Aethereal Fractal Structures for the Electron & the Proton

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Three-dimensional fractal structures that are created by electromagnetic waves oscillating within the aether fractal plenum are developed for the internal structures of electrons and protons. These structures are derived from previously defined hexagonal fractals, twist-loop fractals and fractal periodic tables; and are then structurally integrated with Sierpinski's Triangle, Pascal's Fractal, and the Dodecahedron Quark Ball, and mathematically integrated with Electron Mass, Proton Mass, the Phi Pyramid and Planck's Length.

1. Introduction

The purpose of the paper is to further delineate the fundamental characteristics of the fractal based structures that exist within the aether fractal plenum. There are four basic assumptions upon which these fundamental characteristics are derived. The first assumption is of course that there is an aether that pervades all of the spaces within the universe including both the material and the nonmaterial worlds. The second assumption is that the aether has a fine structure within which the smallest electromagnetic wave or highest frequency that can be manifested is directly related to or is a derivative of Planck's Length. The third assumption is that all particle formations are fractal structures within the aether that are built upon and built from scalar multiples of the smallest electromagnetic wave at Planck's Frequency. And finally, the fourth assumption is that the aether is a hyperdynamic, non-homogeneous, elastic substance that creates and forms a myriad of plethora's of various field structures, which exist as a holistic array of constantly changing motions and structures, and which thereby together form an interrelated complex of mass distribution patterns and electromagnetic field structures.

2. The Structure of Aether

The following is a quick review and a very brief summary of those philosophies presented in earlier papers that have direct application to this paper. Aether is proposed to be an elastic substance made of individual energy cells at Planck's Length, that is energy cells first form at Planck's Length and then all subsequent structures are harmonic multiples or composites of those structures. Individual energy cells illustrating positive and negative charge are shown in Fig. 1 [2].

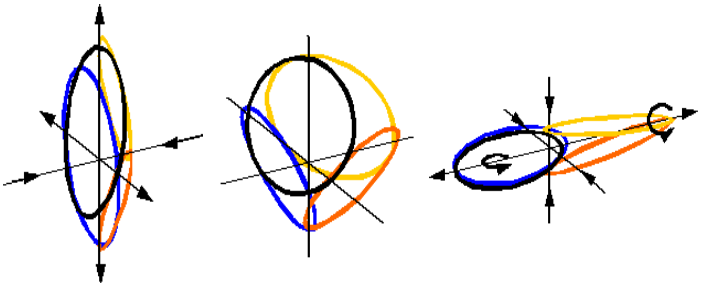

Fig. 1. Negative (left) and Positive (right) Energy Cells

The overall composite structure for aether is proposed to be an elastic octahedral structure of harmonically interwoven energy loops as shown in Fig. 2 [2].

