron-neutrino configuration, and one free neutrino vibrating about a smaller spherical void con-centric with the electron's COM. The added mass is from relativistic ballooning of the third neutrino with energy equal to the increased internal energy of the boson over that of the electron. The higher dynamic energy results in a shorter DeBroglie wavelengths and a smaller orbit at the perigee. The single neutrino forms a sphere at the perigee. The single neutrino stands off from itself, as there is (almost) no time lapse at ***c-,*** the neutrino is (almost) everywhere at once. It might be visualized as being a smear of neutrino that pushes against itself with the radial standoff of $a_{1,1}$. Again, the frequency of vibration is not a construct requirement of the third neutrino of the boson; lower frequency makes the orbits of the boson-neutrino overlap the electron-neutrino, the boson-neutrino eclipsing the electro-neutrino s orbits.

42.1.2. Boson Decay Eventually, upon collision of the neutrinos, the higher energy neutrino is freed from the boson. The boson decays into an electron and a high energy neutrino**.**

42.2. W-BOSON CONSTRUCT–
The W-boson decays into an electron and a neutrino, leading to the conclusion that the W boson (W-) is comprised of electron-neutrinos with one boson-neutrino in a smaller vibrational orbit. The 80.4 GeV/c2 of mass manifests itself in extremely short DeBroglie wavelengths, to make a new very small spherical void about the W-boson's COM. The single nonentangled boson-neutrino provides a docking point for electron-neutrinos. The docking is the sharing of one quanta of space with the one-half quanta spin of the single boson-neutrino and one half-quanta spin of the electron neutrino. Being attractive to the negative electron, the W boson has the charge sign of positive. The third boson neutrino has the same spin direction as the electron-neutrino, making it attractive to an electron neutrino of the same spin.
42.3. THE Z-BOSON CONSTRUCT–

The Z boson is an electron with two extra boson-neutrinos of the same spin, such that the two additional neutrinos co-occupy one full quanta of space. The two boson-neutrinos with shorter wavelengths are of higher dynamic energy than the W boson, occupying the same quantum space. The two pair of neutrinos spin oppositely resulting in no spin. The two pair of entangled neutrinos are in orthogonal charge- and magnetic-spaces. The two Boson-neutrinos nest inside the electron-neutrinos; the electron-neutrinos are of lower energy resulting in larger DeBroglie wavelengths. The two added neutrinos provide no ½h docking space for external sourced neutrinos, resulting in no charge sign for the Z-boson.

42.4. HIGGS BOSON PROPOSITION–

It is suspect that Higgs Boson is a wave function having characteristics similar to the Gluon. This will be supported or disproved by the Cern Collider.

32.2. THE BOSON POP–

The Boson's internal cohesive attractive forces increase as they are pulled outward toward $a_{1,1;}$ as the boson is pulled through $a_{1,1}$, the attractive force suddenly becomes repulsive, resulting in a physical pop.

42.6. THE GLUON PROPOSITION–

The Gluon is not a particle but the force created by the mass-force equation's first and second term, where the first term approaches maximum repulsion and the second term approaches maximum attraction, adhering all fermions on the surface of the nucleus. the Gluon is a force created by wave mechanics.

35. Neutron Capture

35.1. Mass Force Alone–

Charge and magnetic forces are not in mass space; attractive mass force in addition to inward radial momentum of the neutron will attract the neutron toward the surface of the nucleus. Therefore, attractive mass-force outside the nucleus must overcome only the thermal momentum of neutrons to achieve their capture. There is a small span of speed where a neutron can be captured, these are the thermal speeds that are a requirement for neutron capture. The captured neutron will be attracted toward the nucleus' COM and stopped on the surface by inside repulsion. The neutron is held on the surface of the nucleus by inside repulsion and outside attraction.

35.1.1. Mass-Force of Neutron Capture

The equation explaining neutron capture is that of the mass-force; where the two masses in the force equation are the capturing nucleus, N, and the free neutron, n. Charge and magnetic forces are not involved in neutron capture.

Substituting N and n into the Unified mass-force equation yields the neutron-capturing mass-force equation:

$$f_{mass}(\text{neutron capture}) = -NnG\check{r}[10^{4}(r - a_{0,1})^{-3} + 10^{0}(r - a_{0,2})^{-2} + 10^{-12}(r - a_{0,3})^{-1}]$$

Where: G = gravitational constant
N = nucleus mass
n = neutron mass
$a_{1,1}$ = nucleon domain repulsion radius of neutrons
r = separating distance between the nucleus and the free neutron
ř = a unit vector positive in the direction of increasing r.

35.1.1.1 At radii greater than $a_{1,1}$

At radii greater than a1,1,(r > a1,1), the first term, $-NnG\check{r}A(r - a1,1)^{-3}$, is negative and attractive.

35.2 CAPTURE FORCES -
In the process of neutron capture, the mass-force's first term and second terms are paramont. At radii less than a1,1 (r < a1,1) the first term of the mass-force, — NnGřAf(r— a1,1)-3 is positive and repulsive; within the nucleus (r < a1,1) force is positive and repulsive. The force between fermions (within the nucleus) and neutrons outside the nucleus will be negative and attractive. Within the nucleus, fermions will repulse from each other. The captured neutrino and all uncharged fermions will be forced onto the surface of the nucleus.

36. Electron and muon construct

36.1 SIMILARITIES BETWEEN ELECTRONS AND MUONS-
The electron and muon are of similar construct in that electron decays into two same rotating neutrinos and an x-ray; the muon decays into two oppositely rotating neutrinos, an electron, and a gamma ray. The muon's construct is proposed to be an electron with two additional neutrinos of higher energy. The higher energy accounts for the higher speed resulting in higher mass of the muon, and the shorter DeBroglie wavelength that allows the second pair of neutrinos to orbit about a smaller void core inside the electron's core. The inevitable intersection of the two sets of overlapping orbits of the four neutrinos is the probable cause of the short life of the muon. The lossless construct or the electron and inherent avoidance of collision of the entangled electron-neutrinos of like spin accounts for the stability and durability of the electron.

36.1.1. Muon's DeBroglie Wave Length.
DeBroglie stated that every entity with momentum, regardless of speed has a wave associated with it. DeBroglie's formula for the wavelength of a particle of moving mass is:

$\lambda_g = h\, m^{-1} v^{-1} (2\pi \text{ radians/wavelength})\text{-}1$

where:
h = plank's constant in joule-seconds per radian,
m = mass, and

λ_g (electron-neutrino) = 2.426796×10^{-10} meters *****

waves consist of a full cycle. Planck's constant has units of Joule seconds per radian; division of joules seconds radian by radians per wavelength results in plank's constant having units of seconds to wavelength.

36.1.1.1. Electron-neutrino's required speed –
There is a unique speed of the electron neutrinos where the neutrinos are ballooned fifty times so that the two neutrinos have relativistic mass of the electron. The Galilean speed required to balloon the mass of two electrons 50 times (calculated on pages 79 and 80) is:

$v_{\text{electron-neutrino}} = v_{\text{electron-neutrino}} = 299{,}732{,}493.5$ m/s = ś

RE ***25.6.1. Speed of Entangled Electron-Neutrinos***

36.1.1.2 The two ν^- neutrinos are caught between the positive (repulsive) mass-force at $a_{1,1}$ and the negative (attractive) mass-force at $a_{1,2}$. Moving at 299,732,493.5 meters/second, neutrinos create a Lorentz-contracted space that can be shared only with other neutrinos. The two electron-neutrinos are entangled by the common epoch at the passing of the void center. Being of the same spin the two neutrinos, with ½ quanta of energy each, create and occupy one quantum of energy-space. The Heisenberg uncertainty principle assures random radial distribution of direction angles after each meeting at the perigee.

36.1.2. ***Lorentz's Ballooned And Contracted Domains***
The factor by which the Lorentz-ballooning from relativistic space to Galilean space, that affects $a_{1,1}$ and $a_{1,2}$ is:

$\gamma^1 = (1 - v^2/c^2)^{1/2}$

$\gamma^1 = (1\text{-}0.999{,}799{,}98)^{1/2} = 50.0$

$\gamma^{-1} = 0.02$

36.1.2.1. electron-neutrino DeBroglie wavelength The DeBroglie wavelength of the electron-neutrino is fixed by the required ballooning of the neutrino.

