

Integrating Vector Particle Physics with the Dodecahedron Quark Ball and the Octahedral Hexagonal Fractal

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It is possible to delineate and to thereby integrate Lockyer's Vector Particle Physics (VPP) with Hohenberger's Dodecahedron Quark Ball (DQB) and his Octahedral Hexagonal Fractal (OHF). This process includes defining the sine-sine, sine-cosine and sine²-cosine² functions of the E and H fields of an electromagnetic wave, and then integrating these definitions with Lockyer's Electron Cube, the Dodecahedron Quark Ball, and the Octahedral Hexagonal Fractal. Included are previously proposed cross sections for the internal structure of an electromagnetic wave. The resultant is a common structural platform for determining the internal structure of an electron, and a common correlation of each theory to VPP's respective Electron Cube mathematical derivations, including exact derivations for electron charge accurate to 6 decimal places. Furthermore, it is structurally shown why particles can only be created from three waves on Cartesian coordinates, thereby validating both Quark Theory and the Dodecahedron Quark Ball. The Octahedral Hexagonal Fractal (OHF) is then evaluated for its structural congruency with the lines of force of Briddell's Field Structure Theory (FST).

1. Introduction

The purpose of the paper is to find common threads and common themes between and to thereby integrate Lockyer's proposed Vector Particle Physics (VPP) with my own proposed Dodecahedron Quark Ball (DQB) and Octahedral Hexagonal Fractals (OHF). Both of our theories are congruent with or are based upon an aethereal based perception of the Universe. Much respect and credit is given to Lockyer and Briddell for all of their hard years of dedicated work, for without their efforts this paper would have not been possible in its present form.

2. Integrating VPP and DQB

The following is both a quick review, as well as an integration of Lockyer's Vector Particle Physics (VPP) and Hohenberger's Dodecahedron Quark Ball (DQB). Both theories are based upon a sin-cosine relationship between the electric and magnetic fields within an electromagnetic wave, with the DQB theory proposing that an electromagnetic wave is in reality and in fact, an aethereal based mechanical rotary oscillating system. The first step is to compare the fundamental wave forms as presented by each author for their respective theories as shown for VPP (Fig. 1) and DQB (Fig. 2). Please note that the effective RMS value for the propagation speed of an electromagnetic wave in Fig. 1 is $\sqrt{2}/2$ or .707 times the radius (R). This is confirmed in the graph in Figure 2 as both the spin vector and the force vector cross at the same .707 rms value; therefore both theories are in agreement

Secondly, as proposed by DQB in Fig. 2, particles can only form at the 45, 135, 225 and 315 degree positions in an electromagnetic wave where the sine and cosine waves cross. Also please note that the Sine-Sine Paradox is solved by defining two

sine-cosine wave functions for each of the two dual concentric waves. Essentially, there is an electric and a magnetic transverse component vector in each of the dual concentric waves plus a longitudinal velocity vector for direction of travel. The outer dark waves represent and are the field structures and the inner light wave generates the mass structures. Measuring the inner E field and the outer H field is simply measuring the same thing twice, from two different points of view, and that is the essence of the sine-sine paradox. Below the saturation point of the wave, the two waves remain intact; however above the saturation point the two waves separate and particles form. At each of the four intersect points of the sine-cosine functions, eight unique complex vectors are formed representing each one of the eight basic up, down, strange, and charm quarks and their four anti-quarks.

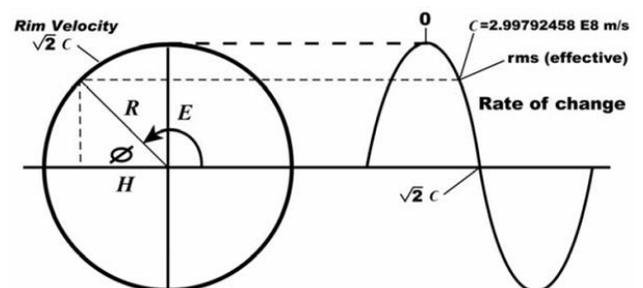


Fig. 1. Lockyer's Vector Particle Physics (VPP)

Respective xyz reference coordinates for the two transverse vector components of magnetic spin and electric force, and the one longitudinal component of the direction of travel are added to each of these eight quark field vectors as shown in the lower chart of Fig. 2. It is proposed that electromagnetic waves are

caused by spinning electrons, which not only wind up and distort the aether transversely due to their coupling coefficient with the aether, but also draws energy into this ball of energy longitudinally. When the coupling coefficient is exceeded, the ball of energy is released and thereby launched on its forward trajectory, just as an arrow is launched from a drawn bow. Accordingly, a first generation unsaturated wave oscillates back and forth as a dual rotary oscillating system as it propagates forward. Likewise, a second generation saturated wave oscillates back and forth as a dual rotary oscillating system, except in a ratcheting or leap frog forward motion.