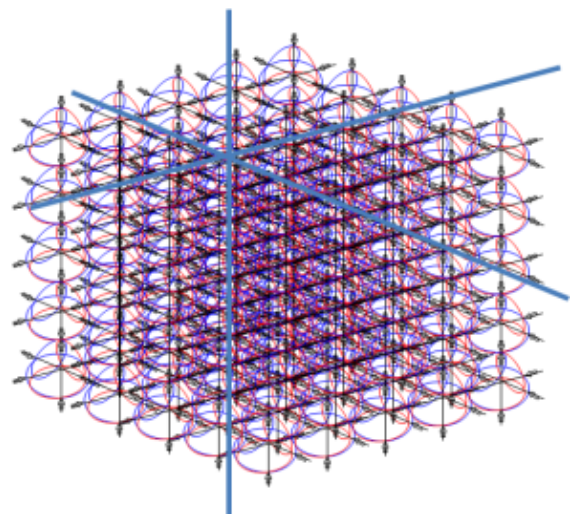

Fig. 2. The Proposed Structure of an Elastic Aether

3. Electromagnetic Waves

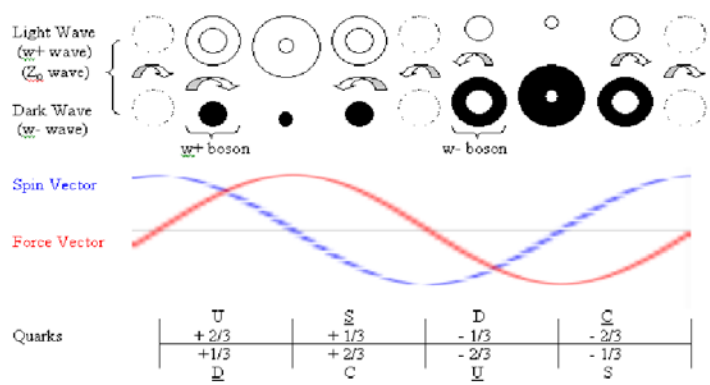

Fig. 3. 360° Graph of an Electromagnetic Wave

A 360 degree graph of an electromagnetic wave is shown in Fig. 3 [1]. It is simply a depiction of the force and velocity of any oscillatory system, such as a pendulum, a spring or a rotary oscillating system such as a timing spring on a watch. In all cases the energy oscillates back and forth from stored or potential energy to velocity or dynamic energy, and which are 90 degrees out of

phase with each other. Accordingly, quarks are proposed to be magnetic and static force fields contained within a saturated electromagnetic wave, and therefore quarks are not particles. Fig. 4 illustrates the method by which three electromagnetic waves are transposed via polar coordinates onto the surface of the Dodecahedron Quark Ball as shown in left side of Fig. 5 [1]. One 360 degree cycle of the electromagnetic wave graph is equivalent to 360 degrees of rotation of the Quark Ball. When the surface of the Quark Ball is unfolded it creates a chart that is identical to the current method for organizing particles as shown in the center and right side of Fig. 5 in the Baryon Octet, which therefore adds credibility to both the wave graph and the quark ball. There are eight such octets in a single spherical Dodecahedron Quark Ball. A three-dimensional illustration of a saturated second generation electromagnetic wave is illustrated in Fig. 6 [1].

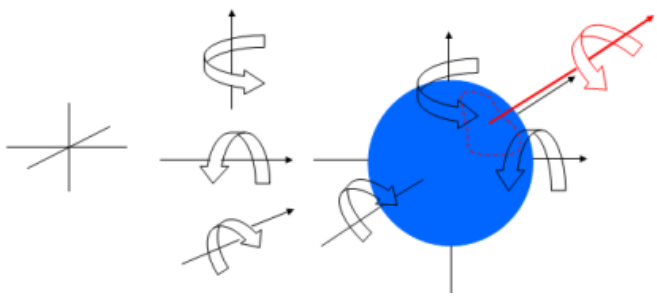

Fig. 4. Polar Spin Coordinates Used in Creating the Quark Ball

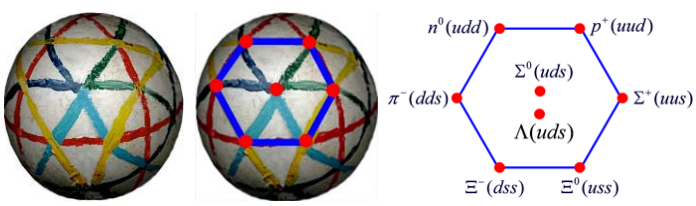

Fig. 5. Dodecahedron Quark Ball & Baryon Octet Quark Chart

Fig. 6. 2nd Generation Electromagnetic Wave Structure

4. Fractal Structures within the Aether

An 11 twist-loop fractal is illustrated in Fig. 7, a 9.5 twist-loop fractal is illustrated in Fig. 8 and a hexagonal fractal is illustrated in Fig. 9 [3]. All of these fractals are defined by the following simple equation [3]:

$$2\theta = \frac{2\pi}{N} \quad => \quad S = \sin\frac{\pi}{N} \tag{1}$$

Data summaries and data analysis from these fractals clearly illustrate that the hexagonal fractal best defines the structure of aether, and that at least 10 powers of 6 or over 60 million cells are required for comparable structures for the proton and electron to have enough resolution to fall within the standard CODATA definitions for electron and proton mass [5]. A periodic table for the hexagonal fractal is shown in Table 1 on the next page.

