

The Structure of Aether and the Mechanics of the Electromagnetic Wave Spectrum

by

W R Hohenberger

Abstract

The various philosophies of the physics of aether can and must be integrated for there is only one real truth. Aether, whether it is called cosmic lattice, quantum foam or the neutrino sea, is a multi-dimensional, multi-generational, hyper-dynamic fractal, which can be thought of as both a fixed lattice and a dynamic fluid, and which is always in constant motion. All energy preexists within the aether, as waves, particles, matter or fields and all are interchangeable. Particles, and the matter they form, are saturated constructs of quarks, which are charge segments of an electromagnetic wave. Electrons are created within the second generation of electromagnetic waves, and protons, neutrons and nucleons are created within the third generation of electromagnetic waves. The electromagnetic wave spectrum ends at Planck's frequency. Waves are three-dimensional structures, exhibiting both properties of compression and tension, and having both transverse components (electric and magnetic fields) and a longitudinal component (their natural propagation speed). Fields are distortions within the circular structures of the aether. Objects in motion rip and tear apart the fabric of aether, as their inertia is altered and their directions reversed. All phenomena can and must be explained as mechanical variations in form and structure of the cosmic, quantum, neutrino, quark, – aethereal sea.

Introduction

The purpose of this paper is threefold. First, to develop an integrated concept for the structure of aether and then to present various possible explanations for the mechanics of the electromagnetic wave spectrum operating and functioning within the aether. Second, to integrate that concept along with other concepts proposed by other members within the NPA, and also along with the standard quark model proposed by contemporary physics. Third, to present those ideas to the members of the NPA at the 16th NPA conference in Storrs, Connecticut, for the purpose of generating ideas that may lead to a mathematical proof that is in agreement with existing accepted mathematical values, such as Planck's Length or the Alpha Fine Structure Constant. It is understood that whereas math defines the universe, structure describes it; and therefore, both a structural concept and a mathematical proof based upon that structure, are required before any concept for aether can be accepted as correct.

The Need for Integration

The conclusions presented in this paper are based upon the "a priori" existence of one and only one absolute reality, and thereby one and only one absolute truth. Accordingly, all things that exist, must add up to one, including our selves, our philosophies and our theories. This recognition creates a strong advantage in uncovering the truth, as long as it is further recognized that all proposed theories are only a part of the answer; and are therefore both partially right and partially wrong. The question is not "*why is my theory right and their theory wrong,*" but "*where is their theory right and where is my theory wrong?*" This is the process of surrendering the self and the ego to a higher truth. Within all sincere proposals, there must be at least some truth, and when two philosophies disagree, the real truth exists somewhere above both. The challenge is to find these individual, essence of truths, and then to collectively integrate them into the one real absolute truth. This integration process is therefore an ongoing and interminable process, until all things are defined, until all contradictions are removed, and until all confusions are eliminated. Accordingly, the theories and philosophies proposed within this paper are but one more step in that ongoing process.

The necessity for the philosophical integration of scientific theories is also supported by the *Organized Word Structure* for the human mind that

was presented to the 15th NPA Conference in the paper titled, “*The Effects of Human Perception and the Human Mind on developing a New Paradigm for Physics.*” The proposed word structure was developed based on four realizations. First, that the real world, that is the one that is really out there, and including the mechanics of our human mind, is highly structured and highly organized. Second, that words, only take on meaning when they are connected in some way to that real absolute world. Third, that those special words defining human nature are uniquely independent and exclusive. And fourth, that all knowledge and thoughts purported to be true by honest and sane individuals must be considered as at least, partially true.

The resulting *Organized Word Structure* concludes that the absolute truth can only be realized through the sequential mental processes of cognizance, apprehension and common sense. That is, one must first be made aware of the truth, and then one must apprehend that knowledge into some internal predetermined understanding or concept. Finally, this concept must then be subjected to the judicial searing of common sense. It should be noted that common sense is subjective logic, that is the logic of both the heart and the mind; and not objective logic, which is simply the logic of the perceived world that is projected by and within the human mind. In addition, conclusions from Dr. Lüscher’s color test also indicate that the real truth can only be achieved through the compulsive blending of integration.

The Construct for Aether

The first step in developing a deeper understanding of the mechanics of the aether through the above integration process is to derive a concept for the structure of the aether itself. Accordingly, the three following conclusions, were arrived at separately and without collaboration, by Alexander Tsybin, William Day and myself, and when taken together form a perfect logical argument as follows:

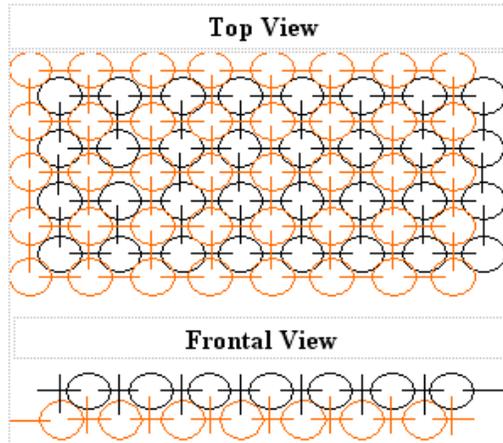
‘Aether is constructed from Neutrinos’ - Alexander Tsybin

‘Particles are constructed from Aether’ - myself

‘Particles are constructed from Neutrinos’ - William Day

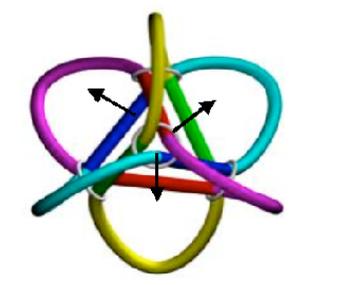
That is, if aether is made from neutrinos, and if particles are made from aether, then particles have to be made from neutrinos. Three independent

assessments, that fit together into a perfect logical argument like a hand and a glove. Accordingly, the logical correctness of the combined total argument, adds credibility to each of the individual arguments. Again, the question is where are these arguments right, not where are they wrong.

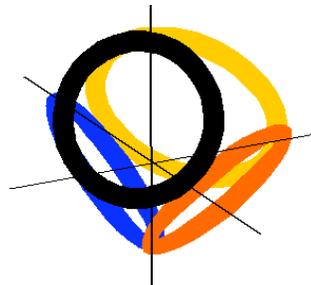


Proposed Structure for Aether at 15th NPA Conference

According to my paper submitted last year at the 15th annual conference, neutrino's can have two forms, strings as kinetic energy (velocity), and rings as rotational energy (eddy currents). Also, independently and in another section of the same paper, aether was suggested to have a three-dimensional structure of interlocking rings as illustrated in the figure above. Again, the logical argument for aether, the definition for neutrinos, and the structure of interlocking rings for aether, all fit together perfectly into a common picture. That is, the rings represent the neutrinos and there interconnectedness represents the aether. In addition, and with further analysis, this structure can then be further advanced into an even more sophisticated structure.