De Broglie's wavelength: $\lambda_G = h/mv$

The Galilean DeBroglie wavelength of one electron-neutrino in Galilean measure:

$\lambda_G(\text{electron-neutrino}) = h/(n_{\text{neutrino}})(v_{\text{electron-neutrino}})$

Where:

$\hbar = 6.626069 \text{ X } 10^{-34} \text{kg m}^2 \text{ s}^{-1}$

$n_{\text{neutrino}} = 9.10938188 \times 10^{-33} \text{kg}$

Substituting for h, n, and v:

$\lambda_G \text{ (electron-neutrino)} =$

$(6.626069 \text{ X } 10^{-34} \text{kg m}^2 \text{ s}^{-1}) \div (9.10938188 \times 10^{-33} \text{kg})(299{,}732{,}493.5 \text{ ms}^{-1})$

25.6.1. Speed of Entangled Electron-Neutrinos

$\lambda_G \text{ (electron-neutrino)} = 2.426796 \text{ X } 10^{-10} \text{ meters}$

36.1.2.2. *The relativistic wavelength of the electron-neutrino* The relativistic wavelength of the electron-neutrino is:

$\lambda_R \text{ (electron-neutrino)} = \gamma \lambda_G$

$\gamma^{-1} = [1 - 0.9996]^{1/2} = 2.0000 \text{ x } 10^{-2}$

$\lambda_R(\text{electron-neutrino}) = (2.0000 \text{ x } 10^{-2})(2.426796 \text{ X } 10^{-10} \text{ meters})$

$= 4.853592 \text{ x } 10^{-12} \text{ meters}$

36.2 Electron's Magnetic-space- The electron's self-induced spin from the initial offset (there being no counter rotational force) causes following collisions to accelerate the electron-neutrinos tangential velocity to c-. When the electron-neutrino rotating flux reaches relativistic tangential velocities, there is shortened measure of distance and time in the direction of rotation. This tangentially warped relativistic space is magnetic-space, making the spinning electron the unit source of magnetism. In the direction opposite to rotation there is a magnetic void.

36.2.1. Ratio of the Energy-Space Electron Diameter to the rqmc electron diameter. - The best published estimate for the diameter of an electron is the rqmc radius (Galilean measure is assumed).

$R_G QMC = 6.70 \times 10^{-13} m.$

The radius of the spherical void about the electron's center of mass is the two and a half times the DeBroglie wavelength, $a_{1,1}$, ballooned by Lorentz's radical squared. (within Planck's constant there are three dimensions in the numerator and one dimension in the denominator that are reduced by Lorentz's radical.)

$a_{1,1G} = (2.426771 \times 10^{-10}) \lambda_G$

$\lambda_G = (2.426771 \times 10^{-10} \text{meteres})$

Lorentz contraction for two relativistic factors in h.

$\gamma = [1 - \acute{s}^2/v^2]^{-1/2} = [1 - (299732493.5)^2 \div (299,792,458)^2] = 0.02$

Lorentz's ballooning factor is:

$\gamma^{-1} = 50$

Radius Electron's relativistic diameter two and half times the radial offset times the ballooning factor hundred

$\boldsymbol{R}_{\text{electron}} = 2.5\, \gamma^2\, a_{1,1\,G}$

Radius Electron's relativistic diameter = $2.5\ (2.5 \times 10^3)\ (2.426771 \times 10^{-10})$

$a_{1,1R} = 4.852262 \times 10^{-13}$

The Galilean radius of the electron's spherical void core from the entanglement of two electron-neutrino is:

Radius Electron's Galilean diameter = $4.852262 \times 10^{-13} m$

The ratio of the electron neutrino-electron's Galilean radius divided by the RQMC Galilean radius is:

$4.852262 \times 10^{-13} m \div 6.70 \times 10^{-13}\ m = 0.72$

36.2.1.1. The two-and-a-half relativistic De Broglie's wavelengths of the electron-neutrino makes reasonable the hypothesis that two entangled neutrinos compose the electron; however, this is not proof. The Energy-Space estimate defines the radius of the void core of the electron. This may be an accurate estimate of the void core, which is a hard kernel of nothingness centered about the electron's center of mass. The RQMC diameter may be a statistical measure of the neutrino flux surrounding the void core.

36.2.1.1.1. (No agreed mass or diameter for the electron)

There is no universally agreed value for the electron diameter in extant literature. The fuzzy nature of the radiating neutrinos makes exactly measurement of the electron impossible because, one: it cannot be seen, and two: what delineates the diameter? The electron is the size of its potential field. The RMS radius of the potential field is determined by the vibration frequency of the electron-neutrinos; while the speed remains relatively constant, the frequency of vibration is determined by the path length. Since the neutrinos' vibration frequency is not a defining parameter of the electron, it can resonate with the frequencies of nearby molecules. The variable path lengths of electron-neutrinos is Energy-Space argument for the historical lack of agreement

on the diameter of electrons, and the variance in speed accounts for the lack of agreement on the mass of the electron.

36.4. ENTANGLED Mass-Force Contribution By Term- In the mass-space created by **entangled** electron-neutrino there is Lorentz reduction in relativistic measure . Force exerted on one neutrino is transferred to the entangled partner in a Denver Instant. The direction of mass-force between entangled electron-neutrino depends upon the direction of approach of r to $a_{1,1}$.

Limit $(r \rightarrow a_{1,1} \_)$ $\{-\check{r}\{nn' G[r - a_{1,1}]^{-3}\} \rightarrow +\infty$ repulsive

Limit $(r \rightarrow a_{1,1} +)$ $-\check{r}\{nn' G[r - a_{1,1}]^{-3}\} \rightarrow -\infty$ attractive

Limit $(r \rightarrow 0 +)$ $-\check{r}\{nn' G[r - a_{1,1}]^{-3}\} \rightarrow -\gamma nn'(-a_{1.1})$ limited repulsion

Limit $(r \rightarrow a_{1,2} \_)$ $-\check{r}\{nn' G[r - a_{1,2}]^{-2}\} \rightarrow -\infty$ attractive

Limit $(r \rightarrow a_{1,2} +)$ $-\check{r}\{nn' G[r - a_{1,2}]^{-2}\} \rightarrow -\infty$ attractive

Limit $(r \rightarrow 0 +)$ $-\check{r}\{nn' G[r - a_{1,2}]^{-2}\} \rightarrow \gamma nn' G[-a_{1,2}]^{-3}$ limited attraction

Limit $(r \rightarrow a_{1,3} -)$ $-\check{r}\{nn' G[r - a_{1,3}]^{-1}\} \rightarrow +\infty$ repulsive

Limit $(r \rightarrow a_{1,3} +)$ $-\check{r}\{nn' G[r - a_{1,3}]^{-1}\} \rightarrow -\infty$ attractive

Limit $(r \rightarrow 0 +)$ $-\check{r}\{nn' G[r - a_{1,3}]^{-1}\} \rightarrow -\gamma nn'(-a_{1.3})$ limited repulsion

Where: $a_{1,m}$ is the general term offset for entangled neutrinos, that are assumed to differ from free neutrinos' offset because of the DeBroglie wavelength's dependency on momentum.

n and n′ are the 1/200 e.V. masses of the two neutrinos.

$a_{1,n}$ = radial offset of entangled neutrinos' mass-force n^{th} term.

Figure 36.4-1 The Electron's Construct

When r approaches $a_{1,1}$ from positive infinity, the force approaches infinite attraction. When entangled and r approaches $a_{1,2}$ from zero, the force approaches infinite repulsion. The first term being of inverse third order reaches toward infinite repulsion at a shorter radius than the infinite attraction of the second term. The entangled Electron-Neutrino is captured between $r > a_{1,1}$ and $r < a_{1,2}$ for eternity, with the dynamic energy of a gamma ray. An electron wedged between two forces can be forced to decays into a E-M gamma ray and two neutrinos at thermal velocities. The gamma ray gives testimony to the vigor of the electron-neutrinos' internal energy in frantic motion.

36.4.2.2. Electron-neutrino

Within an electron there is only the other neutrino from which to measure distance, there is no nucleus. In relativistic entangled neutrinos-space the distance between the entangled neutrinos is always $a_{1,1}$, as the speed dependant measure of ***r*** is reduced to near zero at the relativistic speed of the electron-neutrinos. Because of the infinite repulsive force at $r = a_{1,1}$ the neutrino mass-force first term's radial offset is the minimum distance between entangled electron-neutrinos. The maximum mass-force attraction between entangled electron-neutrinos is limited by $a_{1,2}$. Since neutrino offsets are a DeBroglie function of inverse momentum, entangled electron neutrinos offsets will be much smaller than those of free neutrinos at thermal speeds.