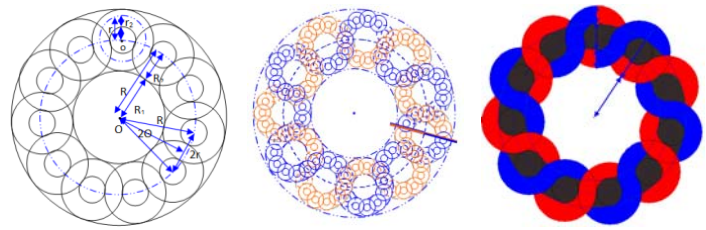

Fig. 7. 1st & 2nd Generation 11 twist-loop fractal

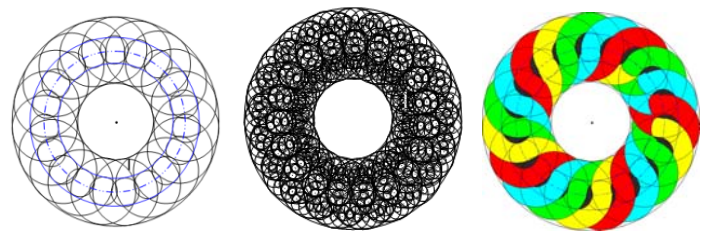

Fig. 8. 1st and 2nd Generation 9.5 twist-loop fractals

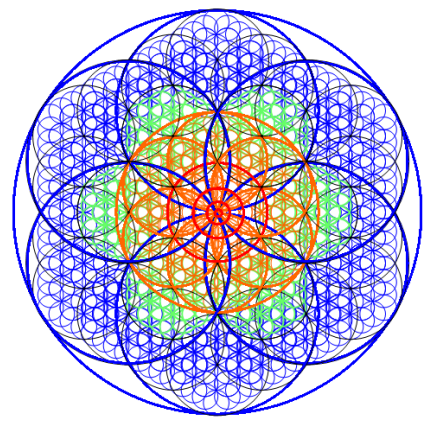

Fig. 9. Fifth Generation Hexagonal Fractal

5. The Phi Pyramid

The Phi Pyramid as illustrated below in Fig. 10 is a method for analyzing the octahedral structure of aether, a method to charge structures within the aether, and for energy to transpose from one structure to another structure at the square intersect points as illustrated with the red and yellow dashed lines on the base of the pyramid [4]. A mathematical analysis of the structure as derived from Fig. 10 yields four solutions to the equations:

$$A = +1.61803 \qquad B = +0.61803 \tag{2}$$

$$A = -1.61803 \qquad B = -0.61803 \tag{3}$$

$$A = +0.61803 \qquad B = +1.61803 \tag{4}$$

$$A = -0.61803 \qquad B = -1.61803 \tag{5}$$

More importantly, the natural logs of both A or B are the same, and therefore,

$$\ln A = \pm .481211825 \qquad \ln B = \pm .481211825 \tag{6}$$

This is proposed to be the method for particle structures constructed from individual octahedral energy cells of aether to take on charge by stretching or collapsing until all the forces within the structure are balanced, which would occur at $\ln\phi$.