Field Structure Topography by Don Briddell

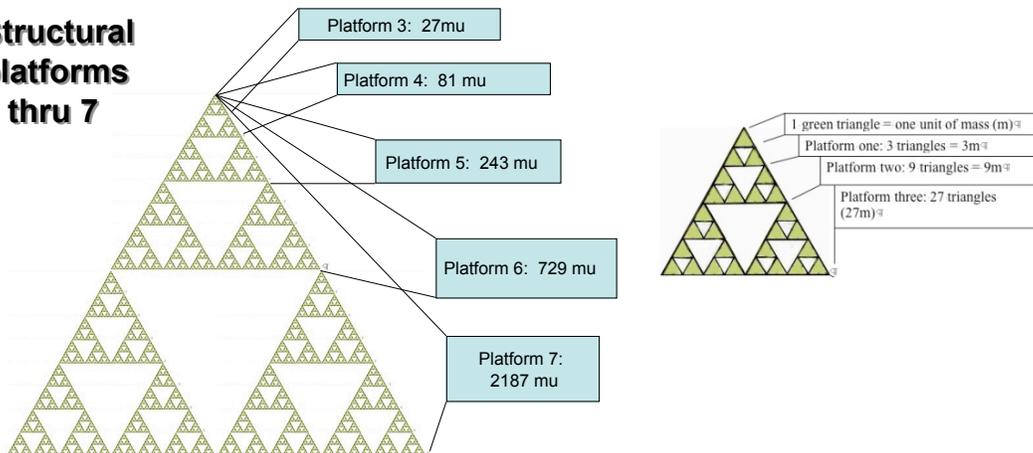


Proposed Nuclear Structure by W R Hohenberger

Accordingly, the above two pictures illustrate the continuity in hypotheses presented by Don Briddell and myself at the NPA 15th Conference. The first picture represents *Field Structure Theory* or *Field*

Structure Topography as proposed by Don Briddell, and the second picture represents subatomic ring structure for the nucleus of an atom as proposed by myself. Both pictures illustrate four rings with the same exact orientation and arrangement (a tetrahedron) on a three-dimensional polar axis. Also, shown below is a Sierpinski fractal chart, followed by a numerical chart showing the mathematical progressions contained within the fractal, and an equation, which further defines the fractal. Again, all charts and equations have both three and four-dimensional elements. Then on the following page are two more diagrams, the first is the Higgs Boson Ball, and the second is the proposed structure for the nucleus of an atom, both as were presented at the 15th NPA Conference. Again, each have both three and four-dimensional components. Accordingly, the Higgs Boson Ball has four pairs of quark charting lines (colored lines) juxtaposed against a three-dimensional axis (red lines), and the proposed structure for the nucleus of an atom has four rings (tetrahedron) interconnected on a three-dimensional axis.

Structural platforms 3 thru 7



Level	Calculated						Cross Check								
	GrnLps(n=3) mass units	Calculation Method #1			TotLps(n=4) Tot energy	GrnLps(n=3) mass	Calculation Method #2				White Loops				
		Wh Lps x 3	(n=4)	Total White Loops			1	4	16	64	256	1024	4096		
1	n ¹ 3	0 x 3	0	n ¹ 1	0 + 1	1	n ¹ 1							1	
2	n ² 9	1 x 3	3	n ¹ 4	3 + 4	7	n ² 9	3	4					7	
3	n ³ 27	7 x 3	21	n ² 16	21 + 16	37	n ³ 27	9	12	16				37	
4	n ⁴ 81	37 x 3	111	n ³ 64	111 + 64	175	n ⁴ 81	27	36	48	64			175	
5	n ⁵ 243	175 x 3	525	n ⁴ 256	525 + 256	781	n ⁵ 243	81	108	144	192	256		781	
6	n ⁶ 729	781 x 3	2343	n ⁵ 1024	2343 + 1024	3367	n ⁶ 729	243	324	432	576	768	1024	3367	
7	n ⁷ 2187	3367 x 3	10101	n ⁶ 4096	10101 + 4096	14197	n ⁷ 2187	729	972	1296	1728	2304	3072	4096	14197

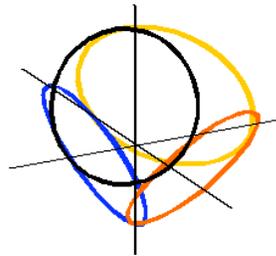
$$4^n \text{ (total blue loops)} = 3^n \text{ (green loops)} + [4^{n-1} + 3^{n-1} (4^0) + 3^{n-2} (4^1) + 3^{n-3} (4^2) + 3^{n-4} (4^3)] \text{ (white loops)}$$

More importantly, the proposed tetrahedral structure for the nucleus of an atom, can also function as a three-dimensional spring; and then when projected downward, could thereby create a rational explanation for the

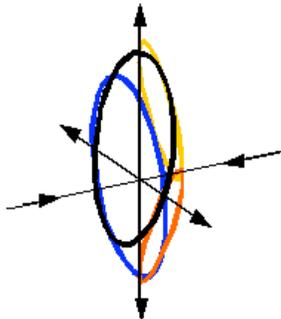
structure of aether, for the transmission of energy through the aether, and for the perpendicular spatial relationship between longitudinal and transverse waves within the aether. It would also create a physical explanation for the concept of charge. That is, when the spring is extended, the sides would collapse and it would be in positive charge or tension. Accordingly, when the spring is contracted, the sides would extend and it would be in negative charge or compression. This relationship between its contracted and extended positions, thereby also defines the 90° spatial relationship between longitudinal and transverse waves. Furthermore, it would exist in all three polar dimensions, so that electromagnetic waves would be omni-directional.



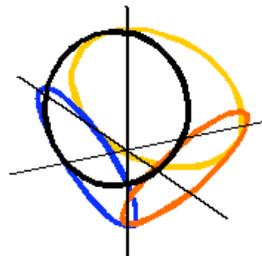
Higgs Boson Ball



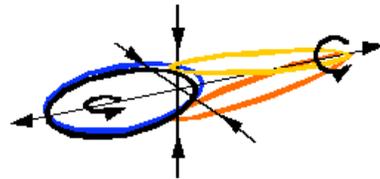
Proposed Atomic Nuclear Structure



Compression (Negative Charge)



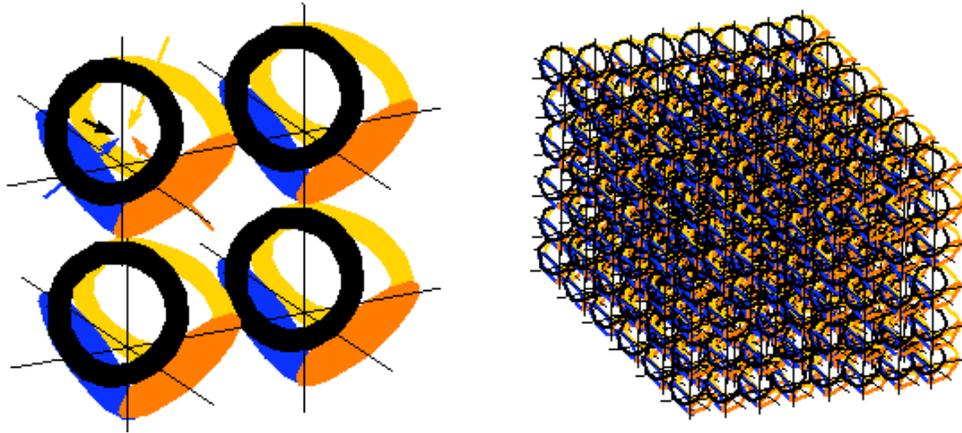
Neutral Charge



Tension (Positive Charge)

The mechanism for the spring itself is proposed to be magnetic, such that each of the four rings is individually juxtaposed against each of the other three rings. Accordingly, this four-dimensional ring structure or ‘*energy cell structure*’ would then have four north poles and four south poles, with either the four north poles occurring at the center of each of the four rings and the four south poles occurring at the triangular intersection between each of any three rings, or it may also be structured similar to spin ice utilizing the two-in/two-out rule. Its neutral position would then be in its symmetrical, balanced and inflated shape. Furthermore, since this is the same concept that was proposed for the structure of the nucleus of an atom in the paper titled “*Methods for Visualizing Aether, Electromagnetic Waves, Quarks and All Else*” as presented at the 15th NPA Conference in Albuquerque, it would also allow for a mechanism for the mechanical

vibrations for the nucleus of an atom as proposed by others. Furthermore, these nuclear vibrations would then generate, create or attract arrays of standing wave electrons as defined by Don Briddell in his proposed *Field Structure Theory*.



Accordingly, the actual structure for aether is proposed to be a multi-dimensional structure of individual *energy cells*, and has both three and four-dimensional elements. Therefore, aether is not inert nor homogeneous and would instead have three states, first magnetically coupled rings on a four dimensional axis, second interlocked rings on a three dimensional axis, or third not coupled at all. This could be correlated very closely to the three states of matter as a solid, liquid or a gas. Moreover, it is proposed that aether is primarily four-dimensionally and magnetically coupled, and that the three-dimensional interlocked rings structures are discontinuities, fractures, or fractals that grow within this 4d aethereal structure, as collapsed interlocked *energy cells*, which then combine and create charged strings. The fractures are caused by the normal 4d magnetically coupled arrays of *energy cells* being driven into saturation, as a 3d interlocked *energy cell structure*, by either saturated electromagnetic waves, high energy rogue waves or the funneling effect of gravity. Finally the 4d aethereal structure would account for the speed of light and the 3d aethereal structure would account for the speed of gravity.