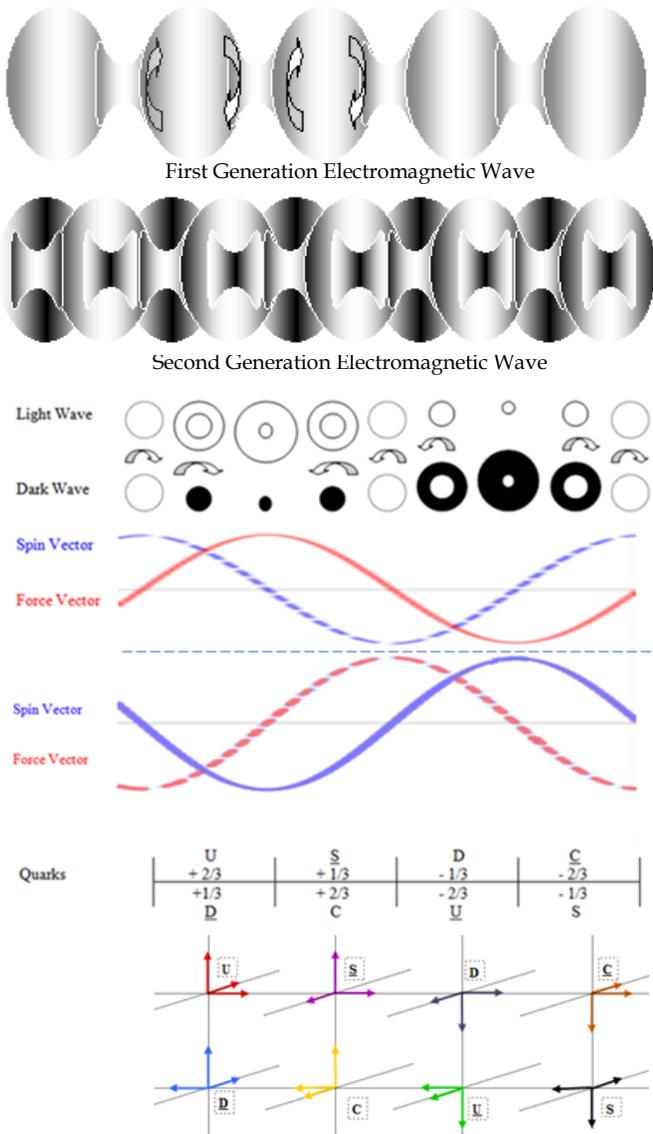


Fig. 2. Various Illustrations of 360° of an Electromagnetic Wave (DQB)

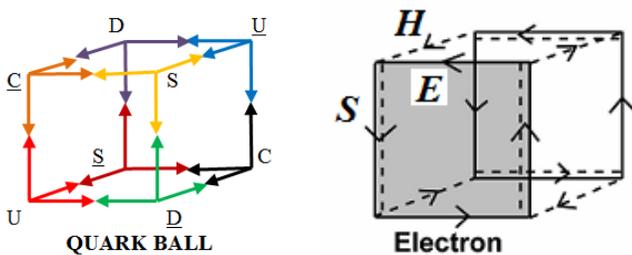


Fig. 3. DQB Quark Ball & Lockyer VPP Electron

These eight possible xyz quark vector reference coordinates from the lower chart in Fig. 2 can then be combined into a single cube as shown in the left of Fig. 3, and accordingly, the VPP electron cube fits precisely inside the DBQ dodecahedron quark ball. Furthermore, these are the same eight possibilities and are exactly the same cube that the both Lockyer and I discovered many years ago. The only difference being that DBQ professes to represent one cycle of an electromagnetic wave where VPP professes to be the actual structure of an electron. Both theories have merit as the DBQ Quark Ball was generated from three quarks from three individual waves on xyz Cartesian coordinates as shown in Figs. 4 and 5, and which can then be unfolded into the Baryon Octet and Decuplet Family chart and the Meson Family chart as shown in Figs. 5 and 6. While VPP generates and predicts exactly a host of mathematical characteristics of the electron as shown in Figs. 7 & 8, of which the volume and surface area (circled in red) in Fig. 8 is of prime importance, since any structure (polyhedron) must match these numbers in order to arrive at the correct electron charge. The challenge is to find a structure that satisfies both theories, with two structures being considered, the cube as proposed by VPP and an octahedron as proposed by the hexagonal fractal.