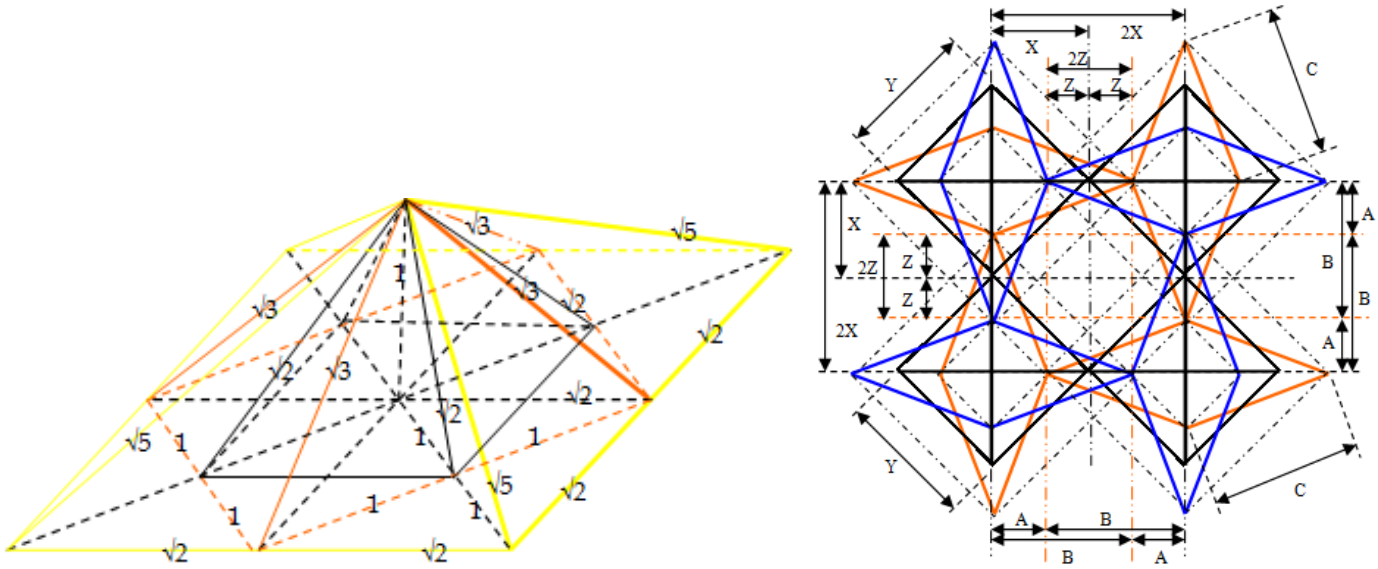

Fig. 10. The Phi Pyramid (left) and Mathematical Phi Charge Analysis (right)

Level	Scalar	Correction	Ratio	Prime #				Prime #		Prime #		Prime #	Prime #	Prime #
	2	0.5		(11)	(10)	(9)	(8)	(7)	(6)	(5)	(4)	(3)	(2)	(1)
1	1	0.5		32767	16383	8191	4095	2047	1023	511	255	127	63	31
2	2	1.5	3.000000000											3.000000000
3	4	3.5	2.333333333										7.000000000	2.333333333
4	8	7.5	2.142857143									15.00000000	5.000000000	2.142857143
5	16	15.5	2.066666667								31.00000000	10.33333333	4.428571429	2.066666667
6	32	31.5	2.032258065							63.00000000	21.00000000	9.00000000	4.200000000	2.032258065
7	64	63.5	2.015873016						127.0000000	42.33333333	18.14285714	8.46666667	4.096774194	2.015873016
8	128	127.5	2.007874016					255.0000000	85.0000000	36.42857143	17.00000000	8.22580645	4.047619048	2.007874016
9	256	255.5	2.003921569				511.0000000	170.3333333	73.0000000	34.06666667	16.48387097	8.11111111	4.023622047	2.003921569
10	512	511.5	2.001956947			1023.000000	341.0000000	146.1428571	68.2000000	33.00000000	16.23809524	8.05511811	4.011764706	2.001956947
11	1024	1023.5	2.000977517		2047.000000	682.333333	292.4285714	136.4666667	66.0322581	32.49206349	16.11811024	8.02745098	4.005870841	2.000977517
12	2048	2047.5	2.000488520	4095.000000	1365.000000	585.000000	273.0000000	132.0967742	65.0000000	32.24409449	16.05882353	8.01369863	4.002932551	2.000488520
13	4096	4095.5	2.000244200	2730.333333	1170.142857	546.066667	264.2258065	130.0158730	64.4960630	32.12156863	16.02935421	8.00684262	4.001465559	2.000244200
14	8192	8191.5	2.000122085	2340.428571	1092.200000	528.483871	260.0476190	129.0000000	64.2470588	32.06066536	16.01466276	8.00341964	4.000732601	2.000122085
15	16384	16383.5	2.000061039	2184.466667	1057.000000	520.111111	258.0078740	128.4980392	64.1232877	32.03030303	16.00732780	8.00170940	4.000366256	2.000061039
16	32768	32767.5	2.000030519	2114.032258	1040.238095	516.023622	257.0000000	128.2485323	64.0615836	32.01514411	16.00366300	8.00085460	4.000183117	2.000030519
17	65536	65535.5	2.000015259	2080.492063	1032.055118	514.003922	256.4990215	128.1241447	64.0307767	32.00757021	16.00183128	8.00042727	4.000091556	2.000015259
18	131072	131071.5	2.000007629	2064.118110	1028.011765	513.000000	256.2492669	128.0620420	64.0153846	32.00378464	16.00091558	8.00021363	4.000045777	2.000007629
19	262144	262143.5	2.000003815	2056.027451	1026.001957	512.499511	256.1245725	128.0310134	64.0076914	32.00189221	16.00045778	8.00010681	4.000022888	2.000003815
20	524288	524287.5	2.000001907	2052.005871	1025.000000	512.249634	256.0622711	128.0155048	64.0038454	32.00094607	16.00022889	8.00005341	4.000011444	2.000001907
21	1048576	1048575.5	2.000000954	2050.000978	1024.499756	512.124786	256.0311317	128.0077519	64.0019227	32.00047303	16.00011444	8.00002670	4.000005722	2.000000954
22	2097152	2097151.5	2.000000477	2049.000000	1024.249817	512.062386	256.0155649	128.0038759	64.0009613	32.00023651	16.00005722	8.00001335	4.000002861	2.000000477

