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Asymmetry: Intertwined photon movement, color formation and the location of G in the atom

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This article raises the hypothesis that electromagnetic waves are interpreted by retinal cells in a more sophisticated way than current explanations The experiment concluded that the cones of the retina not only interpret the light according to the length of electromagnetic wave, but also interpret the colors by phase difference of electromagnetic waves. The results indicate that the photons of light are dual quanta or double packet of energy of in movement a sinusoidal. It was also concluded that the production of these packages takes place through the spiral-shaped beams and that the speed of these packages could be found by a fractal geometric relationship. It was also concluded by theorizing that the production of these packages takes place through spiral-shaped light beams and that the speed of these packages can be determined by a fractal geometric relationship. The structure of two photons in mutual transverse motion would require photons to be produced by a particle and its antiparticle, producing a symmetrical curved trajectory at the moment of production, leading to the application of the Reimann Tensor. The photon pair would obey the Newton-hooke Law and the Law of Relativity in certain respects. This hypothesis locates the force of G within the atom.

Keywords: photons, spectrum, entanglement, relativity, retina

I. INTRODUCTION

Light and color has intrigued mankind for a long time, basically for two reasons: its nature and its production mechanism that is not yet fully understood by science. The work on the photoelectric effect [1] by laureate Dr. Albert Einstein proved the dual nature of light, which can behave as wave and particle, thereby assuming the existence of the quantum. Today science understands the mechanism producing nerve impulses in the retina through molecules such as rhodopsin and transducin [2, 3]. The shift in the balance of certain molecular members of rhodopsin correctly predicted a slight difference in the response rates activation of a single photon. We also know the function of the cones that react to wavelengths corresponding to red, green and blue light, and how the brain produces, from the combination of these three colors, a plurality of colors, as theorized by Thomas Young in trichromatic theory. Below is figure 01 of the cones and rods.

The study of the nature of light refers to the classic study of Sir Isaac Newton in *New Theory About Light and Colour* [5]. Newton begins to worry about a measure in the light propagation that was more than five times the width of the corresponding hole, 31', that is, 2°49'.

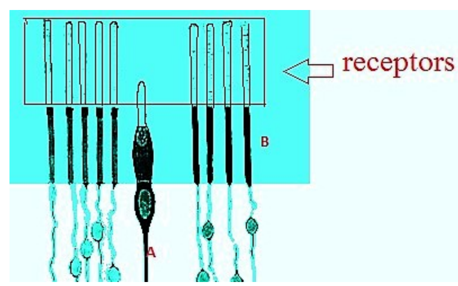

Figure 1. The two types of retinal cells: cones (A) and rods (B) as illustrated by laureate Dr. Santiago Ramón y Cajal. They capture light (photons) and produce nerve impulses through molecules such as rhodopsin and transnducin.

Noticing this difference, Newton began to think, according to the observation in the tenth paragraph of his article, that the light rays were possibly globular bodies with curved motion, like a tennis ball flying in effect due to circular motion on its own axis. Since Newton saw no curve in the spread of the rays, he abandoned this hypothesis and considered it irrelevant to the work in progress at that time. We call this hypothesis "curvilinear path of light particles". It is noteworthy that René Descartes [6] had already explained that the light cells had different rotational movements, which would pressure the neighboring cells to take different positions forming the color spectrum. In the eleventh paragraph [5], Newton reaches

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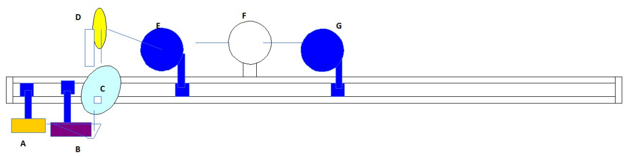

Figure 2. Aerial view of the diffraction apparatus scheme. The device was used to separate light from the spectrum.

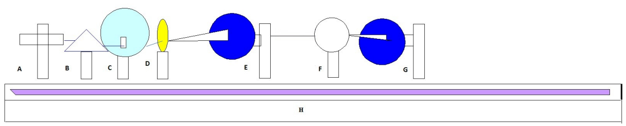

Figure 3. Side view of the diffraction Apparatus schematic.