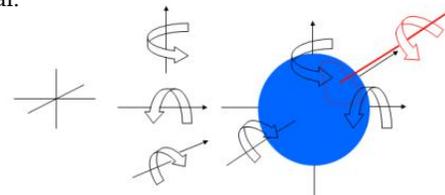


Fig. 4. Spin Coordinates Used in Creating the Quark Ball

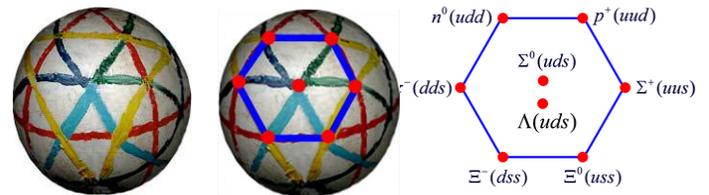


Fig. 5. Dodecahedron Quark Ball & Baryon Family Octet Quark Chart

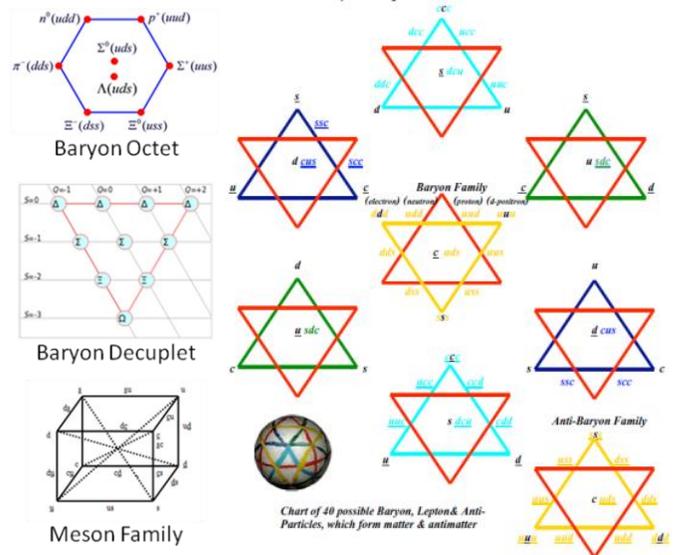


Fig. 6. Dodecahedron Quark Ball & Baryon Octet Quark Chart

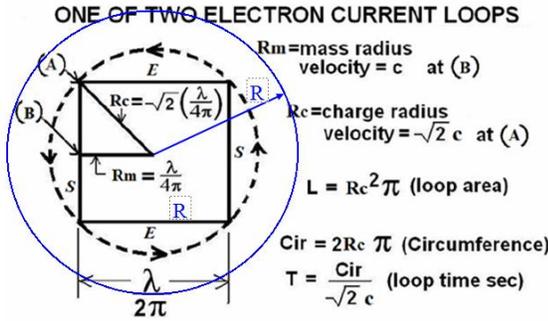


Fig. 7. Lockyer's VPP Electron Current Loops



Fig. 10. The 3-D Octahedral Structure of the Hexagonal Fractal

Electrical potential energy (electron)	
$J_s := \frac{h \cdot c \cdot \alpha}{\lambda}$	$J_s = 5.97441869080294 \times 10^{-16} \text{ kg m}^2 \text{ s}^{-2}$
Vol = $\frac{\lambda^3}{16\pi^2}$	Volume of the QVPP electron model $\text{Vol} = 9.04522247606751 \times 10^{-38} \text{ m}^3$
Power density, QVP electron model	
$P_e := \frac{2 \cdot J_s \cdot c}{\text{Vol}}$	$P_e = 3.9602910136836 \times 10^{30} \text{ kg s}^{-3}$
QVP electric field strength	
$E := \sqrt{P_e \cdot Z_0}$	$E = 3.86259197299146 \times 10^{16} \text{ kg m s}^{-3} \text{ A}^{-1}$
Charge density of QVP electron model	
$D := \epsilon_0 \cdot E$	$D = 3.4200114789303 \times 10^5 \text{ s A m}^{-2}$
L2 = $\frac{\lambda^2}{4\pi}$	QVP two current loop areas $L2 = 4.68471084627891 \times 10^{-25} \text{ m}^2$
$\text{em} := D \cdot L2$	$\text{em} = 1.60217648697431 \times 10^{-19} \text{ s A}$
NIST published value $e = 1.602176487 \times 10^{-19} \text{ s A}$ Check	

Fig. 8. Lockyer's VPP Electron Mathematical Calculations

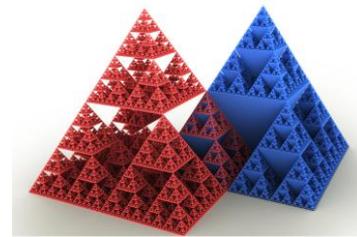


Fig. 11. Sierpinski's Pyramid

4. The Electron Cube versus the Octahedron

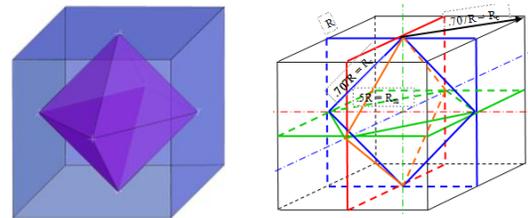


Fig. 12. Dual Polyhedra - The Cube and the Octahedron

3. The Octahedral Hexagonal Fractal

Aethereal fractals, as proposed in earlier papers, were defined by equation [1] below, which was derived from the drawing in the left half of Fig. 9. However, of specific interest is the hexagonal fractal that is derived from this same equation and figure, and is as shown in the right half of Fig. 9. When this graphical representation is turned into an actual three dimensional figure, an octahedron, which is repetitively made from six smaller octahedrons, develops as shown in Fig. 10, This is the octahedral structure that will be evaluated for the internal structure of an electron. Coincidentally, this structure is also an exact double replica of Sierpinski's Pyramid as shown in Fig. 11.