Table 1. Periodic Fractal Table

6. Pascal's Fractal & Sierpinski's Triangle

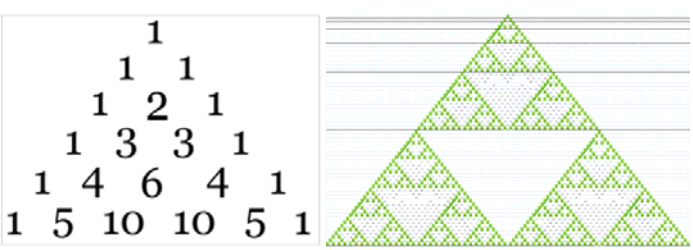

Fig. 11. Pascal's Fractal & Sierpinski's Triangle

Pascal's Fractal & Sierpinski's Triangle as shown below defines the structural definitions for mass and/or energy cells contained within particles that form matter from within the aether. However both are based upon multiples of three whereas the hexagonal fractal is based upon multiples of six as illustrated in the hexagonal fractal. It is very easy to reconcile both of these approaches with each other, but they both must also be reconciled with the Hexagonal Fractal.

7. A Structure for the Hexagonal Fractal

The next challenge is to create a real three-dimensional structure that is based upon the hexagonal fractal. In Fig. 12, three energy cells (left) are connected together along with three more energy cells (middle) and then the first three energy cells are placed on top of the second three energy cells to create a grouping of six energy cells. This is proposed to be the real 3D version of the hexagonal fractal, and which is isometric on each of its three polar coordinates. In Fig. 13, three groups of six energy cells (left) are connected together and then place on top of another identical group to form the thirty-six energy cell grouping in the middle picture. Please note the six different colored clusters of six cells each in the thirty-six cell groupings.

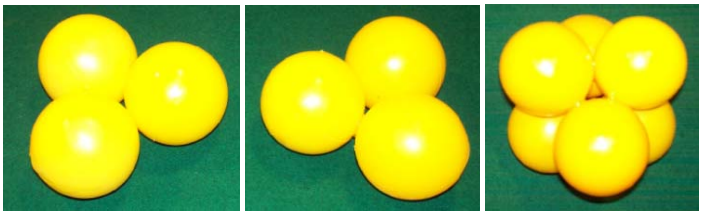

Fig. 12. Six Energy Cells in the Hexagonal Fractal

Fig. 13. Thirty-Six Energy Cells in the Hexagonal Fractal

There are many unique characteristics of this structure. First as shown in the thirty-six energy cell structure in the right of Fig. 13, the structure has the same qualities as the hexagonal fractal in that the center six energy cells in the overall structure from another six energy cell structure identical to each of the composite six energy cells as shown in the middle picture in Fig. 13. Also, this structure is both three and four dimensional, that is it forms an octahedron with three dimensional poles as well as a four dimensional infrastructure. This fundamental octahedral structure is very evident in the six times thirty-six or the two hundred and sixteen (216) energy cell version in Fig. 14, which is illustrated by six different colored groups of thirty-six energy cells each.