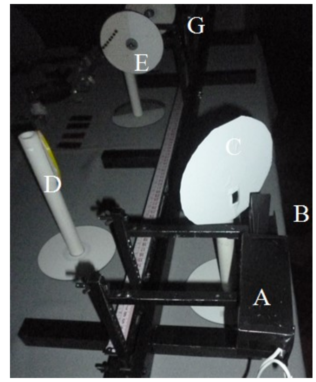

Figure 4. Photograph of the diffraction apparatus.

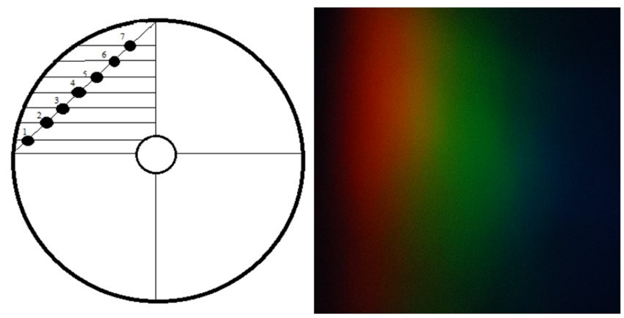

Figure 5. Schematic drawing of disc E of the diffraction device. Disc E receives the diffracted light through the prism located on rod B. This disc has seven holes that separate the spectrum into seven light beams.

the following conclusion: “the light consists of particles of differently refracted shapes that without any difference in its incidence were, according to their degree of refrangibility, transmitted in several directions”. Finally, the experiment discussed in the article [5], as shown in paragraph 21, shows that when the colors of the spectrum were wide apart, Newton could not change its color, even when passed through colored filters. Only when the colors were mixed, as shown in paragraph 22, the color change was obtained by “separation”. In this case, he concluded that white light was composed of the junction of various colors, and a single color of the spectrum, once separated, could not be diffracted.

However, the real nature of light remains a problem for science. This work conducts simple diffraction light experiments such as: (a) the diffraction spectrum, (b) the diffraction of light on an oblique surface inside of dichroic lightbulbs, and (c) diffraction of light on an uneven aluminum foil surface. The tests showed that the retinal cone cells could interpret the monochromatic light in the process of depression with different shades resulting in the formation of the visual spectrum.

II. MATERIALS AND METHODS OF EXPERIMENT I

Different materials and methods were used. Here are the materials and methods of Experiment I.

A device created to separate the light of the spectrum was used, a tool called diffraction apparatus:

To make the diffraction apparatus, an aluminum profile rail was used along with a lightbulb. The rail was 1503mm in length and 38mm in width. There was a 32mm cap at each end, which allowed the movable cart to travel a distance of 1439mm from one end of the rail to the other.

The rod denominated A is square in its height and width, measuring 9mm on each side with several points for adjusting the height at which the lightbulb must be positioned. The position of the flashlight for this experiment was with the base of it at 115mm high in relation to the surface of the rod.

The flashlight was made with aluminum material in the shape of a rectangular box measuring 10cm long by 38mm wide on both sides. It also used a 15w, 127v clear incandescent bulb with a luminous flux of 58 lm and 750h lifespan, E-14 mouthpiece, 60mm long by 20mm wide, with the lightbulb centered vertically within the flashlight. The left side of the flashlight was attached to a 110mm bracket on the right side of rod A. The above-mentioned support held the flashlight through its length and its base. The flashlight was fully open on the front and did not have any lens in its front or glass finishing on its front.

The second rod, called B contained a long, transparent, and polished acrylic prism, which was centered in the middle of the focus width of the flashlight on rod A. The prism was 118mm high in relation to the rail surface. The prism being used was a massive acrylic piece measuring 18mm high at the end opposite to the focus, cut on a straight angle in relation to the base, and the other end facing the light focus measuring 3mm high from the base, cut on a straight angle in relation to the base.

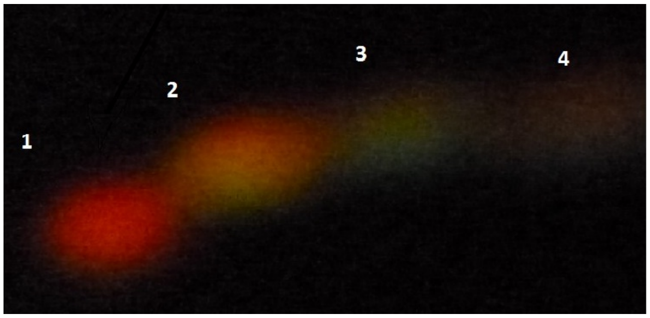

Figure 6. The expansion of the light beam. The figure reveals the presence of three primary colors in samples 2 and 3.