36.4.2.2.1.1. (Creation of charge and magnetic space)

The two counter-rotating neutrinos (each υ^-), of ½h spin each, occupy one quantum (1h) of negative spin-space. electrostatic and magnetic spaces and forces are simultaneously created by the vibrating and rotating electron-neutrinos: 1) by vibration, the electric charge-force and charge-space; 2) and by rotation, the magnetic-force and magnetic-space. Because the neutrinos are entangled, the forces transfer in a near Denver Instant. The electrostatic and magnetic spaces are mutually orthogonal by the orthogonality of their generation. The energy of a gamma ray imparts frantic relativistic motion to the electron-neutrinos.

36.4.2.2.1.4. (Docking and non-docking neutrinos)

Attraction - Leptons {electrons, positrons, and muons} can have unmatched neutrinos that have positive or negative rotation. If two leptons temporarily share neutrinos by remotely docking a neutrino in another Lepton's unmatched neutrino half-quantum space, the force transferred to both lepton's center of mass of is attractive; combining energy space by vector addition increases space creating a lower combined potential. Lower potential creates attraction.

36.4.2.2.1.5. Repulsive charge force generated when leptons, having single neutrinos (of opposing spins) unable to share a quantum of space, is reflected back over the entanglement path to both lepton's COM. Glazing contacts with unmatched neutrinos will reflect back force reduced by the cosine of the impact angle. The time delay for force transfer is near zero. A straight path is not a requirement of entanglement.

36.4.2.2.1.4. (Space without force)

Leptons whose single neutrinos do not connect with matched or unmatched neutrino have no force reflected to its COM; it completes its vibration journey without creating force. The neutrino does create a charge potential.

39.3. WAVELENGTH OF AN ELECTRON-NEUTRINO

36.4.2.2.1.5. (The Galilean DeBroglie Wavelength (λ_G)of One Electron-Neutrino)

The mass of the electron is 9.1093818 X 10^{-31} kg.

http://en.wikipedia.org/wiki/Electron

The DeBroglie wavelength of one electron-neutrino in Galilean measure is:

$$\lambda_{G(\text{electron-neutrino})} = h / (n_{(\text{neutrino})})(v_{(\text{electron-neutrino})})$$

Where:

$\hbar$ = Planck's Constant = 6.626068×10^{-34} m^2 kg radians/s
h = (Plank's reduced constant) = $\hbar/2\pi$ Joules per cycle/s
= 1.054668×10^{-34} Joules per cycle/s

The mass of a neutrino is one one-hundredth that of an electron:

$n_{neutrino}$ = 10^{-2} x (mass of the electron) =
= 10^{-2} x ($9.1093818 \times 10^{-31}$ kg)
= $9.1093818 \times 10^{-33}$ kg

$v_{electron}$ = (299,732,493.5 m/s)
RE *25.6.1. Speed of Entangled Electron-Neutrinos*

Substituting for h,n, and v:

$\lambda_{G(electron\text{-}neutrino)} = (1.054668 \times 10^{-34}) \div [(9.10938188 \times 10^{-33} kg)(299,672,541\ ms^{-1})]$
= 3.863365×10^{-11} meters.

36.4.2.2.1.5 Energy-space electron diameter vs. RQMC electron diameter The size of the electron is assumed herein to be two-and-a-half times its entangled neutrino's DeBroglie wavelength, corresponding to the assumed size of the neutrino offset, $a_{1,1}$: There has never been a consensus on the exact size of an electron because of the electron's fuzzy nature. Two electron-neutrinos to be entangled the, must have the same epoch and coordinates of emission. Because the mass force at radii less than $a_{1,1}$ is positive, and repulsive, the two electron neutrinos will never get closer than $a_{1,1}$. The result is the core of the electron is a spherical void of diameter of $a_{1,1}$.

36.4.2.2.1.6. (Near Perpetual Motion)
The lossless timeless travel at c-, and the boundaries of infinite force imbues the electron-neutrinos' near perpetual motion. Electrons have existed since the dark period following the Big Bang, demonstrated by the detection of Doppler shifted spectrum of elements from 13B years ago. Electron-neutrinos' motion cannot be declared perpetual until the end of the eon; therefore "near perpetual."

36.4.2.2.1.7. The products of an electron's disintegration are a gamma ray and two v- neutrinos. Rotating in the same direction, the neutrinos, in three phase relationship, fill one quanta of charge space and one quanta of magnetic space, and one quanta of mass space, rotating between the three spaces, in the direction of i (mass-space) x j(charge-space) x k (magnetic-space).

36.5. ELECTRON'S CHARGE- AND MAGNETIC-force ATTRIBUTE - The inverse square attribute of charge potential comes from random distribution of entangled neutrino penetrations over the unit sphere in relativistic space created by their near light speed of c-. The epoch offset sets the direction of the electron-neutrino's spin. The spin (without resistance) lasts until the electron's disintegration. After their epoch encounter, the electron-neutrinos' rotation accelerates until their tangential speed reaches c-. When the electron's rotating neutrino flux reaches relativistic tangential velocities, it creates a relativistic shortening of measure of distance and time in the direction of rotation. The electrons self-induced spin from the initial offset causes subsequent collisions to perpetuate the spin, accelerating the electron-neutrinos tangential speed to c-. The relativistic tangentially warped space generated in the direction of rotation is the magnetic flux of an electron; the electron is the source of all magnetic flux. The magnetic field is the relativistic tangentially warped electron-neutrinos' space. Neutrino space is mass-space; therefore, both the charge fields and magnetic fields of the electron are constructed by mass-space forces of neutrinos. It is the manner in which neutrinos interact between leptons that determine charge and magnetic force characteristics.

NN. Neutrinos in the Cosmos

~~*Edge view of the Milky Way*~~

~~*For more Images, Google: "Milky Way."*~~

~~*Proposal: Dark Matter constitutes 80% of its mass. of the Milky*~~

The packing of thermal neutrinos is that of spheres of radius $a_{1,1}$. The volume of the Milky way will be estimated to be that of a spheroid, V = 4/3 π r2t. The thickness will be estimated as 8/10 the thickness (t) of the center spherical center or 0.8 x 100 light years or 80 light years.

37. Black Holes

37.1. Captured Light –
The conventional explanation for light not coming out of a Black Hole is that immense mass creates immense gravity from which the light cannot escape. This is not the exact case, because light has no rest mass, and it is rest mass that accounts for gravitational force. The concept of an entire universe collapsing into a volume the size of a pinhead, creating a black hole of billions and billions of tons of matter per cubic inch, and having such tremendous gravity that light cannot escape ignores the effects of relativity and the orthogonality of mass-and light spaces. The following concepts are paramount to understanding the Black Hole:

37.1.1. Relativistic Space Within A Black Hole - The fact that there is no light coming out of a Black Hole is explained by the reversal in the direction of propagating light. Energy creates space, as concluded in the paragraph on entangled photons, herein. Mass is one form of relativistic energy and creates its own space. As mass accumulates, more relativistic space is created. As a Galilean-galaxy collapses into a Galilean black hole, a galaxy of relativistic mass-space is created within the black Hole.

37.1.1.1. *Slope of space around a black hole* The slope of space at the Earth's surface is the ratio of vertical acceleration of gravity on a pound mass to the horizontal acceleration of a pound force on a pound mass. Near Earth's surface, the slope of space is 16/1. Near a Black Hole at the point of no return for light, the slope approaches vertical. The slope exponentially decays with distance from the center of the Black Hole.

37.1.1.2. *Light traveling out of a Black Hole* Light traveling within the relativistic-space of a Black Hole travels a shorter span between two Denver Instances than in Galilean space. From a Galilean point of reference, light in a Black Hole is going slower than light in Galilean space. Light traveling out of the relativistic space of a Black Hole into Galilean space must accelerate from c in concentrated relativistic space to c in expanded Galilean space in order to maintain its momentum. The measuring stick has expanded markings in Galilean space compared to the relativistic space of the Black Hole.

37.1.1.2.1. (Unable To Accelerate) When light tries to move into Galilean-space, it must travel a larger measure between two Denver Instances; to maintain its momentum and travel at c, it must accelerate. Light's peculiarity is that it can't accelerate from one frame of reference to another; light velocity is fixed at c regardless of the frame of reference. Light propagating outward from a Black Hole is prevented from existing by a virtual infinite index of refraction. The virtually infinite index of refraction causes light to reverse direction**.**

37.1.1.2.1.1. (Thinning Space) The thinning of mass-space coming out of a black hole requires light to increase speed to maintain c. Since light must travel at c regardless of the point of reference, it reverses direction. This is similar to light leaving a lighted room at night through a glass pane. When the light enters the glass, it is in a denser glass-space, its Galilean speed slows, its relativistic speed in glass is ***c***. When it reaches

the outside surface of the glass, it is presented with Galilean space that is less dense than glass-space. At this interface, partial reflection occurs because the change in index of refraction is finite; some of the light is reflected, the rest passes through. Light coming out of a Black Hole, facing a virtual infinite change of index of refraction, reverses direction, and in its entirety, recedes into the black hole at the speed of light.