Each of the rings within the *energy cell structure* is proposed to be made up of even smaller rings, which are then made up of even yet more and smaller rings, such that the rings within the aether are not only magnetic, but also elastic. This creates a concept for aether or what could be more appropriately called, the aether fractal plenum (AFP) as a multi-dimensional *energy cell structure* that morphs or fractures into multiple, generational, structural fields.

The Alpha Fine Structure Constant

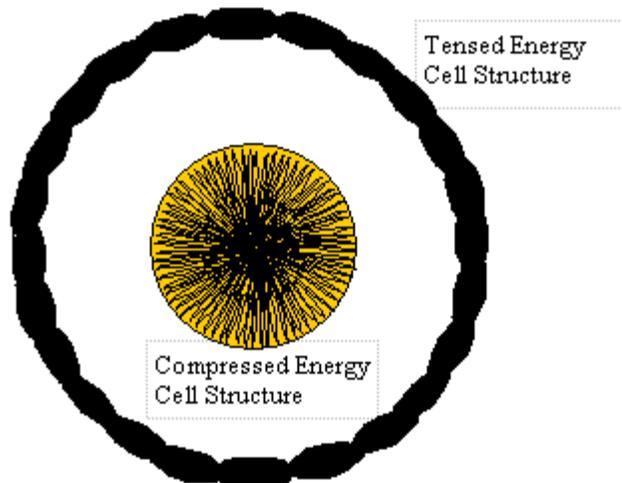
It is therefore proposed that the elasticity of the rings or loops within each *energy cell structure* is caused by this multi-generational fractal effect of sequentially collapsing rings. This could be formulated as shown below where $\text{Pi}/2$ is the increase in length when a circular loop collapses into a double straight line, and where .006720884 is the cross sectional diameter of

$$(\text{Pi} / 2 - .006720884)^{11} = 137.035999$$

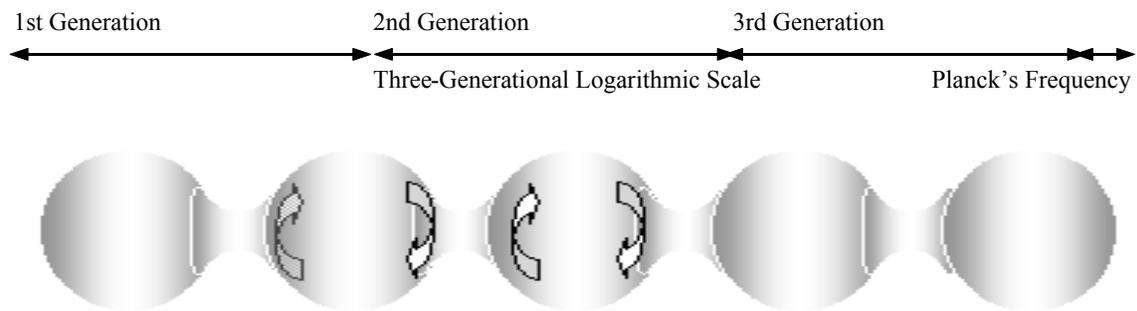
an individual loop, itself, and the eleventh power is a multi-generational fractal effect. However, this formula was derived backwards knowing the answer in advance in order to achieve a possible structure, and then only recalculated forward to show that the proposed structural concept was viable. Therefore, there is still much math required to actually prove or disprove this formula, since no explanation is provided for why there are eleven generations or for a method to calculate the cross sectional diameter. However, there is a way to double check the formula by spacing each of the eleven fractal generations $1/137$ apart, and to therefore multiply this factor to the eleventh power yielding the following result.

$$1 / (137.035999)^{11} = 3.124774 \times 10^{-24}$$

Applying this dimension to the radius of an electron would then yield a fine structure that is within 5 % of Planck's Length. This same ratio would apply equally to both the tensed and compressed conditions of the *energy cell structure* within an electromagnetic wave, as illustrated below. It is understood that, although both the structure and the formula are viable, they still need more explanation, clarification, and edification.



First Generation Electromagnetic Waves

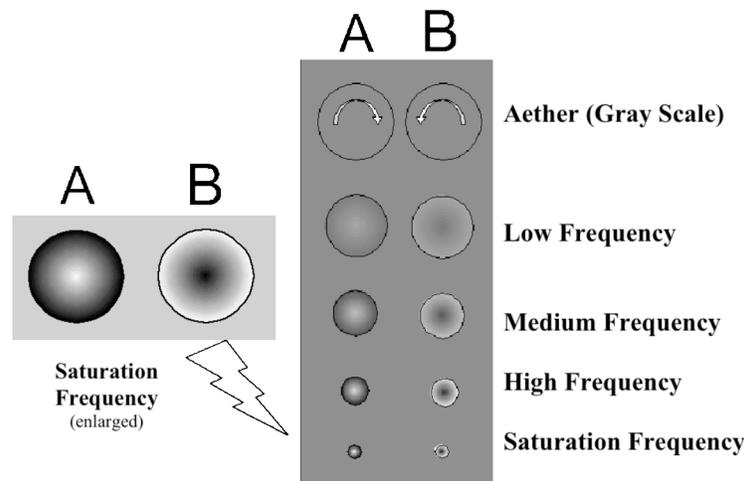


The next step is to see how this proposed structure for the aether fractal plenum (AFP) fits into the illustration for the first generation of electromagnetic waves as presented last year at the 15th NPA Conference. First of all, it was proposed that the electromagnetic wave spectrum is divided into roughly three equal logarithmic segments for each of the three generations of electromagnetic waves, as illustrated in the line chart above. Also, in the picture above, the mechanics of an electromagnetic wave are visualized to operate the same as the mechanics of a timing wheel and/or timing spring in a mechanical clock, which functions as a rotary oscillating system. That is, an electromagnetic wave spirals or spins inward and outward along its axis of propagation within the aether, just as a timing spring spins back and forth and spirals in and out along the axis of its shaft. This mechanism of alternating tension or stretching and compression or accumulation would occur macroscopically compared to the individual *energy cells* within the proposed energy cell structure. When the developing and alternating charges reach saturation within the aether, the first generation electromagnetic wave ends and a concentric second-generation electromagnetic wave begins.

There are still some details that need to be clarified. The first is the phase difference between the electromagnetic and electrostatic vectors for the electromagnetic wave, which are measured 90 degrees out of phase spatially, but in phase with respect to time. Whereas the phase difference for the force and spin vectors for a timing spring are 90 degrees out of phase with respect to time only. This difference could be either by definition, by measuring techniques, or by a lack of understanding of the mechanisms within the measuring device. For example, the measuring device could be measuring the surrounding dark wave, instead of the inner concentric light wave. However, the spin vectors (magnetic) and the force



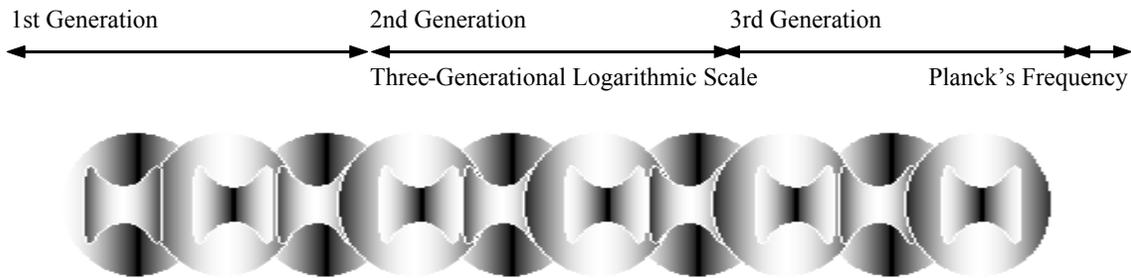
vectors (electrostatic) must be 90 degrees out of phase or the wave cannot oscillate. In the diagram above, cross sections A & B have been added to and identified in the preceding illustration for the first generation electromagnetic wave, and then further illustrated in the second diagram below:



The gray background represents the proposed multi-dimensional multi-generational *energy cell structure* within the AFP, which is too small to be visualized at this scale. The A cross-section represents the compressed or accumulated point in the wave, and the B cross-section represents the tensed or stretched point in the wave, and they occur 180 degrees out of phase with each other. At low and medium frequencies neither cross section is at saturation, but are instead represented by varying shades of gray. Also, the size of the wave decreases as the frequency of the wave increases. The first generation of light waves ends or saturates at the frequency of approximately one electron volt just below the frequency of visible light, which then also becomes the definition for a single quanta of energy. Therefore, below the frequency of light, waves exist, and above the frequency of light, photons exist. An electromagnetic wave or a photon for a very brief moment at the point of saturation does contain mass, but it is

then released as the wave propagates onward through the aether. This is a very brief portion of the saturated wave that looks like a particle and not a wave. However, since the surrounding dark wave is not at saturation, no energy cell links have been broken, and therefore, particles cannot form, and the wave unwinds and continues to oscillate.

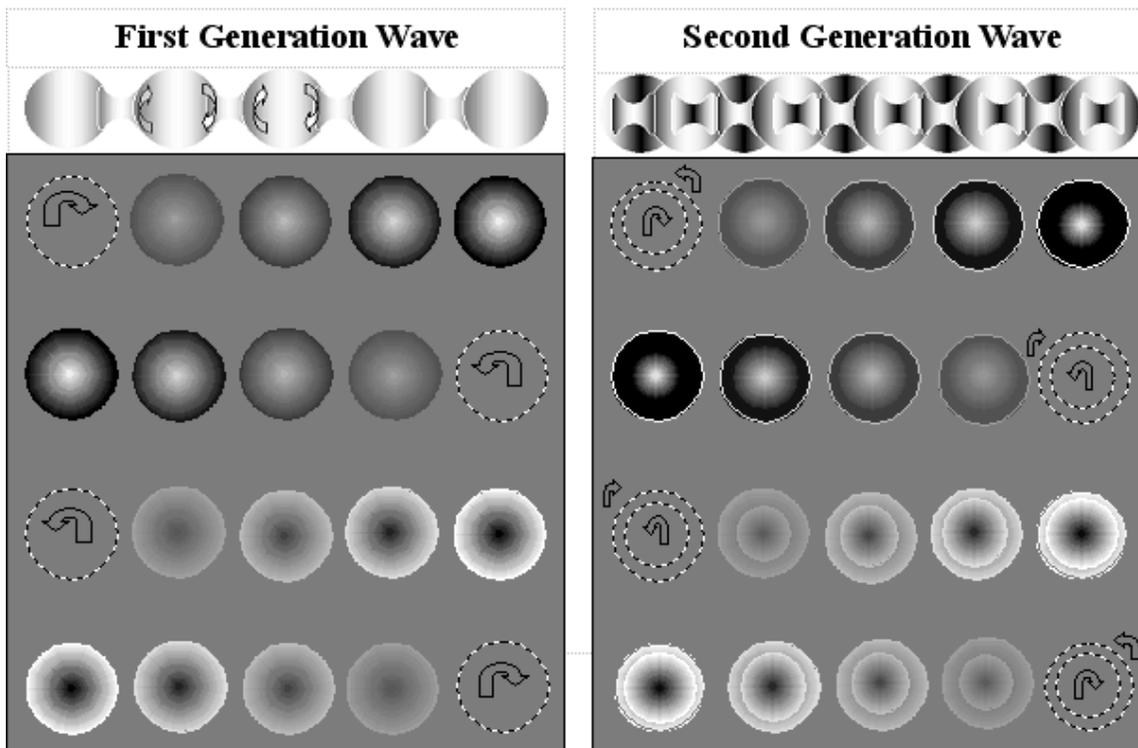
Second Generation Electromagnetic Waves



As the frequency of the electromagnetic wave is increased beyond saturation, dark waves begin to form and to take shape. At higher energies and at speeds above the frequency of light, the electromagnetic wave functions as a push-pull vacuum pump, creating a vacuum in space as it travels through the AFP. As the speed increases to higher and higher frequencies, it pushes and pulls a deeper vacuum. These emerging dark waves are the antithesis of the light waves, and oscillate between two concentric light waves, with the inner light wave being of the first generation and the outer light wave being of the second generation. Also, any parameters assigned to the dark wave, are assigned in error or only for convenience, but instead belong to the outer concentric light wave, since voids can have no properties or parameters.

The mechanism for this process would be the energy of a saturated photon expanding more quickly than its natural propagation speed and alternately pushing the aether around it, first into lateral tension or stretching and then into radial compression or accumulation. Next, the energy of the photon again retracts more quickly than its natural propagation speed, and along with the momentum of the surrounding expanding aether, pulls a partial vacuum between them. This process would occur only at frequencies above the first generation saturation point, therefore no particles could form within the first generation of waves. Furthermore, it is proposed that at a frequency of the square of the saturation frequency of the first generation wave, the outer second-generation concentric wave saturates.

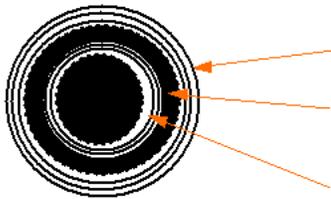
At this point in the wave cycle, the first generation wave has broken all energy cell links with the concentric second-generation wave, and has therefore momentarily separated from the AFP (aether fractal plenum). All that is necessary to make that separation permanent, is to bring three spherical waves together in phase and on a 3d axis, such that together the three separated portions can combine together three-dimensionally and permanently to form a new particle. All *energy cells* would then be broken on a 3d basis, with the outer second-generation concentric wave and hence the outside world. However, it is still surrounded by a three-dimensionally saturated outer concentric light wave, which would not be able to remain permanently saturated, since its *energy cells* are not broken with the outside world. Therefore, all energies within the outer concentric waves would continue to oscillate and would eventually mutually dissolve, thereby freeing the inner permanently saturated particle to move about on its own.



The actual saturation point for the combined particles would be below the actual saturation point for the individual dark waves, since the three waves that are involved in the creation of the new particle each contain only one third of the charge. Cross sections for every 22.5 degrees of a 360-degree electromagnetic wave are shown in the above charts for both the first-generation and the second-generation waves, for the purpose of comparing the internal wave structure.

It is very important to note that inside an up quark is a not down quark. In other words, if it is up then it is also not down, even the sentence makes sense. This same correlation exists for each of the four quark pairs. That is, the down quark is paired with the not up quark, the charm quark is paired with the not strange quark and the strange quark is paired with the not charm quark. Also, since the up quark has a positive charge, the not down quark would also have a positive charge, which when added together equals (1) one. Therefore, the total charge in any segment of the wave is always plus or minus one. This further impacts the proposed structure for the combined quark pairs. For example, the up quark is saturated aether with a plus two-thirds charge and the not down quark has the remaining plus one-third charge. Since, voids are nothing and can have no charge, it is instead in reality a void surrounded by a plus one-third charge. This charge is then congruent with the plus 2/3 charge of the up quark as illustrated below:

1st & 2nd Generation Quarks at 45 degrees

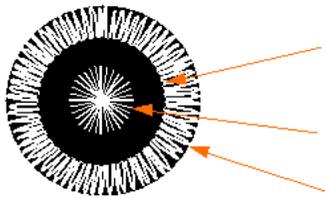


+ 2/3 charged Up Quark (in tension)

+ 1/3 charged Not Down Quark (represented by the void)

Actual + 1/3 charged Not Down Quark (in tension)

1st & 2nd Generation Quarks at 225 degrees



- 2/3 charged Not Up Quark (represented by the void)

- 1/3 charged Down Quark (in compression)