The base of the prism was 98.5mm long by 18mm wide. The part of the prism obliquely cut measured 18mm wide by 100mm long. The prism was placed on base B with the lowest height and the oblique cut facing the flashlight. Rod B was 75mm from the rod. "A" here is ground zero (0).

The third rod, C, was movable and consisted of a dispersed light filter from the prism. A standard 120mm diameter compact disc (CD) was used with a 15mm center hole to be used as a filter. The compact disc (CD) was painted white and was vertically glued on rod C regarding rail *H*. Rod C base was at the level of rail *H* base. The CD had a rectangular hole measuring 8mm by 15mm and was 150mm high away from the surface. The disc, in relation to rail *H*, was at an angle of 102.5° at the 110 mm mark from the starting point (ground 0°) of rail *H* with the disc center 105mm from rail *H* at straight angle.

The fourth rod, D, was located 160mm from rail *H*. It was also independent of the rail, and was 110mm away from the rail margin at a straight angle. D had a flat mirror with an elliptical cut measuring 70mm in the larger diameter vertically and 50mm smaller in diameter horizontally. The base of the mirror was 14cm from the base of the rod. The mirror was 35° away from the perpendicular angle to the rail. The light was then reflected on rod E.

Rod E had a compact disc called a spectrum filter with seven holes. The spectrum filter employed has seven holes of 5mm diameter arranged in an oblique line with the center of each hole within 0.707mm from the other hole after the first measure of the disc margin. Rod E was in the ground 610mm in relation to the perpendicular angle of rail *H*.

Rod F relates to a separate rod of 11,1cm in relation to the base of the rail. Above this point is a 100mm diameter magnifying glass measuring 2mm at the edge and 5mm at the center. Rod F was 9cm from rail *H*, at a straight angle with the ground 65cm from rail *H*. The magnifying glass was 40^o in relation to the straight angle to the rail and could direct the seven points of light to the 12cm in diameter white disc positioned on rod G. When the flashlight was turned on seven light beams were produced, which could be reduced or enlarged by magnifying glass independent of rod F, and projecting the 7 bright spots on disc G.

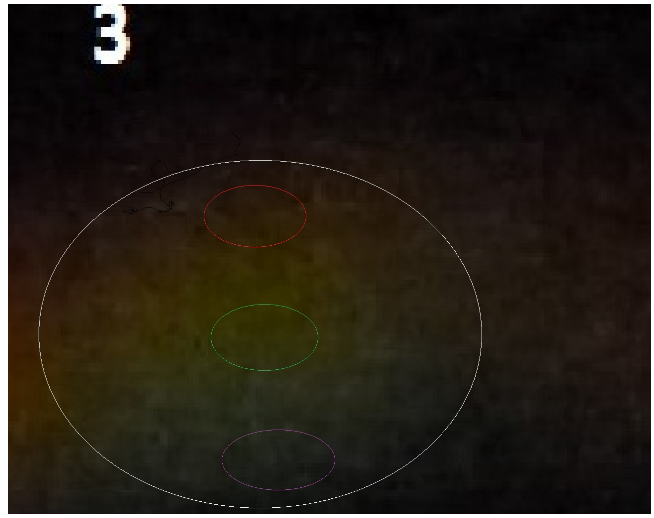

Figure 7. Sample of light beam n.3 magnified.

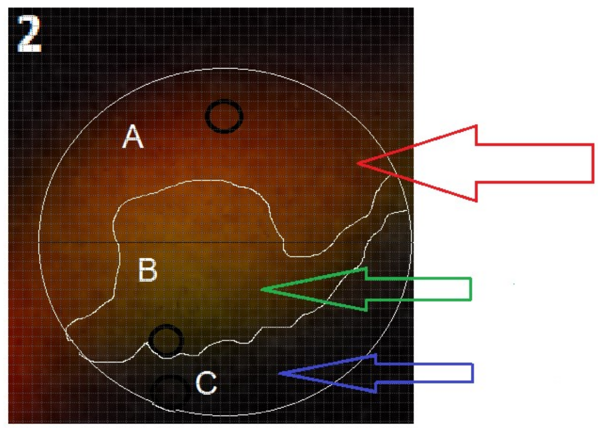

Figure 8. Sample of light beam n.2 magnified.