37.1.1.2.1.1.1. (Comparison to glass) The amorphous structure of glass (a solid fluid) has no crystalline structure. The bonds, having no structure are filled with electrons which by definition herein are neutrinos that create space with little momentum, have extended DeBroglie wavelengths to account for the denser relativistic photon-space in glass.

37.1.2. Source Of Neutrinos- In the Black Hole, decaying nuclear particles create gamma rays, alpha particles, protons, electrons, and neutrinos. The swirling nature of black holes creates a strong magnetic field from the flow of ions. The magnetic field focuses positive charges to expel out one axis and negative charges to expel out the opposite axis. There is a Galilean energy-mass-space imbalance, since more mass goes into a black hole than come out in charged particles and radiation. The only know undetectable product that could be produced would be neutrinos. Neutrinos, having no charge and no magnetic field, would radiate in all directions. Neutrinos would explain the fact that 95% of the universe is Dark matter. In addition, the ever increasing infusion of neutrinos into the cosmos from black holes accounts for the ever expanding universe; as neutrinos press on all other neutrinos and all mass, as mass is postulated to be created from neutrinos.

43.1.4.1. The construct of the electron

The electron is known to decay into two neutrinos; the E-M energy released is a gamma ray. The two freed counter rotating neutrinos, ν- and ν+, the counter rotation preserves angular momentum. The power of the gamma ray is an indication of the fervor of the vibration of the neutrinos within the electron. The electron-neutrinos frantic radial motion is in relativistic space between the $a_{1,1}$ and $a_{1,2}$ standoffs, at random angles of longitude and latitude. This lends to the image of the electron as that of a fuzz ball. The electrons diameter determined by an arbitrarily selectable mathematical function of minimum, mode, average, RMS (but perhaps not maximum) radial excursions of the electron–neutrino.

43.1.4.1. Galilean Wavelength of Electron-Neutrinos

Two Neutrinos Compose an Electron.

The Galilean measure of the Electron-neutrino's wavelength λ_G.

Results: $\lambda_G = 2.278165 \text{ X } 10^{-13}$ meters *****[Verify]

43.1.4.2. Relativistic Wavelength of Electron-Neutrinos

The relativistic measure of DeBroglie wavelength of the electron-neutrino, reduced in measure by Lorentz's radical is:

$$\gamma^{1} \lambda_R = (2.8281 \text{ X10-2 })(2.278165 \text{ X } 10^{-13} \text{ meters.}) = 6.4430 \text{ X } 10^{-15}$$

meters of the Electron-Neutrinos in aggregation.

39.3. WAVELENGTH OF AN ELECTRON-NEUTRINO

Plank's Constant, h relates inverse momentum $(mv)^{-1}$ to wavelength (λ):

$$\lambda = h/mv$$

Einstein's equation relates light quanta and frequency to Planck's constant.

$$E = hf$$

Substituting c/ λ for f, and the mass energy of an electron e for E, using the electron-neutrino's mass, and the velocity of the electron-neutrinos required for ballooning the neutrinos to the mass of the electron, ***c***-:

$$e = hc\text{-}/\lambda$$

Solving for λ:

$$\lambda_G = \gamma^2 hc\text{-}e^{-1}$$

where: $h = 6.626068 \times 10^{-34}\ m^2\ kg/s$

$c\text{-} = 299{,}672{,}541.0\ ms^{-1}$

$e = 1/100$ electron volt $= 1.60217646 \times 10^{-21}$ joules

$\gamma^2 = 7.997891 \text{ X } 10^{-4}$

Planck's constant has three relativistic variables in the numerator and one relativistic variable in the nominator. Gamma squared corrects Planck's constant for the speed of the electron-neutrino.

$$\lambda_{\text{electron-neutrino}} = 7.997891 \text{ X } 10^{-4}\ (6.626068 \times 10^{-34})\ (299{,}672{,}541)(1.602{,}176{,}46 \times 10^{-21})^{-1}$$
$$= 9.912154 \text{ x } 10^{-8} \text{ meters}$$

39.3.1. The Radial Standoff For An Electron The radial standoff ($a_{1,1}$) for an electron is two and a half times the DeBroglie wavelength. This is the distance at which the force changes from repulsive to attractive as r increases from zero. Free electrons can exist separated by $a_{1,1}$ as a clustered charged on a surface or as a disassociated charge above the surface.
Collocated Neutrino Spin Axes - Two electron-neutrinos rotating in the same direction add their half-quanta of relativistic spin to affect the one-quanta spin energy of the electron.

$a_{1,1} = 2\ ½ \text{ X } 9.912154 \text{ x } 10^{-8} = 2.478039 \text{ X } 10^{-7}$ meters or
$= 0.02478039$ x μm or 247.8039 Angstroms.

$$\gamma = [1 - v^2/c^2]^{1/2}$$

$\gamma = [1 - (299{,}732{,}493.5)^2/ (299{,}792{,}458)^2]^{1/2} = 0.02$ (Reduction factor for relativistic speed.)

$\gamma^{-1} = 50$ (Ballooning factor for Galilean measure of relativistic measure), exactly that required to balloon two neutrinos to the mass of an electron. [re: page 110]

39.3.2. Published Electron Diameters -

f.y.i. "The diameter of an electron is less than 1/1000 the diameter of a proton. A proton has a diameter of

approximately 1/25,000,000,000,000 inch (1.574803E-15 mm)."

World Book Encyclopedia. Chicago

F.Y.I $< 10^{-18}$ m Mac Gregor,

Malcolm H. The Enigmatic Electron. Boston:

F.Y.I "Rc = 3.86×10^{-11} cm

Mac Gregor, Malcolm H. The Enigmatic Electron., 1992:

F.Y.I Rqmc = 6.64×10^{-11} cm = $6.64\ 10^{-13}$ meters

Klurer Academic, 1992

F.Y.I $4 - 7 \times 10^{-13}$ m.

Pauling, Linus, College Chemistry. San Francisco:

F.Y.I "The radius of the electron has not been determined exactly but it is known to be less than 10^{-15} m
Freeman, 1964: 57

F.Y.I. "Radius = 2.82×10^{-13} cm 2.82×10^{-15} m
Freeman, 1964

F.Y.I. "The diameter of an electron is less than 1/1000 the diameter of a proton. A proton has a diameter of 4E-14 meter.
World Book Encyclopedia. Chicago: World Book.

F.Y.I. No mathematical calculation of the electron's diameter has been found on the

The Lorentz's radical for electron-neutrinos:

40. Muon

40.1. Muon Known Facts – The muon's ½-quantum of spin indicates that the muon has the spin of an electron with two additional neutrinos spinning in the opposite direction. The muon is a hyper energetic negative charged particle with a construct similar to that of the electron. The two extra neutrinos have energies of 105 keV, traveling much closer to the speed of light. The increased velocity creates shorter DeBroglie wave lengths, vibrating about a corresponding smaller void core. The frequency of the vibration is not a condition of the muon.

40.1.1 Four Vibrating Neutrinos PROPOSAL- The muon is an electron with two additional high energy neutrinos circling a smaller spherical void core collocated with the electron's spherical core. The electron's core is no longer a void as it is occupied by the two additional muon-neutrinos.

40.1.1,1 Wavelength of the muon added neutrinos The radiation of a decaying muon is the kinetic energy of the muon neutrinos. Therefore, the DeBroglie wavelengths of the two extra muon neutrinos are shorter by the ration of the square root of the ratio of the electrons x-ray decay energy and the muon's gamma ray decay energy.

40.1.2 Muon construct PROPOSITION: The muon is known to have two clouds, an inner cloud

and an outer cloud. The inner cloud is that created by the electron-neutrinos, the soup created by the higher energy muon neutrinos. Although the outer cloud of higher energy neutrinos has smaller wavelength, it also has lower frequency of vibration from longer paths of more wavelengths. Like the parent electron, the Muon does not have frequency as criteria of construct. The two additional muon-neutrinos rotating in opposite direction cancel each other's spin; the spin energy of the electron remains as the spin energy of the muon. The electron-neutrinos have only mass, and achieve spin by orbiting. The muon-neutrons orbit in opposite directions rendering a zero net spin characteristic.