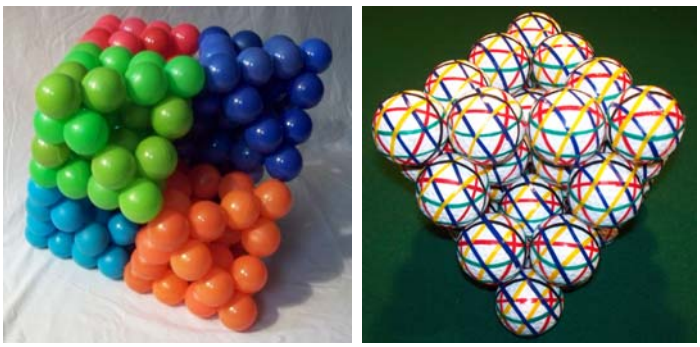

Fig. 14. 216 Energy Cells (left) & 36 Quark Balls (right)

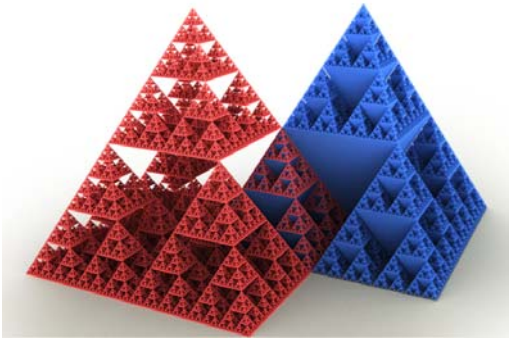

Fig. 15. Sierpinski's Pyramid

The three polar dimensions are evident by drawing an axis line between any of the six corners forming the octahedron. Also, as shown in the right of Fig. 14, when each of the energy cells is replaced with a Dodecahedron Quark Ball, all lines that were drawn on the quark ball can be made to line up perfectly. That is all of the red polar coordinate lines line up and each of pairs of four dimensional yellow, blue, green and black lines line up with each other. Accordingly, it is proposed that aetheral energy is strung together in four dimensions, but is charged and therefore oscillates in three dimensions. Finally, on each of the eight faces of the structure is an exact replica of Pascal's and Sierpinski's Triangles and finally, the entire structure is a modified version of Sierpinski's Pyramid and its inverse mirror image as shown in the right half of Fig. 15 [6].

8. Electron Structure and Electron Mass

Accordingly, it is proposed that the octahedral hexagonal fractal is the structural result created by three electromagnetic waves which are coincident on polar axes. When the coincident points are all vector down quarks according to the wave illustrated in Fig. 3, then an electron is created. Therefore, it is proposed that the above octahedral structure is the internal structure of an electron. Also, 180 degrees out of phase with the three down quarks are three not down quarks; therefore this three dimensional force field structure is coincidental with a virtual Simhony's Electron-Positron lattice [8]. The seventh column in the periodic fractal table in Table 1, lists ten levels to the seventh power, or seventy total levels. However, these levels must be segregated, that is, there must be seven distinct generations of ten levels each within the electron structure. The progression of the numbers listed under the ratio column was calculated by subtracting .5 from each number and then calculating new ratios. This was done so there would be a structure at the center of the newly formed particle and not a point. This progression is interesting in that when converting the decimals to fractional numbers, it new size simply doubles the previous size plus adds one base (seed) increment. Therefore, six energy cells combine together to form the energy center or the seed for an additional ten layers of hexagonal energy fractal cells to grow around the energy center. Then the energy either spills over into or captures five more identical cells structures, which then combine together again to form another seed for the next generation of growth. This process would then have to reoccur seven times for the electron to be completed. This may be the cause for gravity and the reason the Earth is expanding as free energy is captured by and into this overall hexagonal structure. It is hoped that Dr. Lucas or others will be able to reconcile this theory with his theory of levels and sublevels within electron structure.

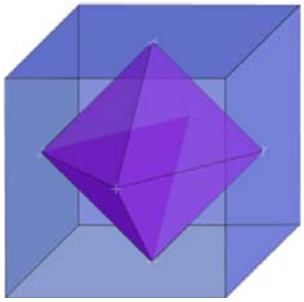

Fig. 16. Dual Polyhedra – The Cube and the Octahedron

Accordingly, the electron would be formed by the magnetic and electrostatic vectors of three electromagnetic waves coming together on polar axes, which then form an electron comprised of

an internal structure of seven generations or layers of ten sub-generations or sub- layers each. This characteristic will be very important in determining how all of the individual energy cells are interlocked and will have to be simulated on a computer. Finally, charge is added to the entire structure by collapsing the structure on any one of its three polar coordinates according to the Phi Pyramid; and then, on which of the three polar coordinates would be determined by where its antithesis, the positron, is formed. According to the wave diagram in Fig. 3, the positron would form 180 degrees out of phase with the electron, so that they would not be superimposed on top of one another, but adjacent to each other with a prescribed and predictable distance between them. Accordingly, when the electron structure is collapsed, the positron structure is stretched and the opposite charge is imparted into its equivalent structure. Again, this structure is coincident with a virtual Simhony's Electron-Positron lattice [8].