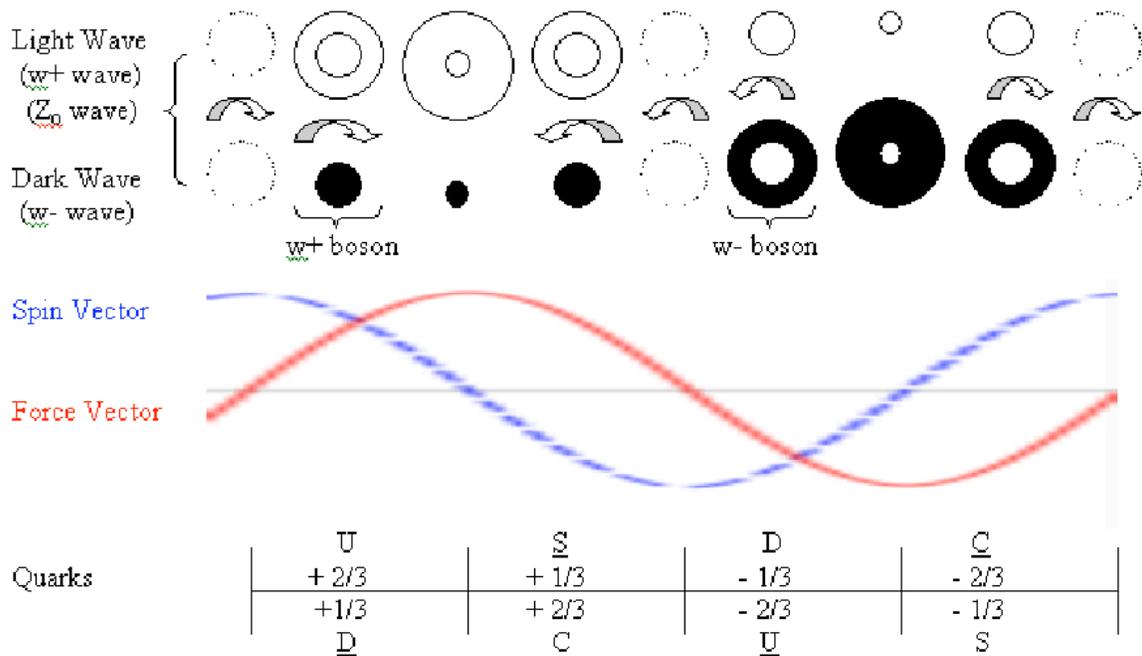
Actual - 2/3 charged Not Up Quark (in compression)

It must be noted as illustrated in the above diagrams, that although plus and minus charges may be thought of as light and dark, they are actually tension or stretching of the aether, and accordingly, compression or accumulation of the aether. Tension occurs at the outer edges of the wave and is represented by a positive charge, and compression occurs at the inside of the wave and is represented by a negative charge. Therefore, both positive and negative charges are merely different forms of the aether, as voids have no properties. This scenario is similar to a glass of water being half full or half empty. The glass may be half empty, but it is the bottom

half filled with the water that has the properties of the water. Accordingly, voids do exist, however they have no properties. Finally, it is proposed that quarks do not exist at all independently from each other or from the aether, but instead, are merely a method for defining the amount of potential or virtual energy that is contained within the electromagnetic wave oscillating within the AFP (aether fractal plenum), and that is used during the process of the formation of particles.

Quarks as Charge Segments of a Z_0 Electromagnetic Wave

As proposed last year at the 15th NPA conference, quarks are not particles or partial particles, but instead, are quantum charge segments of the Z_0 electromagnetic wave. A quark is then the portion of the electromagnetic wave of maximum angular momentum and/or maximum energy, which is midway between the maximum spin and the maximum force vectors. Therefore, each cycle of an electromagnetic light wave contains four packets or quanta of energy centered at 45, 135, 225, 315 degrees into the wave. Integrating each over 90 degrees of the wave, gives you the total charge for each individual packet of energy.

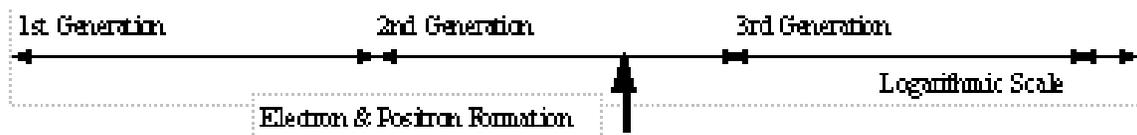


From the earlier description of an electromagnetic wave, each of the four packets would be different, that is, each wave is comprised of four

unique combinations of up and down spin, and in (negative) and out (positive) charge. Its antithesis, the dark wave or outer concentric light wave, also has four individual packets of energy, which are also uniquely different. Accordingly, these eight individual packets of energy are the missing up, down, charm and strange quarks and their four opposites, as illustrated on the preceding page. Moreover, quarks of the first generation are simply charge segments of a saturated light wave, and quarks of the second generation are simply charge segments of a saturated dark wave (or outer concentric light wave). Also, the three colors of a quark are simply quarks that are oriented in each of the three polar dimensions of three-dimensional space.

The w^+ and w^- bosons as identified in the chart on the preceding page, are wave segments representing only half of a lopsided wave, and are unique and special since these two segments of the electromagnetic wave are not only reasonably stable, but they also have the ability to regenerate themselves. Therefore, a U quark can regenerate a \underline{D} quark, and a \underline{U} quark can regenerate a D quark. This is because of the momentum of the previous \underline{C} or C quark respectively, and the up direction of the spin, and should result in a slightly lower frequency of the wave. Finally, it is only the up and down quarks that are stable since they are winding out and winding in respectively, whereas the charm and strange quarks are unwinding towards the neutral position of the *energy cell structure*.

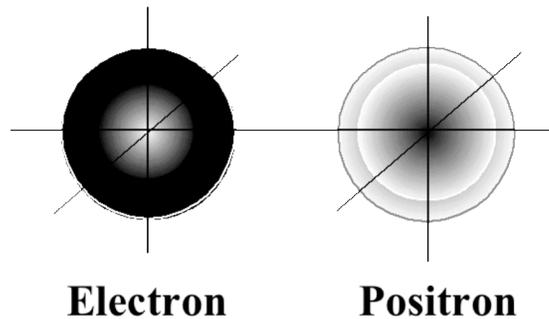
Electron-Positron Pair Production



As illustrated in the figures below, an electron would form by bringing together three coincident Z_0 electromagnetic waves in phase with each other and on three-dimensional polar coordinates. Also, at 180 degrees out of phase, but in the same wave and at the same time, a positron would form by bringing two more coincident Z_0 electromagnetic waves in phase with the 180 degree phase point on parallel three-dimensional polar coordinates. In effect, this structure would form a 3d node lattice matrix. The ddd quark electron would be surrounded by a not uuu quark, and the not ddd positron would be surrounded by a uuu quark. However, since only the

inner two particles of the electron and positron are both in saturation and have all the *energy cell links* broken with the AFP and the outside world, only they would continue to exist. Whereas, the surrounding double uuu positron and not uuu quark are still attached to the AFP via *energy cell links*, and therefore would eventually mutually dissolve, leaving only the electron and the positron free to continue on with their own individual life courses.