III. METHODS AND MATERIALS OF EXPERIMENT II

A second independent experiment used a dichroic lightbulb 50w, 127v, socket e-27, manufacturing company Taschibra Label, soft called (mild) by the manufacturer and made of transparent glass with the filament in the center point of the lightbulb. The lightbulb was turned on in a common spot with socket e-27. The lightbulb was 25mm deep when measured internally by the center and 40mm in diameter when measured in the bulb inner wall. Its inner wall contains exactly 504 reflective rectangular unevenness in its inner wall, arranged in seven rows and each row with 72 unevenness, and each rect-

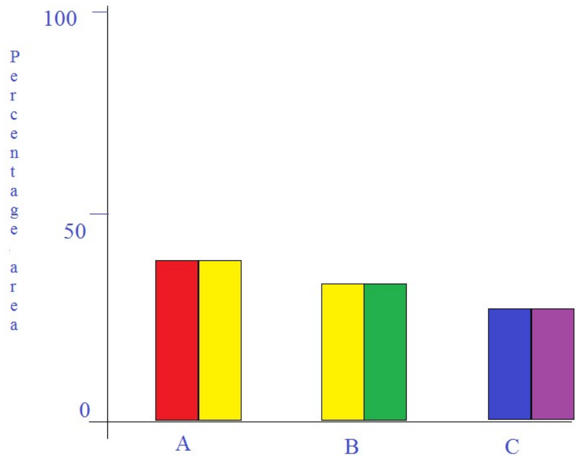

Figure 9. Percentage of primary lights in sample 2 of the light beam.

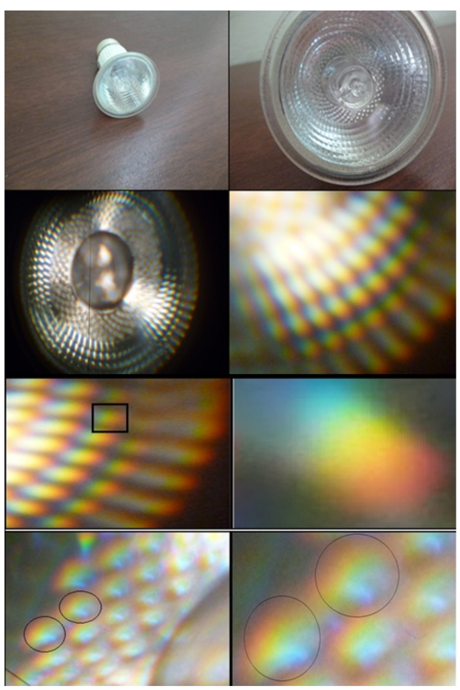

Figure 10. Luminous effect on the reflective mirrors of the dichroic lamp.

angle with 2.5mm x 2mm in the front row at the edge gradually decreasing to 2.5mm x 1mm in the last row. The lightbulb has plain glass in the light output in such a way that the glass does not create prismatic effect in the light rays. More internally, the lightbulb possessed 351/2 rows of a sphere with a relief. Each row contained 6 semi-spheres, making a total of 210 semi-spheres. Each semi-sphere has 1 mm diameter.

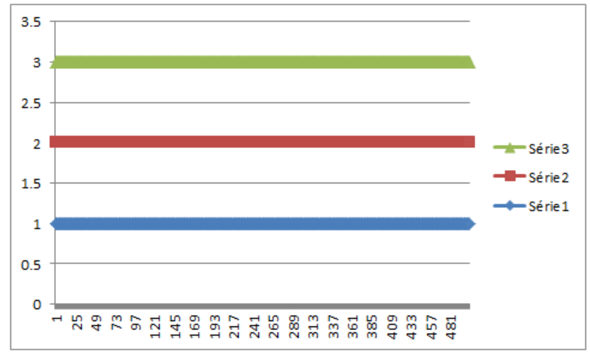

Figure 11. Statistical percentage of production of primary colors in the reflective mirrors of the dichroic lamp.