40.1.2.1. Muon Expected Life Time Because of the miniscule mass of all four neutrinos, there remains a finite probability of collision. Because of the miniscule mass of all four neutrinos, there remains a finite probability of collision. Because of the two pairs of muon-neutrinos have mass and because all have speeds near that of light, it is not inconceivable that constituent neutrinos have a destructive collision on the average every 2.197 seconds.

40.1.2.2. Muon-Neutrino Velocity The velocity of the Muon outer cloud neutrino, and therefore its frequency of oscillation, can be estimated from the mass difference between electron and the muon.

One neutrino has a mass equivalence of 0.005 eV.

One muon has the mass (m_υ) of 105,658,389. eV or approximately 10.57 X 10^7 eV.

$m_\upsilon = 1.88353109 \times 10^{-28}$ kg

The ratio of muon mass to neutrino mass is 2,114 X10^{10} to one.

Derived from Lorentz ballooning radical:

$4m/ m' = 4(0.005\ eV)/(105{,}658{,}389.\ eV) = 1.892892 \times 10^{-10}$

$m / 4m' = [\ 1 - v^2 / c^2\ ]^{1/2}$

$v = \boldsymbol{c}[1 - 3.5830 \text{ X } 10^{-20}]^{1/2} = c\text{-}+$

The required speed cannot be evaluated on the available HP 15C calculator. Suffice it to say that a velocity does exist that is very close to light that will balloon the mass of four muon neutrinos to that of the muon. This velocity which is faster than the speed of an electron-neutrino (***c***-) is notated herein as ***c***-+. The hand calculation of the speed to bloom to the mass of four neutrinos to that of the muon is left to the reader.

41. MECHANISM OF FORCE.

41.1 Force Between Two Entities -

Force is the drive for two entities to lower potential their potential energy by combining their two spaces; the two entities (I_1, I_2) coming together increase entropy. The by-product of their combining is heat.

41.1.1. Free Neutrinos with apposing Spin

neutrinos of opposite spin cannot share relativistic space; they remain separate and function independently.

41.1.2. Electron-Neutrinos

Entangled electron-neutrinos have spin of the same direction, a common epoch, and a common point of origin.

The electric-neutrino pair create a shared relativistic mass-space. The neutrinos' center of mass is the electron's center of mass. In Galilean space they are separate, in relativistic space they occupy the same quantum space. Their energy keeps them bounded.

41.1.3 Shared Space
A lepton with a single electron-neutrino has a shareable ½ quantum energy void that is attractive only to a co-rotating lepton-neutrino to complete the ½h energy void. The relativistic measure of span between the lepton and the electron would be $a_{1,1}$; the force would be maximum and project on to Galilean space as continuous.

41.1.4. The Inverse Square Radius Relationship Of Aggregated Charges
The number of neutrinos that could share the space between any two Denver Instances would depend upon the inverse radius square of the two aggregate charges. The positive to negative attraction would create a lower energy states for both the electron and the positive ions. Electron sourced neutrinos will seek out positions with neutrinos with co-aligned spin axes. The Galilean dwell time of the electron-neutrino at the boson is infinitesimal, but the relativistic force is continuous as there is no time lapse in relativistic space.

41.1.5. Charge Space Is Mass-Space The charge-space of an electron is actually mass-space of its entangled neutrinos. The entangled spaces are orthogonal to all other electrostatic forces as all relativistic spaces are orthogonal. Therefore, electrostatic particle forces operate independently and separately from other electrostatic particle force-spaces, each docking creating an electrostatic entangled connection within its relativistic space. The force between charges is the attractive docking or the repulsive non-docking of entangled-neutrinos.

41.1.6. The Pauli Exclusion Principle **F.Y.I:** "The Pauli Exclusion Principle is a quantum mechanical principle formulated by Wolfgang Pauli in 1925. This principle is significant, because it explains why matter occupies space exclusively for itself and does not allow other material objects to pass through it, while at the same time allowing light and radiation to pass. It states that no two identical fermions may occupy the same quantum state simultaneously. A more rigorous statement of this principle is that, for two identical fermions, the total wave function is anti-symmetric. For electrons in a single atom, it states that no two electrons can have the same four quantum numbers, that is, if n, l, and m_l are the same, m_s must be different such that the electrons have opposite spins.'

'The Pauli exclusion principle mathematically follows from applying the rotation operator to two identical particles with half-integer spin."

http://en.wikipedia.org/wi/Pauli_exclusion_principle

41.1.6.1. Pauli Principal / Energy-Space Explanation Spinning fermions and spinning electrons can occupy the same quantum state simultaneously by spinning in opposite directions, because at relativistic tangential speeds, each electron occupies the relativistic void in the other electron's quantum space.

41.1.6.2. Muons - Similar logic can be applied to the smaller lepton (positive muon) particles occupying the same quantum state. Muons are conglomerates of neutrinos having different energies, held in relativistic energy-states that constitute orthogonal-spaces.

41.1.6.3. *What makes a positron positive* For the positron to be receptive to entangled electron-neutrinos, the positron would have to have at one or more 1/2-quantum unmatched neutrino spaces to share.

41.1.6.2. *The Muon* F.Y.I. "The muon (from the letter mu (μ) used to represent it) is an elementary particle with negative electric charge and a spin of 1/2. It has a mean lifetime of 2.2μs, longer than any other unstable lepton, meson or baryon except for the neutrino. Together with the electron, the tau, and the neutrinos, it is classified as a lepton. Like all fundamental particles, the muon has an antimatter partner of positive charge equal in mass and spin: the antimuon, also called a positive muon. Muons are denoted by μ– and antimuons by μ+."
Muons are one of a group of Leptons: muon, electron, tau, and neutron.
http://en.wikipedia.org

42. magnetic-Force

42. Magnetic Field Generation Proposal:: The electron rotates its electron-neutrino field at a tangential velocity below the speed of light (c-) over the radius of the neutrons path regardless of radius. This creates a relativisticly warped space only in the direction of rotation. Lorentz transform defines the magnetic space in which there is reduced distance and time in relativistic measure of radial rotation; the tangential velocity, rdθ/dt, is always c- regardless of the magnitude of the radius.

42.1. Magnetic Space – Proposal: Electric fields of electron-neutrinos rotating at relativistic tangential speeds create a relativistic magnetic space in the direction of rotation by virtue of their c- tangential speed. The Galilean path of the electron-neutrino in its orbit remains in a straight line as relativistic distance shortens with speed proportional to the radius, and speed is nonrelativistic; since tangential distance is reduced by speed, and speed is proportional to distance in relativistic space are both against the direction of rotation and the tangential velocity is limited to c- at all radii. A magnetic field is created by a constant "near-relativistic" tangential speed in the direction of rotation at all radii. In the magnetic space opposite to the direction of rotation, there is a magnetic void. A charge field is simultaneously created by redial speeds near the speed of light.

γr(dr/dθ)(dθ/dt) c; the tangential speed is equal to just below the speed of light at all radii.

γdr/dt ; the radial speed is less than or equal to just below the speed of light.

42.2. Facts commonly accepted in physics – [Move to a more appropriate location.]

1. Electrons (with mass equivalent to 1/100 eV) rotate with tangential surface speeds near the speed of light, c-.

2. Time slows to almost zero at c-.

3. Galilean length shortens with speed according to Lorentz's radical, γ:

$\gamma = [1 - \acute{s}^2/c^2]$

Length shortens to almost zero as ś approaches c-.

4. Physical systems move toward lower energy states.

42.3. MAGNETIC FIELD GENERATION Proposition-
The electric field of an electron spreads evenly over a cocentered spinning unit sphere. With the frame of reference as the surface of the spinning electron, the electric field radiates uniformly creating the radial electrostatic field. With Galilean space as the reference, the spinning electron's sphere, slightly above the electrons spherical void, reaches c-. At this radius, the Galilean measure in the direction of rotation reduces to near zero, time nearly stops; a toroid of magnetic flux with positive and negative magnetic poles is created. Electron-neutrinos create relativistic radial electrostatic fields (conventionally called electrostatic fields), and in the direction of rotation, a relativistic toroids of magnetic space (conventionally called magnetic flux).