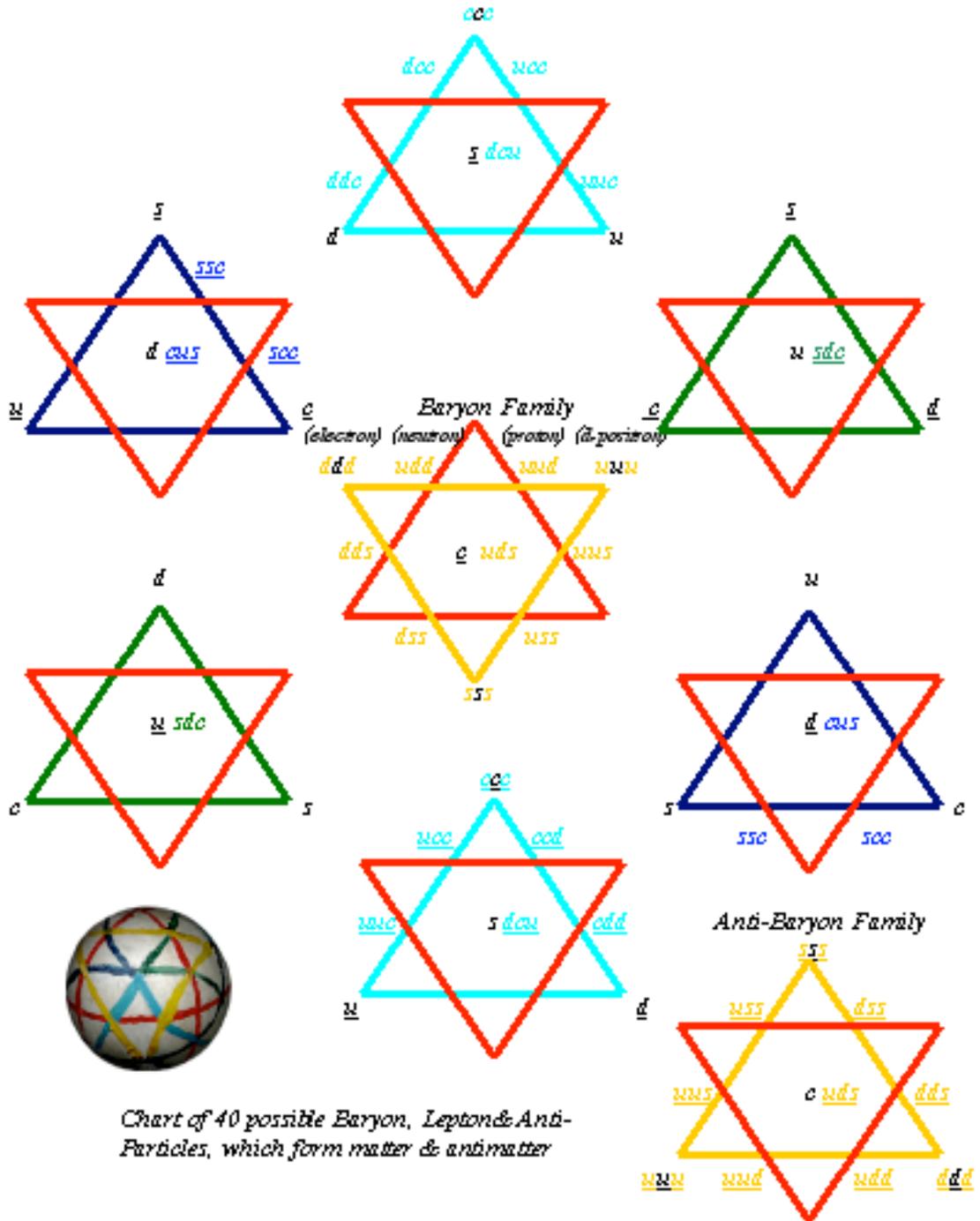
ddd - Electron uuu - Double Positron
uuu - Anti-Double Positron ddd - Positron



Again, the two parameters that must be met for electron-positron pair production is that first the frequency of the wave must be high enough so that the shape of the quarks are spherical, and second that the dark wave must also be negatively saturated in its antithetical direction. Spherical shapes are required so the up and down quarks can combine coincidentally and spatially on each of the three polar axes of three-dimensional space to form spherical particles, and saturation is required so that three combined quarks are synthesized or morphed into isolated saturation independent of the aether. It is therefore proposed that unlike baryons, which are in tension and are rings, leptons are in compression and are spheres. However, both can oscillate or vibrate through a particular range of definite sizes, independent of the aether surrounding them.

The Formation of Particles

Three of any of these eight first and second generations of quarks can be charted into their respective particles on a three-dimensional polar axis as illustrated by the red lines on the following picture of an unfolded "*Higgs Boson Ball*". Accordingly, when taking into account each of their respective

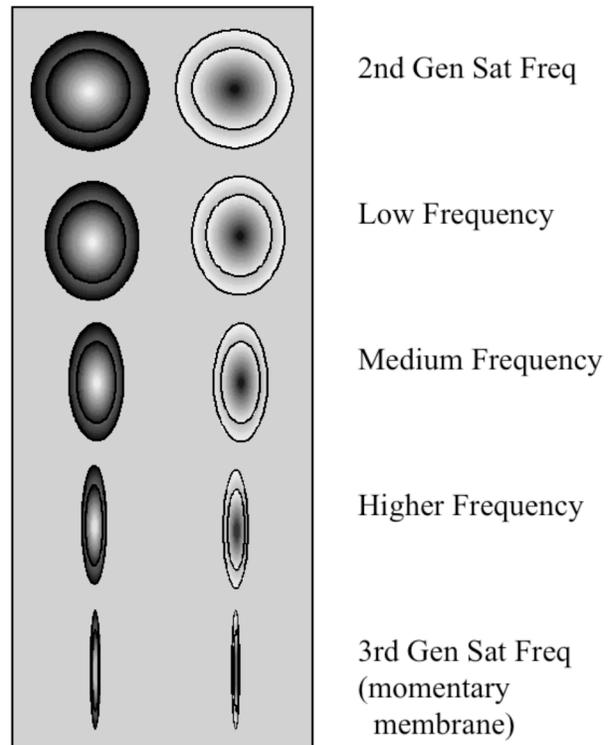


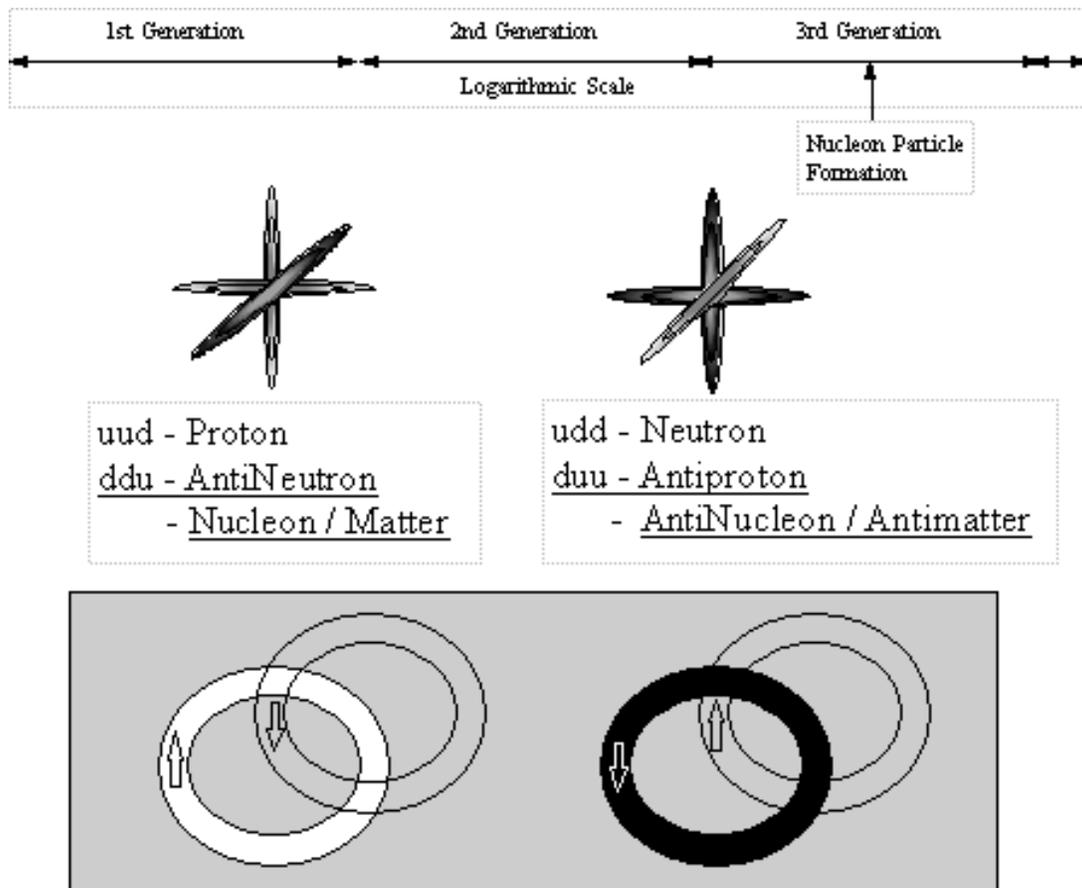
phase relationships and magnetic spins, each of the eight quarks then fit neatly into the center of each of the eight polar quadrants. Moreover, each of those eight points on the "Higgs Boson Ball" represent the spin axis of a new particle, which has just been created by superimposing three quarks in the same space and at the same time, and thereby forcing the aether into