$$2\theta = \frac{2\pi}{N} \Rightarrow S = \sin \frac{\pi}{N} \quad [1]$$

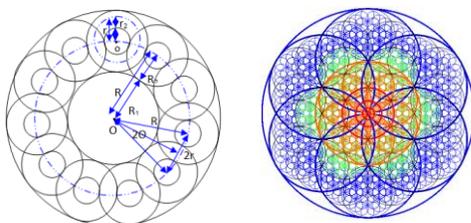


Fig. 9. The Hexagonal Fractal

The Octahedron and the Cube are dual polyhedral structures as shown in the left half of Fig. 12. Also, both the VPP Electron Cube and the Octahedral Hexagonal Fractal (OHF) share three squares within their structure as illustrated by the red, green and blue squares in the right side of Fig. 12 supporting both the VPP theory that electron circuits form squares and the DBQ theory that all particles are formed from three quarks on xyz coordinates. Furthermore, it is proposed that the two VPP arrangements for the Poynting Vectors as shown in Fig. 13 represent the flow of energy in the 1st and 2nd generation electromagnetic waves as previously proposed by the DBQ dual sine-cosine wave. Accordingly, the time axis coordinates for the VPP electron cube are defined by the blue arrows as shown in Fig. 13.

Accordingly, in the bottom example of Fig. 13, the Poynting vector travels between the two faces or therefore between the two concentric waves, whereas in the top example the Poynting vector travels solely within each of the two faces, or therefore within each of the two concentric waves. This latter case exists when the two dual concentric waves have become saturated and therefore separated from each other. Both waves contain an internal sin-cosine wave function as defined by the dodecahedron quark ball, except that their functions are 180 degrees out of phase with each other and reversed, which is the basic structural

construct for the $(\sin^2 EH + \cos^2 HE = 1)$ function. Accordingly, the two faces at R radian spacing in the VPP Electron Cube are determined by the internal structure of the two waves proposed by the DBQ quark ball.

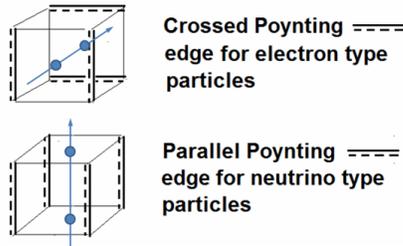


Fig. 13. VPP Poynting Vectors

Accordingly, the front and back faces of the Electron Cube are formed from the inner light wave and the outer dark wave of a 2nd generation electromagnetic wave just as the DBQ waveforms were derived as shown previously in Fig. 2. Incorporating Lockyer's VPP Theory descriptions into my own DBQ Theory, the internal wave would function as a capacitor while the external wave would function as an inductor, thereby creating a normal LC circuit. VPP Theory proposes that this LC circuit resonates at the Compton Frequency for an Electron. The relative values of the capacitor and the inductor would create a significant difference between the magnitudes of the associated E and H vectors in each wave, such that the E vector resides mostly in the inner wave and the H vector resides mostly in the outer wave depending upon the dielectric values of the materials through which they are oscillating. Since these two vectors are in phase, the apparent measured waveform only appears to be a sine-sine relationship, since the associated cosine E & H vectors were not defined nor included in any previous measurement techniques or theories. Although, it may be that they have already been defined but by other names, such as the curl of the electron current, and simply have not been included properly in an overall theory. Mechanically, each of these two dual concentric waves is an individual rotary oscillating system with the spin vector from the inner wave in phase with the force vector of the outer wave.

It is easy to understand why two dimensions of the VPP Electron Cube would have a value of R, because it is a square of size R that fits perfectly inside the .707 rms circle as was shown in Fig. 7. However, why does the depth of cube also have the same value of R instead of $2\pi R/4$ (a quarter wave length)? VPP theory proposes that this third dimension or depth (the time coordinate) of the electron cube is related to the ratcheting motion of the electromagnetic wave as it propagates forward. However, as will be shown later, combining three electromagnetic waves on xyz Cartesian coordinates, describes a more reasonable explanation, since in this case an equilateral regular octahedron develops for the internal structure of an electron solely within a quarter wavelength and directly relative to the value R.

Finally, just as the DBQ Quark Ball was derived by orienting the spin vectors on x,y,z Cartesian coordinates, and then wrapping these spin vectors around the dodecahedron quark ball, the VPP vectors defined by the VPP Electron Cube can also be unwrapped into analogous graphs as shown in Fig. 14. This technique aids considerably in understanding the concepts developed by Lockyer and as presented in his Electron Cube. Note in the bottom figure the Poynting vectors are between the two proposed dual concentric electromagnetic waves, but in the top two graphs the Poynting vectors are solely within each of the two proposed dual concentric electromagnetic waves. The difference

is that the first case is an unsaturated wave and in the latter cases the wave is saturated. This same characteristic can be seen in a pendulum or a tether ball that are driven beyond their limited motion and the energy is transferred into a distorted pendulum or a compressed ball, which violently oscillates between the two limits of their free oscillations.