42.3.1. **time and distance in a rotating field of electron..**
The units of measure of time and distance in a rotating field of electron-neutrinos at all radii are Lorentz-contracted. At some radius the tangential velocity will reach and be held just below the speed of light, because the mass in the neutrino can never reach the speed of light. The radial speed of electron-neutrinos, c-, was calculated above. Electrostatic flux of the electron reaches radial and tangential speeds of c-. The relativisticly

limited speeds of electric field causes an outward spiral of Lorentz-collapsed curled magnetic space in the direction of rotation. Magnetic fields of spinning electrons are the result of relativistic rotational speed of the electron-neutrinos in the direction of rotation. The rotating radian path of the neutrino, creates a relativistic magnetic space of ½h (one-half quanta) in the direction of rotation only. The magnetic void of ½h is in the opposite direction to rotation is not a negative magnetic space. A magnetic void is where magnetic potential of the opposite spin might reside. Two electrons of opposite spin can occupy the same energy space by rotating in opposite directions; the spaces being mutually orthogonal. Two collocated orthogonal electrons cancel each other's magnetic force, magnetic potential field, and magnetic space, but their charge spaces adds linearly.

42.3.1.1. PROPOSITION: Relativisticly wrapped magnetic space is orthogonal to relativistic entangled electrostatic space.

42.3.1.2. PROPOSITION: Electrostatic force transfers in a Denver Instant.

42.3.1.3. PROPOSITION: magnetic force transfers just below the speed of light.

42.3.1.4. PROPOSITION: The neutrino traversing the torrid path of magnetic flux returns to the electrons COM on the same path, not an inverse toroid, because at ***c***- there is no distance and no time; the neutrino is at all points along its path at all times.

Figure 42.3.1.1-1 . "Electron's Electrostatic and Magnetic fields"

Two counter rotating electrons have co-centered mass and share relativistic magnetic intra-space. The electrons' counter rotating neutrinos are orthogonal, and the magnetic potentials cancel.

42.3.1.1.1. (orthogonal magnetic space) The magnetic components of two collocated counter-rotating electrons are orthogonal by virtue of counter rotation. The magnetic force fields cancel. No magnetic force yields no magnetic potential, resulting in no magnetic space. Two counter rotating electrons in one quantum space have no magnetic space.

42.3.1.1.2. (*electrons of opposite spin)* electrons of opposite spin orbiting atomic nuclei, and at the same energy level, orient themselves North Pole to south pole. They share the same COM in orthogonal spaces. This position cancels the magnetic fields of the electron's; their charge fields add vectorily. The strong magnetic force overpowers the mass repulsive force to pulls the electrons together into the lower potential energy space.

42.3.1.1.3. *(Electron spin)* All electrons spin. The two entangled neutrinos' radial vibration generate the electrostatic flux, transport the charge force, and quantize the electron's charge at e.

42.3.1.1.4. When two collocated electrons drop from one atomic energy level to a lower level, a photon is released from each electron, propagating in opposite directions following the left hand rule (for electrons).

42.3.1.1.5. The fields of unpaired leptons add vectorily to the field of other unpaired electrons, each entangled neutrino pair that comprise each electron contribute to form the field of the aggregate charge.

42.3.1.1.6. When electrons are in current in a wire, co-aligned (parallel spin axes pointed in the same direction) by an Electro-Magnetic Force (EMF), their magnetic fields add. At distances beyond two co-aligned electrons rotating centers, created magnetic spaces rotate in the same direction creating vectorily additive magnetic space. See Figure 2. The totality of the magnetic potential created, has a magnetic void in the opposite direction of rotation, attracts remote magnetic sources to fill the void.

42.3.1.1.7. Charge flux comes out of an electron regardless of the magnetic field being present or canceled. An aggregation of paired electrons oriented magnetically North to South that leaves a uniform electrostatic field.

42.3.1.1.8. Electron Construct Electrons with their spin vectors in the same direction have axial charge fields that attract at distances greater than $a_{1,1}$. All electrons-neutrinos are entangled and maintain a relativistic distance between them of $a_{1,1}$. The mass radial offset, $a_{1,1}$, has the same exemplificative magnitude for all electrons because the DeBroglie wavelength was set by assuming a momentum to maintain the electrons' mass at 100 times the mass of a neutrino; the mass of an electron is an enigma. The electron's defacto mass changes when the neutrinos resonate to the various frequencies in its environs, and similarly the size of the vibrational orbits also varies with frequency. Hence the ambiguity of the electron's mass and diameter. The one constant characteristic of the electron is its charge, which is fixed by two neutrinos.

42.3.1.1.9. *The electrons' magnetic fields* Free or Entangled Neutrino The neutrino offset, also speed dependent, has velocities reaching from near zero to just below the speed of light, c-.

$$F_{mass} = -ńG(r - a1,1)^{-3} \qquad \text{Attractive at } r > a_{1,1}; \qquad \text{repulsive at } r < a1,1$$

32. THe magnetic field

32.5. Magnetic fields are created by the electron-neutrino's rotational motions. the electron's magnetic field is the relativistic collapsed neutrino-space in the direction of the electron's rotation. The tangential time and distance are both reduced by Lorentz's radical, such that at any radius the neutrinos have the speed of light while the path of the neutrino is undistorted radial vibration. The electron's magnetic space and electrostatic spaces are mutually orthogonal by orientation of the motion of their creation. The electrostatic force transfers radially in a near Denver Instant. The magnetic field transfers force in a near Denver Instant. ("Near", because the mass of the neutrino keeps the neutrinos' speed below that of light.)

32.5.1. Magnetic materials Unpaired electrons in atomic orbits are present in all magnetic materials. Their magnetic atom's position and alignment in crystalline structures determines the magnetic properties of the material. Permanent magnets require crystalline structure, therefore permanent magnetic are composed of magnetic domains where the atoms are all in one orientation.

32.5.2. Magnetic field creation The creation of magnetic space in the tangential direction of the electron's spin

~~leaves a magnetic void in the other tangential direction. This allows two oppositely rotating electrons to occupy the same coordinates for the center of mass, and the same quantum state except for the direction of spin, the source of north to south attraction. Energy-space contributes transparent orthogonality to magnetic theory, and leptons as the unit generators of magnetism. Magnetic fields instantly add vectorily with magnetic fields from other sources, because the medium of magnetic force transfer is the near-relativistic speed of the neutrinos.~~

~~32.5.2.1. Current in a wire. When moved in a conductor by an electromotive force, as the negative electrons moves toward the positive source, they align north poles to south poles. The electric fields are created and add in the electric conductor in accordance with the left hand rule. The magnetic fields add in magnetic-space with fields of electrons in the same conductor and with magnetic field of electrons in nearby conductors. The magnetic-space generated is orthogonal to charge-space and mass-space, and by vector algebra is at a negative right angle (ccw) orientation to charge-space. Therefore magnetic fields do not project onto charge-space,~~

~~42.3.1.1.10. (M*agnetic fields)* The electrons' magnetic fields add vectorily. In a coiled conductor, with an electromotive force aligning the electrons by the right-hand rule, electrons' magnetic fields vectorily add, whether side-by-side or end-to-end. This is the essence of building a magnetic field from current in multiple turns of a coiled conductor.~~

~~42.3.1.1.11. *(Magnetic space)* Magnetic space attracts magnetic space of opposite polarity to fill the unoccupied orthogonal relativistic space vacancy created by electron's fields rotating at tangential speeds of c . Magnetic attractive force is the tendency for physical systems to move to lower energy states. This is similar to two masses slipping into the mass space of each other. In mass space, mass creates space that attracts other mass (gravity), because when mass shares space it constitutes a lower energy state. In the same mentor, the force of magnetic attraction is the lower potential energy of shared magnetic space.~~

~~42.3.1.1.12 (Toroidal shape magnetic fields.) Under an electromagnetic force (EMF), electrons align so that all spin in the same direction with their axes of rotation are aligned by the right hand rule, with the EMF forcing the electrons to follow the conductor. The vectorily-additive combining of the electrons' toroidal magnetic fields is the source of the curvature of a coil's toroidal magnetic field. The magnetic space of each individual electron adds vectorily.~~

~~42.3.1.1.13 (Electron created magnetic space) The magnetic field created by electron flow in a coil creates a magnetic space external to the coil that is a lower energy space for an oppositely polarized magnetic field. Therefore, north poles and south poles attract, whether the field source is an electron or an electromagnetic coil.~~

42.3.1.1.14 *(propagation SPACE)* Electromagnetic radiation will be treated as a single energy field because of the inseparable interdependence of electric and magnetic fields. The discussion of photons can be extrapolated to include all types of electromagnetic radiation: radio waves, infrared, visible light, ultra violet, x-rays, and gamma rays. Alpha and beta particles have rest mass and fall in the category of high-energy particles. Two sequentially emitted photons from the same source and following the same path create separate individual spaces; they and are not entangled because they do not share the same epoch in time. Two continuous streams of photons while crossing paths do not interfere with one another ... ever, because each photon's relativistic space is of zero relativistic length and has a unique origin and a unique epoch. Non-entangled photons will not interfere with any other photon; they do not bounce off one another. Every non-entangled photon has photon-space orthogonal to every other photon space.