It is very evident that Tom Lockyer has the mathematics correct for the electron [7], but lacks the detail of the internal structure. So that if this proposed structure is correct, then it must be possible to correlate it with his mathematics based upon a cube, which is coincidentally the dual polyhedron to the octahedron as shown in Fig 16. Furthermore, compressing the octahedral structure with negative charge, the angles within the structure change such that three octahedral structures can be brought together to form the cube that Lockyer uses in his mathematical illustration. Moreover, the electromagnetic wave graph in Fig. 3 defines eight primary vector forces representative of his eight corners on his electron cube. It is hoped that Lockyer will be able to reconcile these two theories. Finally, each of the scaling numbers for each of the seventy levels form a whole number at each level of multiplication, and as indicated before, the total scaling level is within .32% of Planck's Length when starting with electron wavelength as shown in the following equations:

$$\text{Electron Compton Wavelength} = 2.4263102\text{E-12 m} \tag{7}$$

$$\text{CODATA Planck's Length} = 1.616252\text{E-35 m} \tag{8}$$

$$\text{Electron/CODATA Ratio} = 1.501195\text{E+23} \tag{9}$$

$$\text{Hexagonal Fractal Scaling Ratio} = 1.505999\text{E+23} \tag{10}$$

$$\%\ \text{Error} = .32\ \% \tag{11}$$

Obviously, this error must be defined or resolved during the verification process. Assuming the hexagonal fractal is correct there would then be six to the tenth power or 60,466,176 energy cells in each generational layer and 60,466,176 to the tenth power or simply six to the seventieth power or 2.9552044E+54 energy cells in all seven generations of ten layers each in each electron. The 60,466,176 is a key number since earlier analyses for the hexagonal fractal required at least ten layers of energy cells for there to be enough resolution for electron/proton mass ratios to fall within existing CODATA values while maintaining whole numbers for the number of energy cells in each particle.

9. Proton Structure and Proton Mass

The mass for a proton can be obtained by multiplying the number of energy cells in an electron by the proton/electron mass ratio as shown in Eq. 12. The internal structure for these energy cells within the proton will be based upon a toroidal loop or twist-loop fractal. Mathematics dictates that there be seven generations or less in the proton structure in order for the re-multiplication product to remain within tolerances for the known mass of a proton. This range is determined by dividing the least acceptable CODATA electron mass by the highest acceptable proton mass and then vice versa to determine the range as shown in Table 2. Accordingly, the seventh root of Eq. 12 is listed in Eq. 13 and then rounded off to the nearest whole odd number as shown in Eq. 14. Seven generations was picked as the most probable since there are also seven generations in the electron's structure. This coincidentally yields an alternate method for determining the number of energy cells in each generation by taking the number of energy cells in one generation of an electron times the seventh root of the electron/proton mass ratio as shown in Eq. 15.

$$(2.9552044\text{E+54})\ (1836.152670) = 5.4262065\text{E+57} \tag{12}$$

$$\sqrt[7]{5.4262065\text{E+57}} = 176{,}923{,}363.80 \tag{13}$$

$$\sqrt[7]{5.4262065\text{E+57}} \approx 176{,}923{,}363 \tag{14}$$

$$(60{,}466{,}176)\ (\sqrt[7]{1836.152670}) = 176{,}923{,}363.80 \tag{15}$$

The next problem is to determine how these 176,923,363 energy cells are structured within each of the seven generations. The solution is to take the seventh root of 2 π times the proton charge radius divided by the Planck's Length, with a result of 857.4966. This number was then rounded off to the nearest odd number of energy loops or 857, which was then divided into the number of energy cells in a single generation of the twist-loop structure to determine the number of interlaced loops or 206,444.997666. This was then rounded up to 206,445 loops since only whole numbers can define loops.