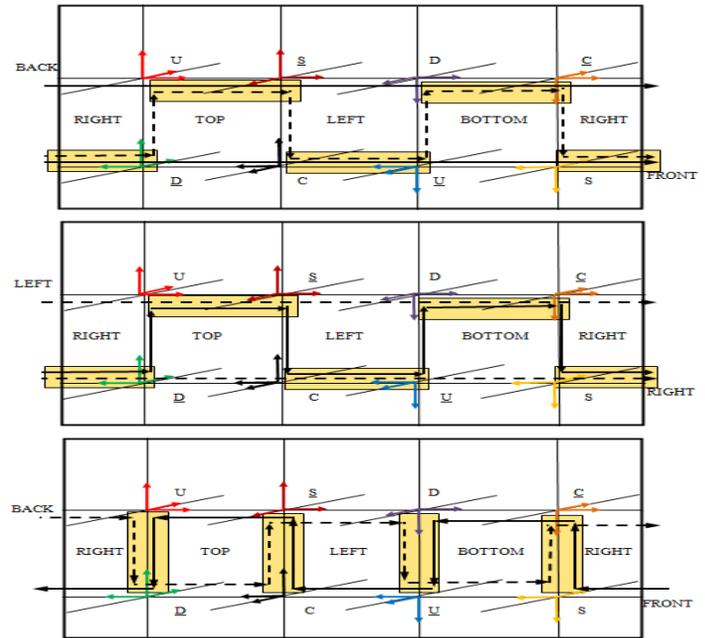


Fig. 14. VPP Poynting Vectors for Electron (top) & Positron (middle) and the Neutrino (bottom) shown in 360° graphical form

At this point the two theories diverge significantly, since VPP was derived from a single wave, while DBQ proposes three separate waves on xyz Cartesian coordinates. Accordingly, construction for a DBQ octahedral hexagonal fractal can be delineated as shown in Fig. 15. That is, as each of the three electromagnetic waves traverse forward on each of their paths, illustrated as red, green and blue below, the respective squares would decrease their overlap area. This would in effect create a sequence of smaller and smaller squares stacked on top of one another both up to and following the center larger square, as illustrated in the right half of Fig. 15. This concept is also supported by Briddell's Square Field Structure Model as shown in Fig. 16. It is from this pattern that half of an octahedral hexagonal fractal would develop, as was shown previously in Fig. 10.

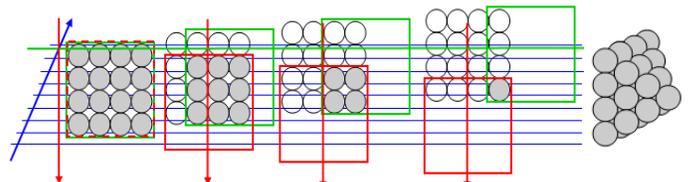


Fig. 15. Stacked Construction Technique for an Octahedron

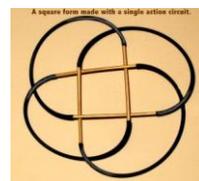


Fig. 16. Briddell's Square Field Structure

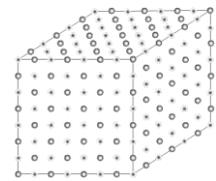


Fig. 17. Virtual Electron Positron Field Array

In contrast, the VPP model would require successive cube faces to develop within a single cycle or from several cycles of an electromagnetic wave. This again is in conflict with the DBQ model which instead generates a virtual Simhony's electron-positron field when three waves are congruent on xyz coordinates, as illustrated in Fig. 16. Accordingly, if the octahedral hexagonal fractal is the correct structure, then a structural mathematical correlation must be made with the VPP Electron Cube, since previous mathematical characteristics were derived from it exactly. Accordingly, the Radius (R), the Mass Radius (R_m), and the Charge Radius (R_c) from Fig. 7 are summarized in Eqs. 2 thru 4, and the corresponding volume and surface areas used in Fig. 8 are defined as follows in Eqs. 5 thru 8, and as illustrated in Fig. 18:

$$R = \lambda/2\pi \text{ (Radians)} \quad [2]$$

$$R_m = \lambda/4\pi = .5 R \text{ (Mass Radius)} \quad [3]$$

$$R_c = \sqrt{2} (\lambda/4\pi) = 1.414 R_m = .707R \text{ (Charge Radius)} \quad [4]$$

$$\text{Volume (VPP electron cube)} = R^3 \quad [5]$$

$$\text{Surface Area (VPP electron cube)} = 6R^2 \quad [6]$$

$$\text{Volume (Rotating VPP electron cube)} = (\pi/2)R^3 \quad [7]$$

$$\text{Surface Area 2 Ends (Rotating VPP electron cube)} = \pi R^2 \quad [8]$$

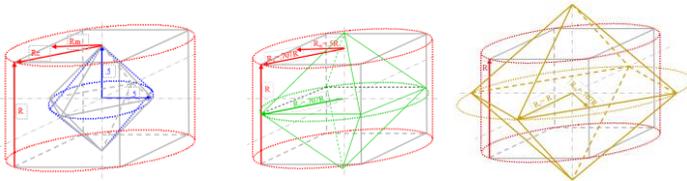


Fig. 18. Octahedral Hexagonal Fractal vs Electron Cube

Volumes of the three fixed or stationary Octahedrons and three rotating Octahedrons relative to the VPP electron cube are as follows:

Fixed: $R^3/6$ $2\sqrt{2} R^3/6 = \sqrt{2}R^3/3$ $(2\sqrt{2})\sqrt{2}R^3/3 = 4/3R^3$

Rotating: $(\pi/2) R^3/6$ $(\pi/2) \sqrt{2}R^3/3$ $(\pi/2) 4/3R^3$

Corresponding Surface Areas for each of the three fixed or stationary Octahedrons and the three rotating Octahedrons relative to the VPP electron cube are as follows:

Fixed: $\sqrt{3} R^2$ $2\sqrt{3}R^2$ $4\sqrt{3}R^2$

Rotating: $(\sqrt{2}/2) \pi R^2$ $\sqrt{2}\pi R^2$ $(\sqrt{2}/2) \pi R^2$

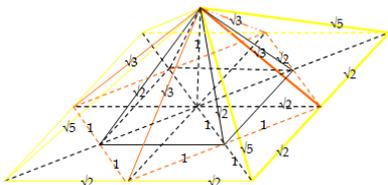


Fig. 19. Concentric Squares from the Phi Pyramid

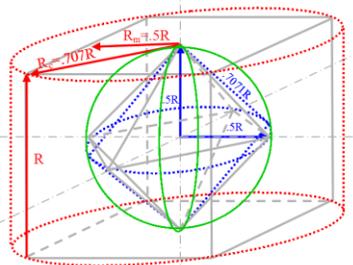


Fig. 20. An Octahedron (blue) and a Sphere (green) nested within Lockyer's VPP spinning Electron Cube (red)

This entire evaluation is based upon concentric squares nested inside of each other as was presented in my paper on the Phi Pyramid as illustrated in Fig. 18. An interesting matrix develops, which includes a multiplication scaling factor for volumes of $2\sqrt{2}$ or $(\sqrt{2})^3$ when going from left to right, a multiplication scaling factor for surface areas of 2 or $(\sqrt{2})^2$ when going from left to right, a multiplication scaling factor of $\pi/2$ when going from fixed volumes to rotating volumes, and finally a multiplication scaling factor or $\sqrt{2}/2\sqrt{3}$ when going from fixed surface areas to rotating surface areas. Other interesting numerical values from the Phi Pyramid are Phi (1.618034) and its reciprocal (.618034), which are important numbers for field structures since they vary logarithmically, and therefore, the natural logarithm for each is identical except for the sign. Also, when considering mass structures $\sqrt{2}$ (1.414) and its reciprocal (.707) are important numbers, for not only are they reciprocals of each other but the latter is exactly half of the former, which is the same multiple for the scaling factor of the hexagonal fractal. However, none of these alternates match the numbers that Lockyer used in his derivations.

But an interesting possibility does exist since volume varies by the cube and surface area varies by the square, and therefore, there must be a point somewhere on the electromagnetic spectrum where the scaling factors are such that Lockyer's numbers are an exact match. Accordingly, all polyhedral structures are candidates for the electron providing they meet the correct volume to surface area ratio. Furthermore, when evaluating any polyhedron, such as the three incremental sizes of octahedrons as shown in Fig. 18, it does not matter which size is used, the results are merely different scaling ratios of each other. That is, as long as change in the reciprocal of the square root of the Volume is equal to the reciprocal to the square root of the Surface Area, then the two changes cancel each other out and the derivation for electron charge remains intact. Furthermore, this single point on the electromagnetic spectrum can be derived from any given initial size of the polyhedron. This explanation can then be abbreviated to "the change in the Volume must equal the square of the change in the Surface Area." Accordingly, solving for the value of R of both the octahedron and the sphere nested inside the VPP electron cube as shown in Figure 20, solves for $R = 1/3$. Accordingly, results for the scaling factors for the VPP electron cube, the Octahedron, and the Sphere are as follows:

Scaling Factors:	VPP Cube	Octahedron	Sphere
$1/\sqrt{\text{Volume}}$:	1	12.72792206135	9.0
Surface Area:	1	.07586742013	0.111111111

As noted, this philosophy works, that is, using the total volume and only two ends of the VPP electron cube yields a result at the desired Compton's Wavelength as derived by Lockyer. Also, please note that 12.7279 is the reciprocal of .07586 for the octahedron and that 9 is the reciprocal of .1111 for the sphere. Accordingly, both the octahedron and the sphere work, but at 1/3 of the size of Compton's Wavelength or at a frequency of three times the Compton Frequency ($R=1/3$). Moreover, no polyhedron of any type or size will meet the requirements except in the case of the cube, and then only when two sides of the cube are used for the surface area instead of the entire cube, which is a very unlikely and untenable scenario. However, there is another option, that is if electrons are formed from three electromagnetic waves on

x,y,z Cartesian coordinates, then the same volume would be charged three times, each time from each of the three coincident electromagnetic waves. However, the result would still be only one unit of surface area, since only one electron is created as the final result. Accordingly, there would be three units of volume but only one unit of surface area, and the scaling ratios then solve for $R = 1$ for both the octahedron and the cube and $R = 1/3$ for the VPP electron cube. Entering these values into the preceding formulas generates the following results.