42.3.1.1.15 Upon the drop of an electron to a lower energy level, the two spaces, charge-space and magnetic space, separate from the electron-neutrinos and propagate at the speed of light at the frequency determined by the change in the energy by the fall of the electron-neutrinos, hv. E-M propagation is discussed in "Electromagnetic Curling And Uncurling Space."

42.3.1.1.16 Down shifted Photons sharing the same parent photon, will be entangled by the common epoch at the point of splitting of the parent photon. Because there is no time lapse in photon-space, the epoch of the first generation photon and the epoch of splitting are the same. By sharing the same epoch, the down shifted photon pair shares photon-space with the parent photon. Whatever interferes with a downshifted photon will interfere with the parent photon. They are all in the same photon-space at one time and at one place; they all have the same point of origin and epoch of time. This is the answer to the dilemma in the Michelson-Morley experiment.

42.3.1.1.17 *(When photons hit a solid surface)* When photons hit a solid surface, the polarity of the resulting force vector is transferred to the solid surface. On the surface of impact, two and more energies vectorily add as constructive or destructive.

42.3.1.1.18 *(Photon as Particle and Wave)* With the photon as the point of reference, the photon is a wave. With the Galilean space as the point of reference, the photon is a particle. These two points of reference reveal the dual nature of the photon, that of a particle and that of a wave. The photon is in two spaces simultaneously, relativistic E-M space while traversing Galilean E-M space.

42.3.1.1.19 Proposal: Energy can be simultaneously in two or more energy-spaces.

42.3.1.1.20 (*Optical Path Length of Glass Space)* Glass-space linearly adds with photon-space and the mass-space of earth to create an increased optical path length. The optical path length is slightly different for each color, as each color has its own defining energy and wavelength creating unique space for each photon. Unique optical path length for each color gives uncorrected glass lenses their chromatic aberration properties, and prisms' characteristic diffusion of white light.

42.3.1.1.21 *(Glass and Other Transparent Material)* Within glass, the velocity of light remains c, its increased relativistic optical path length accounts for the increased time to traverse thicker parts of the lens.

42.3.1.1.21.1. *(Riding Beside a Photon)* It is unreasonable ask one to visualize riding alongside a photon and observe its interaction with Galilean space, because from any point of reference light travels at the speed of light. One who rides alongside a photon himself creates a photon space. The two spaces do not project onto each other; both take off at the speed of light with respect to each other. The author, through literary license, asks the reader to utilize through visualization this physical impossibility.

42.3.1.1.22 (Time: to be or not to be) Compare a single photon in glass to the entangled photon pair in space:

42.3.1.1.22.1. *(In glass)* In glass the photon-space determines the time to traverse, the lens is the frame of reference. In the case of a photon traversing a lens, where the lens is the frame of reference, the light traverses the lens in a Galilean-time interval (t) equal to the span of the photon-path(s) divided by the universal constant velocity of light (c).

42.3.1.1.22.2. (Relativistic Entanglement) From either entangled photon as the frame of reference, its paired photon also travels at the speed of light, therefore their separation in relativistic space is zero and the time to traverse is zero.

42.3.1.1.22.3. (Point of reference) The frame of reference determines whether a photon takes Galilean time or relativistic time (there is no time in relativistic space).

42.3.1.1.22.3.1. A frame of reference does not imply human intuit; the lens and the entangled pair in space demonstrate that the time to traverse is dependent the particle's projection on to the frame of reference. When photons interact with each other, all time is that of the emission epoch. When photons interact with other mass, the measure of time is Galilean measure of distance (span projected onto Galilean coordinate) divided by c. Photon measure of span is zero at c, and projects onto all other energy spaces as the projection of span divided by c; all other energy spaces are orthogonal to photon space; therefore photon time to traverse all other energy

spaces is zero.

42.3.1.1.22.4. The E-M Propagation Formula Offsets $a_{4,n}$ Nomenclature

$$E = l\,\check{r}\,f\,[A(r - a_{4,1})^{-3} + B(r - a_{4,2})^{-2} + D(r - a_{4,3})^{-1}]$$

first term second term third term

Where:
E is the electromotive potential field (volts per meter)
and as in all energy-force equations:
$l \equiv$ unit vector directing the light space imbued with $(-1)^{1/2}$
$\check{r}$ is a unit vector in the direction of increasing radius.
r is the radial distance from the antenna.
$a_{4,n}$ are the radial offsets for E-M (Electromagnetic) propagation

m subscript 4 indicates light space.

n Subscripts n specifies the term position as::
1 : first term, $(r - a_{3,1})^{-3}$
2 : second term, $(r - a_{3,2})^{-2}$, and
3 : third term $(r - a_{3,1})^{-1}$

42.4.1.1.22.4.1. (*The First Term, $(r - a_{4,1})^{-3}$*)

The first term offset in the energy-force E- M propagation formula, $a_{4,1}$, use half wave links. The $(r - a_{4,1})^{-3}$ term is dominant near the antenna; there it returns near field energy to the antenna. E-M propagation forces energy outward forever; RE: starlight. There is no reversal in propagation at $r > a_{4,1}$.

$$a_{4,1} = 2\,½\,\lambda$$

42.4.1.1.22.4.2. The Second Term, $(r - a_{4,2})^{-2}$ And Third Term $(r - a_{4,3})^{-1}$ The second and third offset terms for the Propagation Equation are both equal to $a_{4,1}$, because neither infinite spikes in energy nor force reversals have been observed; if any of the terms were to become infinite negative spike at any distance, electromagnetic energy would never get away from the antenna. Note that there is no negative sign in front of the propagation force formula; therefore, when r is greater than $a_{4,1}$, the first term becomes positive and the force is repulsive for all three terms.

$$a_{4,1} = a_{4,2} = a_{4,3} = 2\,½\,\lambda$$

42.4.1.1.22.4.3. Because third order E-M energy returns to the source before $a_{4,1}$; first harmonic and second disconnect at $a_{4,2}$ and $a_{4,3}$. Propagating E-M radiation beyond $a_{4,1}$ has no connection with the antenna from which to reference distance. Time does stop for the E-M wave, and the time at the leading point is that of the emission, and distant behind the lead point is time of $\Delta s/c$.

42.4.1.1.22.4.4. (Propagating energy space) Propagating Electromagnetic Energy is pieces of charge- and magnetic-spaces that move at c. [Propagating space is embellished later.]

42.4.1.1.22.5. (*The Third Term* $(r - a_{4,3})^{-1}$) The third term, $10^{-12} (r - a_{4,3})^{-1}$, is negative inside $r = a_{4,3}$, and the coefficient of 10^{-12} renders the term's force contribution insignificant.

42.4.1.1.23 (Variable standoff ratio) Since E-M wavelengths vary from gamma rays sourced from within the nucleus to extremely long radio waves, the radial standoff $a_{4,1}$ also varies accordingly.

44. Conclusions

41.1 Importance Of Energy-Space - Orthogonality of spaces created by high energy particles traveling at ***c-*** provide all the spaces necessary for femometer-size particles without the need of additional space dimensions. All particles traveling at near light speed have DeBroglie wavelengths, giving credence to the Unified force field's ubiquitous offsets, they having their basis in the wave phenomenon. All energy-spaces with velocities less than the speed of light, c-, will project obliquely onto all other energy spaces; energy-space applies to particles traveling at any speed.

A) Energies that travel at or near the speed of light form orthogonal spaces that span all other spaces.

B) photon-space is a combination of charge-space and magnetic-space created by the energy it conveys at the speed of light. Time does not change and distance is zero while the speed of light is maintained. Photon space of a single (nonentangled photon) is confined to the Galilean wavelength length of the photon for the life of the photon. The space of both photons of an entangled pair is shared photon-space, which is maintained back to their source. Since there is no time lapse and no distance in photon space, both photons and the source electron pair are at one point in photon space.

C) Energy created space is defined by the energy's potential force field.

D) Three Unified Force Fields of particle origin follow the third order inverse radius format of the Electromagnetic Propagation Equation.

E) Neutrinos are the building blocks of all matter, the binding mechanism of gravity, the force mechanism of electric charge, the causation of cosmic acceleration, and the media of gravitational waves and the causation of magnetic flux.

F) Magnetic fields are tangential relativistic electron-neutrino flux. The fields are defined by the curl of the path of nonrelativistic spinning-vibrating electron-neutrinos.