saturation. These waves cannot escape as they do in a simple electromagnetic photon wave, since the axis of spin is no longer in the direction of any of the individual energy strings in each of the three original quark segments of their source electromagnetic waves. The new particle is then locked into saturation and takes on its own characteristics and identity separate from the AFP (aether fractal plenum), including mass. The synthesizing of quarks into particles can then be charted as illustrated on the “*Higgs Boson Ball*” in the preceding picture. The specific energy levels required to synthesize each of these various particles would be at different energy levels depending upon the size and shape of the quarks used in the construction process and the size and shape of the finished particles.

Third Generation Waves & Nucleon Pair Production

The third generation of electromagnetic waves functions similar to both the first and second generations, in that it frees the second generation of quarks to form particles, just as the second generation wave freed the first generation of quarks to form particles. However, the mechanism for the third generation wave is substantially different than the first two generations, which are saturated in the transverse directions, whereas the third generation wave saturates in the longitudinal direction. Hence, there is a phase shift between the electric and the magnetic components from a fixed ninety degrees in the first two generations of waves to zero degrees at saturation of the third generation of waves. It is also then possible that at the saturation point of the third generation of waves, that a momentary membrane forms, like a flicker of light, from the structure of the matter within which it is oscillating.





In the third generation of waves, if three uuu quarks or three ddd quarks come together, no particles can form, since the lepton family are spherical in shape and are in compression, and since the waves have now become flattened. However, uud and ddu baryons can form, since they are in tension and are in the shape of loops or rings. When two third-generation waves come together in phase with another third-generation wave that is 180 degrees out of phase, the proton forms and is interlocked with an anti-neutron. Likewise, 180 degrees later in the same wave the neutron forms interlocked with an antiproton. However, since both the neutron and the anti-neutron have no charge but are only opposite in the direction of spin, it is proposed that the proton/anti-neutron is the pair contained within the nucleon. Furthermore, it is proposed that the antineutron probably forms a sheath around the proton, providing the nucleon with stability and long life. The neutron and antiproton, which together form the anti-nucleon, probably lose their individual integrity and are instead absorbed into a single anti-matter particle at the center of the nuclear mass reaction.

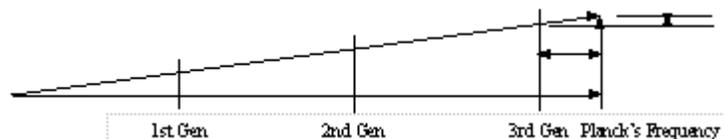
Planck's Length & Planck's Frequency

	FREQUENCY	UNITS	CHARGE
	30	THz	.124 ev
	61.8	THz	.255 ev
	80.645	THz	.333 ev
	123.559003	THz	.511 ev
1st Gen Saturation Point	241.798985	THz	1.00 ev
	265	THz	1.09 ev
	300	THz	1.24 ev
	3000	THz	12.40 ev

1st, 2nd, 3rd Generation Saturation Points

Saturation Frequency (1st gen - light wave)	2.417990	10^{+14} cycles per second
Saturation Frequency (2nd gen - dark wave)	5.846675	10^{+28} cycles per second
Saturation Frequency (3rd gen - phased wave)	14.137201	10^{+42} cycles per second
Planck's Frequency	18.5487	10^{+42} cycles per second
Ratio — Wavelength / Planck's Frequency	.76217 to 1	
Planck's Frequency/Wavelength	1.31204 to 1	

There are then several scenarios that could define Planck's length, Planck's frequency and the end of the electromagnetic wave spectrum. The first alternative as illustrated above, places the first-generation saturation point at 1 electron volt, and then squares and cubes that frequency for both the second and the third generation of waves, respectively, which generates a frequency within 25% of Planck's Frequency. The second alternative simply places the first-generation saturation point at 1.09 electron volt, which is the cube root of the Planck's Frequency, however, this does not agree with the earlier purported shape of the waves for the formation of nucleons. The third alternative is to keep the saturation point at one electron volt and then to explain the 25% shortfall. It could simply be a conversion factor as $3/4$ when inverted is $4/3$, which is very close to the multiplier needed to achieve Planck's frequency, however this option is very unlikely.



Another option is to realize that the 90-degree phase shift would cause the 3rd generation wave spectrum to shrink; and to therefore, extend the 3rd generation wave spectrum accordingly, by integrating the phase shift over the entire 3rd generation wave spectrum as shown above. This was done with mathematical progressions and came within 6 parts in 100,000 of Planck's Frequency; however, it would have to be verified by mathematical equations. Finally a fourth possibility is that the extended wave spectrum actually surpasses the 90 degree phase shift and that at around a 118 degree phase shift a miniature black hole is formed as shown below, and which may be a pair of uuu/ddd and uuu/ddd particles. Of course, this is all dependent on that momentary membrane flash or flicker that was alluded to earlier, and then it could only occur when it is within or surrounded by matter. Also, the internal mechanics of a black hole is unknown; however, its properties are not defined by the void, but instead defined by the cauldron of forces within the AFP (aether fractal plenum) that surrounds the black hole.

Another entirely different possibility is that the three generations of waves are not spaced equally over the entire electromagnetic wave spectrum; or that instead of three generations of waves, there are actually eleven generations mirroring each of the eleven layers of the aetheral fractal. Then the three generations under investigation would occupy a smaller portion of the entire electromagnetic wave spectrum.

The Creation of Matter and An Expanding Earth

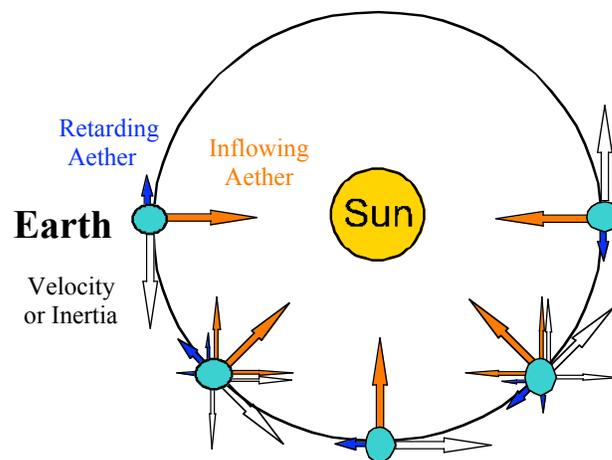
Matter is then created within the third generation of waves, however it probably requires an interaction between those waves and existing matter, which acts as the seed or the catalyst to get the reaction started. The energy to keep the reaction going would then come from the *energy cell structure* within the aether itself, as it preexists within the AFP (aether fractal plenum) and is drawn into the reaction as inflowing aether. Accordingly, the AFP of the universe in its simple and pure state is not an inert, nor a homogeneous substance, but is instead composed of *energy cells* in various forms and shapes. Accordingly, not only can the energy of hydrogen be fused into helium generating a surplus of energy, but also the aetheral energy within the AFP can be fused into saturated aether and/or subatomic particles, thereby also generating a surplus of energy. This would then create a self-sustaining method within the Earth, to first convert or fuse this simpler kind of energy within the AFP into the more complex energy of particles and

eventually hydrogen; and then second to convert or fuse the hydrogen into the other elements of the periodic chart. The end result would be a black hole and its corresponding nuclear reaction at the center of the Earth that creates matter, and thereby causes the Earth to grow and to expand from within.