Scaling Factors:	VPP Cube	Octahedron	Sphere
Volume:	.1111	.5	1.0
1/Volume:	9	2	1.0
1/ $\sqrt[3]{\text{Volume}}$:	3.000	1.414213562373	1.0
Surface Area:	0.333	.7071067811865	1.0

Again, the process works in each case with each generating reciprocals for the scaling factor for the corresponding volumes and surface areas. However, both the Octahedron and the Sphere occur at the Compton Wavelength for the Electron, while the VPP Cube now occurs at 1/3 the Compton Wavelength. This is exactly why Lockyer had to choose to use only 1/3 of the cubes total surface area, to make the numbers work out. By coincidence, the final derivation results for the sphere would be identical to Lockyer's original numbers as shown previously in Fig. 8.

Accordingly, it is proposed that quarks are not particles, but instead are vectors of an electromagnetic wave, and that when three waves (vectors) coincide at the proper phase relationship, an octahedral electron is formed from the surface area of an octahedral hexagonal fractal with one electron charge. Probably only the outer shell of the octahedron forms the electron, explaining both Planck's Constant and the linear progression for additional energy versus higher frequencies. Entering the above data into Lockyer's derivation method and formulas generates the following results for the Octahedron.

$$\text{Electrical Potential Energy of an Electron} \\ J_s = 5.97441869080294 \times 10^{-16} \text{ kgm}^2\text{s}^{-2} \quad [9]$$

$$\text{Volume of Triple Octahedron} = [.5] \text{ Lockyer Volume} \quad [10]$$

$$\text{Vol}_{\text{TrOcta}} = 4.522611238033755 \times 10^{-38} \text{ m}^3 \quad [11]$$

$$\text{Power Density - Triple Octahedron} \\ P_e = 7.9205820273672 \times 10^{-30} \text{ kgs}^{-3} \quad [12]$$

$$\text{Triple Octahedron Field Strength} \\ E = 5.46252995411794 \times 10^{16} \text{ kgms}^{-3}\text{A}^{-1} \quad [13]$$

$$\text{Triple Octahedron Charge Density} \\ D = 4.836626616974897 \times 10^5 \text{ sAm}^{-2} \quad [14]$$

$$\text{Octahedron SA} = [.7071067811865] \text{ Lockyer SA} \\ \text{SA} = 3.31259080730198 \times 10^{-25} \text{ m}^2 \quad [15]$$

$$\text{Octahedral Electron Charge} \\ e = 1.60217648697431 \times 10^{-19} \text{ sA} \quad [17] \\ \text{NIST Published Value} = 1.602176487 \times 10^{-19} \text{ sA}$$

5. The Structure of Aether

It is proposed that each of the energy cells (aetherons - grey balls in Fig. 15), which form the above octahedral electron energy structure are individual dodecahedron quark balls. In other words, each cell (aetheron) represents one complete 360 degree spherical cycle of an electromagnetic wave (an ultra-high frequency gamma ray) at Planck's Length, such that each cell is an octa-pole (versus a dipole) with each pole being equivalent to each of the eight quarks represented on the dodecahedron quark ball as shown in left half of Fig. 22. Accordingly, when any group of these energy cells get captured into a single structure, they become mass structures, and when they remain separate and free, each energy cell becomes part of the aetheral plenum of field lines of force for field structures. However, at the Planck's Length level, the actual lines of force are limited or constrained by the resolution of the aetherons (energy cells) within the ethereal plenum. Therefore, there is no infinitely small, but instead, there are only various mass and field structures of individual energy cells limited by Planck's Length.

Please note that each pole in a single cell reverses rotational direction from cw to ccw or ccw to cw for each of its rotational neighbors. Also, note that the rotation of the pole exactly opposite any pole rotates in the same direction when taken from the same point of view, and is therefore on the same rotational axis, which is very important when considering the binding forces that hold the mass structure together as shown in the center of Fig. 21. However, note that when a point of view or frame of reference is taken from outside of the ball, or in other words when your point of view is rotated 180 degrees around the outside of the ball, then the two poles only graphically appear to rotate in opposite directions. Also, in the right half of Fig. 21 see how the red and blue axes line up perfectly and that the green and black axes line up in the exact same orientation, which is exactly the coupling construct needed to form the Dodecahedron Quark Ball as shown previously in the right half of Fig. 10. Obviously, this entire construct will only work with the octahedral DQB dodecahedron quark ball (4 dimensional) and not the VPP electron cube (3 dimensional). However, as illustrated in the left of Figure 21 a cube can be identified within the octahedron that would allow for the mathematics to be calculated from the inner cube structure, as well as the outer octahedral structure.