G) Light is retained in a black hole by a virtual infinite change in refractivity caused by the steep gradient in the density of mass-space.

H). The invariant velocity of light, regardless of the frame of reference, is caused by its orthogonality; each photon creates space orthogonal to all other space. No matter what is the frame of reference, even another photon, photos are orthogonal, and travel at the speed of light with respect to all other photons and energy spaces.

I) Every photon is a relativistic vectored space orthogonal to the Galilean time and location coordinates of its emission, while spanning all other orthogonal energy-spaces.

J) Galilean space is traveling at c with respect to all other relativistic spaces.

K) all energy spaces are traveling at c with respect to all other energy-spaces.

L. Since energy creates space and energy is quantized, space is quantized.

M. Mass-force, Electrostatic-force and magnetic-force are created by entangled neutrinos; the forces are conveyed through relativistic space where Galilean time and distance have no measure. The Galilean speed by which there forces are conveyed is a near Denver Instant.

N) Time is a mathematical concept not a physical entity, therefore there was no beginning and there will be no end. Since energy cannot be created or destroyed, and since everything is some sort of energy, then all that is always was, and ever shall be. From your birth to your death you have all the time that ever was, and that is your share.

35.3 In the Big Bang were all the laws herein, and they will not change.

O) NEUTRINO DRAG ON SPACE CRAFT OUTSIDE THE SOLAR SYSTEM
Outside the solar system the collective mass of the intra-solar system neutrinos would have a net gravitational drag on objects traveling away from the solar system, and an accelerating force on objects coming into the solar system. Impact with the sea of cosmic space neutrinos would create a small drag in the direction opposite to motion. Within the solar system, gathered neutrinos would have a more balanced pull on spacecraft, tending to make drag a function of velocity. A rocket traveling in an interstellar trajectory tangential to the solar system would provide data to evaluate neutrino drag.

35. Cosmic considerations

35.1. INTERSTELLAR ENERGY SPACE - Interstellar neutrinos are free of entanglement. They have DeBroglie wavelengths set by temperature of space and their energy of origin, such as decomposition of electrons within Black holes. Their speed, and therefore their momentum range from ***c-*** to thermal speed near absolute zero. The DeBroglie wavelengths at temperatures near absolute zero are long, and their speed is slow. Though not moving fast their $a_{1,1,}$ offsets create a repulsive force to keep the intergalactic sea of neutrinos fluid and incompressible. Their $a_{1,2}$ and $a_{1,3}$ offsets keep them attractive. Free neutrinos exist predominately as waveforms, exchanging energy between mass and charge spaces, however creating little or no characteristics of either space. The neutrinos dynamics, when entangled as electrons and other leptons, create charge space by vibrational orbits, and magnetic space by relativistic rotation of their orbits. Neutrons added to the interstellar sea on neutrinos provide an expansion of the universe by transferring momentum to neutrinos in matter, which are in abundance. The force is small, the number of collisions almost infinite, and the transfer of momentum fifty percent, as the masses colliding are equal and the collisions perfectly elastic.

35.1.1. neutrino space Neutrinos traveling at near the speed of light do not interfere with one another, because they create a relativity space that is close to that of light. Neutrinos will on occasion collide with interstellar dust disbursing neutrino energy thereby affecting galactic temperature.

35.2 Time- Time is a mathematical concept not a physical entity, therefore there was no beginning and there will be no end. Since energy cannot be created or destroyed, and since everything is some sort of energy, then all that is always was, and ever shall be. From your birth to your death you have all the time that ever was, and that is your share.

35.3 In the Big Bang were all the laws herein, and they will not change.

36. cosmic center

36.1. ***Chaotic cosmic neutrino flow*** Originally, the neutrinos pressed the universe to expand radially from the site of the big bang. Presently neutrinos are being added to the cosmos from Black holes. The flow is now chaotic such that the center of the universe might no longer be determined. If the flow of neutrons in the cosmos could be detected, the center of the universe might be identified. The dark hole in the stellar ceiling points to the separation axis of the of the Big Bang. The explosion started at a point that put ¾ if the matter on the axis pointed by the dark hole, and ¼ if the matter in the big bang in our cosmic section of the universe. Our part expanded 13 billion light years, while the other section moved approximately 4 billion light years further away. That means that there is approximately three times more mass in the universe than was previously believed.

44. 2 Lorentz Radical Effects / linear or Three right angle Dimensions
RE: 8.3.1. Lorentz's Compression In Direction Of Speed

> "The Lorentz Transformations in Three Dimensions'
>
> 'The hypothesis of Lorentz and Einstein that the other axes do not change and that the transformations are purely geometrical is not compatible with the physics implied in the calculations of quantum mechanics. It is quite clear that the change of the electron mass changes the distribution along all three directions. Nobody in quantum mechanics has ever suggested flatter wave functions (and flatter atoms and molecules) when the electron mass is larger. Consequently, when an atom is accelerated in one direction, the size of the atom or the length of the intermolecular distance changes in all three directions. Therefore the assumption in relativity that there is no change of size of the coordinates Y and Z while the coordinate X is changing is an error that must be corrected." Paul Marmet
>
> http://www.newtonphysics.on.ca/EINSTEIN/Chapter7.html

Your author, Marvin Bruce Wilkerson, has a completely different view from that of Paul Marmet, author of the above article. Although mathematically correct, the hypothesis that relativisticly distortion of space is likened to an inflating and deflating balloon is incorrect. Paul Marmet has been sufficiently indemnified on the Internet.

The same author has witnessed, in a cloud chamber, ionization at distances from the path of accelerated electrons exceeding the expected (calculated) range from the path of the electron. The explanation for the extended range of ionization is that the electric field density is constant, and the shortening of the dimension in the direction of motion squeezes the charge into an ellipsoid of constant volume with expanded axes at right angles to the path of the electron. Paul Marmet's model of a balloon is interesting, but applied to the electron, inflating and deflating would be equivalent to changing the charge of the electron. Since charge is potential energy, and energy cannot be created or destroyed, it is concluded that the correct analogy is that of squeezing a spheroid of constant volume, and that a constant electron charge is more reasonable than a changing electronic charge.

Increasing speed is not like deflating the balloon of space, but squeezing along its path the Galilean dimensioned sphere of space into a real and imaginary dimensioned spheroid of constant volume, where the span of volume is constant. Support within is from energy-created space: Photon-space is energy created. Energy is quantized. Energy remains constant with speed, as it cannot be created or destroyed; therefore, the space it creates cannot be created or destroyed. The space compressed in the direction of motion cannot be diminished, it maintains its space by expanding in the directions normal to the direction of speed.

The span of charge space, not in Galilean space, moves as a function of speed into real and imaginary dimensions, and the axes normally to the direction of motion expand in imaginary space. Energy quantized space remains constant in the Lorentz transformation from Galilean space to relativity space. If energy remains

constant then the space it creates remains constant. The charge-space measured in Galilean frame of reference is the same as measured in the compounded Galilean and relativistic units of measure. Only the realm of the dimensions changes in accordance with the Lorentz radical.

Looking Forward

This paper is a work in progress. The equations presented are exemplificative for concept understanding. Exact equations will most likely be partial differential equations in spherical coordinates with exponential decay factors, and follow the developmental format of Dr. Schrödinger. The proposed fundamental building block of all matter and all forces is the neutrino. The energy-spaces created by relativistic velocities allow orthogonal spaces for existing and energy particles that may be hypothesized without the necessity for complicated additional spaces in which the particles might reside. Energy-space is a "knowledge base" for orthogonal relativistic spaces from which physicists can ladder-up.

PROPOSED EXPERIMENT #1: Disturb the source atom of an entangled photon.
Observe: Do both photons disappear? Is the energy captured that of one or two photons? Does the energy of either or both photons return to the emitting atom?

PROPOSED EXPERIMENT #2: Observe the acceleration on a spaceship outside the solar system to evaluate neutrino drag.

PROPOSED EXPERIMENT #3: Observe the Doppler on laser light from a spaceship outside the solar system to evaluate quantized Doppler.

PROPOSED EXPERIMENT # 4: Observe gravitational waves from the sun for a 76.2 Hertz cycle as the affect of Doppler Quantization/.

Disambiguation

> 'Entanglement is a property of the measurement process, since it relates different measurement outcomes ([7]).'
>
> [7] I.Vecchi "Is entanglement observer-dependent?", arXiv:quant-ph/0106003

Entanglement is explained herein as a function of having the same origin and epoch for two particles having near relativistic speed ***c-***, or two photons at full light speed ***c***. since light travels at **c** with respect to all points of reference, entanglement is not observer-dependent**.**