60,466,176	Minium	Nominal	Maximum
Electron (11)	0.510998917	0.510998928	0.510998939
Proton(21)	938.272025	938.272046	938.272067
Ratios	1836.15258935	1836.15266997	1,836.15275059
7th root	2.925988948	2.925988966	2.925988984
Range	176,923,362.7	176,923,363.8	176,923,364.9

Table 2. Min & Max Energy Cells per Proton Generation

According to twist-loop fractal structures, it is possible to build fractional structures, but it requires very specific numbers of loops and specific fractions of loops so that the energy is continuous and returns to its original point of origin. These are very sophisticated structures with progressive interlaced strings of energy between each successive trip around the loop and with very few combinations possible. For example and in this case, a single energy cell would twist 857 times on every trip around the outer loop and another 857 times progressively within each loop, seven generations deep. Since the division process defining this fractal has a remainder of 2, both the operand and the resultant must be odd numbers, or the fractal cannot be built. All together there would be 206,445 trips around the outer loop within each generation before this single string of energy would return to its original position. On each trip the loop would progressively advance 2/206,445, which would cause half of the loops to be interlaced with the other half of the loops. When the entire pro-

cess is complete, this one single loop of energy would return to its starting point, but due to the progressive advance, would overlap it by 2 loops. This would then be subtracted from the total number as shown in Eq. 16.

$$(857)\ (206{,}445) - 2 = 176{,}923{,}365 - 2 = 176{,}923{,}363 \text{ energy cells} \quad (16)$$

Therefore, this process satisfactorily defines the target number of loops required to fall within the above CODATA proton mass tolerances. Obviously, this toroidal proton structure cannot be drawn by pen and ink on paper, but only by a computer. However, using Eq. 1, the scalar ratio would be .00366 and therefore the overall loop structure would be similar to a fine wire wrapped around the circumference of a basketball. Finally, this proposed mathematical model is very complex and highly sophisticated, and therefore needs to be verified by others to be sure that both the model and the mathematical derivation are correct.

Also, even though this is the assumed structure for an individual proton, it may not be the structure that protons take inside the nucleus. Instead, four protons may join together to form a complex octahedral structure within the nucleus. Accordingly, the nucleus of each of the elements in the periodic table may be a unique variation of interlinked octahedral structures that are instead just equivalent to the collective characteristics of its individual members.

10. **Conclusion**

The whole basis for this paper is that there is a fine structured aether that pervades the Universe, and again, it is hoped that this paper finally puts to bed the issue of whether there is an aether or not, yes Virginia, there is an aether and it is prodigiously hyper-dynamic. Accordingly, the fine structure for aether may be a magnetic dipole with four individual possible states, at each of the seven different generations of energy cells. They may form or combine together into rotating gyroscopes as waves of different frequencies pass over and through their common aethereal structure. The Organized Word Structure (OWS) for our human language predicts that truth is the result of common sense and not pure logic. It further predicts that pure logic always contains some level of misunderstanding, which is why common sense (logic of the heart) is required to trump pure logic, and to thereby make proper judgments of scientific data and theories. It is so obvious to me that there must be an aethereal substance as the basic building block for all energy and matter, even though we have had extreme difficulty in defining its structure and its fundamental characteristics. Also, the fine structure of aether must be somewhere beyond the frequency of gamma rays, so with great respect to Dr. Planck, I have used his recommendation. If Planck's Length is the point where all electromagnetic wave activity stops then it must be in some way be directly related to the fine structure of the aether. Also, the seven generations of energy cells within the hexagonal fractal only allow for seven possibilities for a fine structure if the fractal is to remain intact; and Planck's Length is within .32% of the last one of those seven numbers.

Accordingly, the Universe is not infinitely small, but is instead limited by and built upon the fine structure of the aether. If there were no quantum limit to the smallest size in the aether, then twist-loop fractals could not form and instead all energy would stay suspended within the hexagonal fractal as pure energy. In an unlimited non-quantum universe, the hexagonal fractal would be able to hold unlimited energy. Therefore, there would be no limit to the highest frequency electromagnetic wave or the smallest quanta of energy, and unlimited energy would become infinitely small as a point charge. Accordingly, twist-loop fractals, particles, atoms, and matter could not form and we would not be here. But since we are here, there must also be an aether with a quantum limited fine structure. Likewise, it is proposed that when the mathematics is all complete, it will be shown that the universe is also not infinitely large, but instead is incredibly large but finite in size. Accordingly, when our final concept for our universe is completed and when all of its variables are explained, then that is all there is.

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