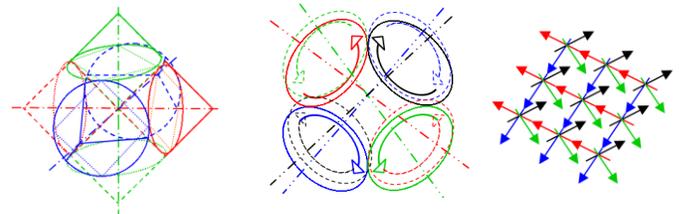


Fig. 21. The Four Rotational Axes of a DBQ Octapole Energy Cell

6. The Octahedron & FST

The final step in this process is to add Briddell's (FST) Field Structure Lines to the combined (VPP) Electron Cube-(OHF) Octahedral Hexagonal Fractal Structure as shown in Fig. 23. However, first in Fig. 22, lines of force have been added Lockyer's free forming squares (electron cube). Please note the red square in the middle of the picture represents one of three squares on the three coordinates contained within the 3D octahedral structure. It is proposed that these squares of aetheron energy form within a

vortex of aetheral energy (electromagnetic wave) just as Lockyer had proposed, and which is why he was able to derive exact mathematical calculations for electron charge. However, in the new combined VPP-OHF model three individual and discontinuous square structures would be required, with each containing four continuous loops of energy as was also shown previously in Fig. 16, for a total of 12 loops of energy. Please note that each of these loops is connected to opposite and non adjacent energy cells in a single plane.

Accordingly, there are only two more ways that these energy cells can be interconnected as shown in the two diagrams in Figure 23. And then instead of three structures (quarks) of four loops, you now have four discontinuous and interlocked structures of three continuous loops, again for a total of 12 loops just as Briddell had proposed. The mechanism for this process is the relative rotational direction of the aetheral lines of force. When the three electromagnetic waves are rotating clockwise the lines are skewed and reconnected in the forward direction forming the electron, and when the electromagnetic wave is rotating in the counter clockwise direction (180 degrees out of phase as shown previously in Fig 2), the lines of force are skewed and reconnected in the opposite or reverse direction forming the positron.

This difference is clearly seen as illustrated by the red lines in each picture in Fig. 23. No matter which way you hold each of these two models the relative slope of the aetheral field structure lines of force remains the same. These two models are clearly identical in every way except in the way that they are sloped, which therefore must be the mechanism for charge. Also from this model, remnants of the original three quarks can be clearly seen, including viable explanations for the cause of the strong and weak nuclear forces. The weak force could be caused by Briddell's skewed, twisted (charged) lines of force bringing the aetherons together, the strong force could be the interactions of the spinning vortexes in octapole aetherons, and the normal electromagnetic forces could be caused by the collective sum of all field lines of force from the entire structure and only dependent upon the type of structure that is created.



Fig. 22. Field Structure Lines for Lockyer's Free Forming Squares

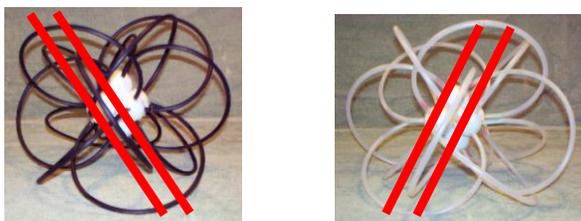


Fig. 23. Briddell's Field Structure Lines - (Positron & Electron)

7. Summary

The whole basis for this paper is that there is a fine structured aether that pervades the Universe and is prodigiously hyperdynamic; and although we have had extreme difficulty in defin-

ing its structure and its fundamental characteristics, it is the basic building block for all energy and matter. The Universe is an Electric Universe, and behind every electrical parameter is a mechanical cause. Aether is the stuff that all electromagnetic waves propagate through and is the same stuff from which all things are made. Furthermore, not only is there an aether, but the smallest energy cell (atheron) that can form within the aether is at Planck's Length; however, instead of an aetheron being a simple dipole, it is proposed to be an octa-pole as defined by the dodecahedron quark ball.

There is sufficient congruity between Lockyer's VPP Electron Cube Theory and my own DQB Dodecahedron Quark Ball Theory to establish a firm foundation for the credibility of this new integrated concept. Therefore, within each electromagnetic wave, as well as, each individual energy cell (aetheron) there would be the equivalent of each of eight quarks only depending upon which of the four dimensional axes is time referenced. Moreover, three quarks from three individual electromagnetic waves combine together on xyz Cartesian coordinates to form the electron and the positron as octahedral hexagonal fractals. Moreover, the octahedral structure is compatible with Briddell's (FST) Field Structure Theory.

Other polyhedra besides the cube, octahedron and sphere were considered including the tetrahedron, dodecahedron and icosahedron; however, in all cases each of these polyhedrons are non-symmetrical on three dimensional x,y,z axes making it impossible for them to form from three electromagnetic waves on x,y,z Cartesian coordinates. Therefore, no further investigations were made into their applicability for the internal structure of an electron. Obviously, the sphere is symmetrical on any axes, and therefore may simply be a good mathematical equivalent to the octahedron. However, no internal structure has been found for the sphere, therefore, the octahedron is the most probable and most reasonable choice for the internal structure of an electron. Final confirmation will probably only come from a more thorough and complete understanding of the fine structure constant.

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