This same process would then also define the growth or expansion process within the all the moons, planets, stars, and galaxies within the universe, as well as the universe itself. Therein, lies the problem, of trying to first visualize and then to define the structure of this mechanism. It must in some way be similar to a three-dimensional version of the eye wall of a hurricane, and must be similarly fueled by two opposing energy sources. A black hole surrounded by an event horizon of saturated aether or plasma that is confined at fusion temperatures would do for the dark energy and the *energy cell structure* for AFP would do for the light energy. It is therefore proposed that there is a black hole at the center of all of the celestial bodies within universe causing them each to grow and to expand, and thereby creating the gravitational fields that surrounds them.

Bodies Orbiting through the AFP

The mechanics for the forces at work within celestial bodies orbiting through the AFP would not be as normally accepted today. That is, celestial bodies do not travel unencumbered through empty space as they orbit each other. Instead, they are met by at least two different forces as illustrated in the figure below of the Earth orbiting the Sun.



Force Vectors for the Earth orbiting the Sun

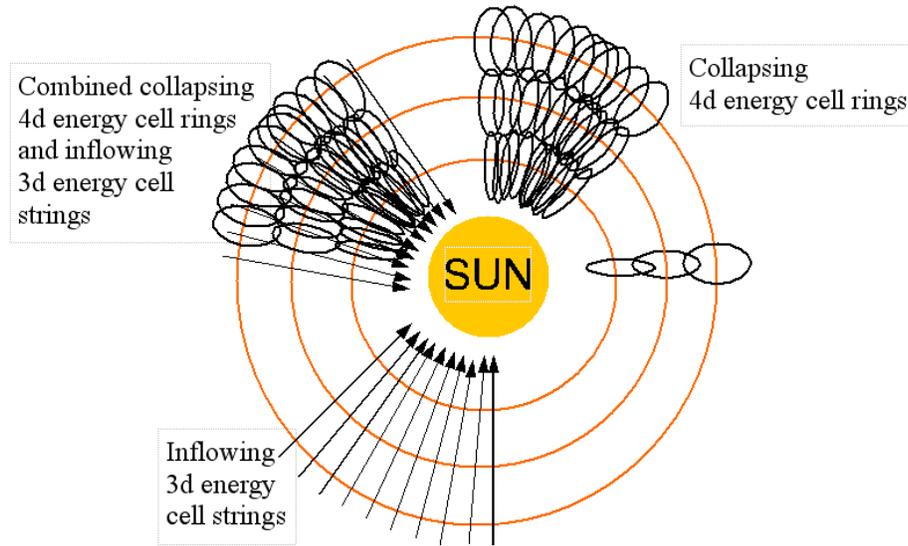
The first force is a retarding or decelerating force, and is caused by the Earth traveling through the AFP, as illustrated by the vectors in blue. It is the end result of the Earth tearing and ripping apart the 3d and 4d *energy cells*, so that they can flow around and through the Earth as *energy cell strings*, only to reform, reassemble, and to repair the AFP after the Earth passes through them. This force consistently and constantly slows the Earth down as it travels through the AFP. The second force is an oscillating accelerating and decelerating force, and is caused by the aether flowing into the Sun, where it is converted into mass and becomes the part of the body of the Sun as the Sun grows and expands, as illustrated above by the vectors in red. It is the end result of the aether pulling and tugging on each of the particles comprising the Earth, as it travels through and around the Earth on the aether's journey into the Sun.

The second force is by far the greater of the two forces and is what keeps the Earth in orbit around the Sun, as the forces oscillate as accelerating and decelerating forces. The first force is the force that continually slows the Earth down on its orbit around the Sun, and causes the Earth to slowly spiral into the Sun. However, it is a very slow process and is not the end of the story. For the Earth is also growing and expanding, which along with the Sun's growth in mass causes additional changes in the Earth's orbit around the Sun. Also, there would be tertiary effects caused by our Earth's moon and the other planets and moons in our solar system, all growing and expanding as they orbit the Sun and each other.

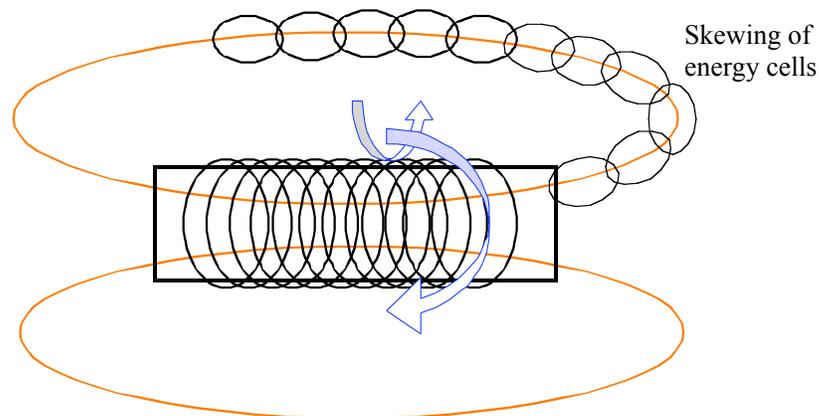
Gravitational & Magnetic Fields & Lines of Force

Gravitational fields can be represented by spherical and concentric lines of force within the AFP, as the aether flows into the celestial bodies. Also, as the lines of force become closer together and hence more intense, the *energy cells* collapse or accumulate increasing the density of the aether as illustrated in the diagram on the next page. It is the inflowing aether that causes electromagnetic light waves to appear to bend as they travel near large body gravitational field, and it is the increase in density of the aether that slows down the propagation speed of light and accounts for the warped space-time continuum. Therefore, the warped space-time continuum does not exist and is a misnomer, but is instead a combination of mechanical processes at work within the AFP. Also, measurements of gravitational forces in small bodies are a misnomer, but are instead forces of cohesion,

which are caused by their relative velocity to the aether within the AFP. This is another unique example of Bernoulli's Principle.



The speed of light is caused by the 4d *energy cell structure* within the AFP and the speed of gravity is caused by the 3d *energy cell structure* within the AFP. Finally, magnetic fields are not aether in motion, but instead the *energy cells* within the AFP skewed by twisting, and then holding or maintaining the *energy cells* in this skewed position, thereby creating a skewed charge field distribution. It is this same mechanism that accounts for the magnetic components within the electromagnetic wave, except that as the electromagnetic wave oscillates back and forth, the skewing also oscillating back and forth. The magnetic lines of force are then the common circular and/or oval paths of skewed topography.



Magnetic Fields & Lines of Force

Finally, the term AFP (aether fractal plenum) is a term derived in recent joint meetings between Don Briddell and myself, in an effort to integrate each of our own two concepts, and to improve our own abilities to intercommunicate the meanings and descriptions of the various forces and energies that we each perceive to exist within the universal energy field.

Conclusion

There are three main points contained within this paper. First, that aether, or more appropriately the AFP (aether fractal plenum) is a multi-generational, multi-dimensional fractal composed of individual *energy cells*, which are structurally interconnected into three states, of which the interlinked state accounts for the speed of gravity and the magnetically coupled state accounts for the speed of light. Second, that electromagnetic waves are *rotary oscillating systems* within the structure of the AFP, that the three generations of electromagnetic waves are *concentric*, that *electrons and positrons* are created by saturated spherical waves within the *second generation* of electromagnetic waves, and that *protons and neutrons or nucleons* are created by saturated oval waves within the *third generation* of electromagnetic waves. Finally, that Planck's Length is related to the saturation point of the third generation of electromagnetic waves, and that the Alpha Constant is related to the saturation point of the aethereal fractal. In conclusion, and condensed down to its most basic fundamental level, "*all things in the universe are structure, and structure is the only way that any thing can exist - including the aether, the stars, the planets, our selves, our speech, our souls, our memories and everything else that exists.*"

Although the theory presented within this paper may still contain some conflicts, omissions, and errors that need to be resolved, it is presented to the members of the NPA as a source of ideas, in the sincere hope that an acceptable and valid, structurally based mathematical proof for Planck's Length or the Fine Structure Constant can be achieved, and thereby the exact and precise structure of the AFP (aether fractal plenum) finally realized.

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