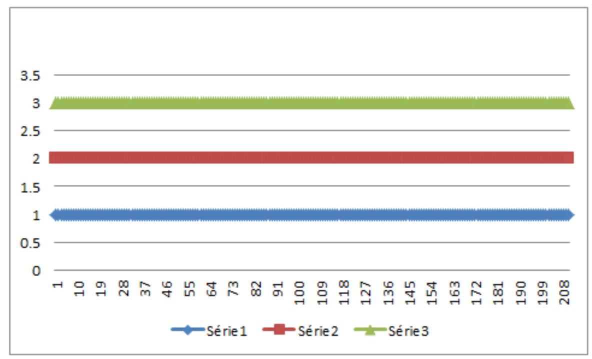

Figure 12. Statistics of the percentage of primary colors in the 210 semi-sphere has 1 mm in diameter of the dichroic lamp.

IV. MATERIALS AND METHODS OF EXPERIMENT III

Experiment III involves light diffraction with the use of aluminum foil. It was observed that the reflective surface unevenness on the paper caused the formation of the spectrum, as also occurs on the surface of a CD (compact disc). The geometric figures measuring 6mm in length by 0.8mm on the shorter side and 1.7mm on the longer side, when observed separately, also showed a slight color variation.

V. RESULTS AND DISCUSSION

In experiment I, with the use of diffraction apparatus, it was observed that when the lens of the magnifying glass in the independent rod F deforms the beams 1, 2, 3, 4, 5, 6 and 7, different colors are produced by each beam, allowing one beam to have a full spectrum. Thus, the spectrum can be obtained by separating the spectrum itself. The sample light beam n. 2 revealed the presence of the primary colors, as shown in Figure 8 and Figure 9.

In experiment II, the dichroic lightbulb was turned on toward the magnifying glass in order to enlarge the im-

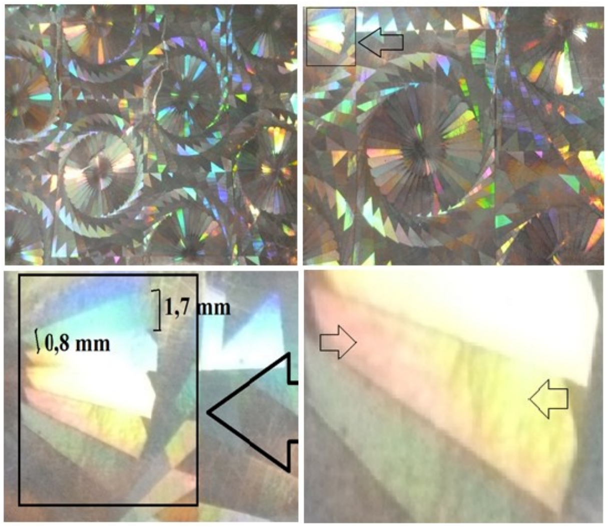

Figure 13. Light behavior on segmented aluminum foil.

age. The magnifying glass was at an angle of 0°in relation to the lightbulb, that is, the magnifying glass is parallel to the surface of the lightbulb. The lightbulb was 460mm from the magnifying glass. The magnifying glass is 1130mm from the screen. Once the dichroic lightbulb was turned on, multiple images of the spectrum are produced in alignment, that is, several tiny squares with the colors of the spectrum of various shapes and sizes, the most elongated reaching 5mm long on the projection screen. The experiment indicated that for all 504 internal rectangular unevenness, there was the formation of the spectrum. Also, for the 210 semi spheres at the central part of the lightbulb there was the formation of the spectrum depending on the angle of observation.

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The first conclusion was that the irregularity of each rectangle or each spherical relief in the reflection area, that is, in the reflective inner side of the lightbulb, each produced color spectrum. Since the projection was in all points in relief, spectrum formation could not be attributed to any diffraction caused by the magnifying glass, that only had the function of magnifying or reducing the lightbulb focus. Without the magnifying glass, there would only be the record of a white flash in the lightbulb, that is, the union of all colors.

This observation line is in accordance with what Newton [5] had observed about the light when well-separated, but it is also consistent with another conclusion about the dichroic lightbulb: what produced the colors of the spectrum was the level irregularity in the lightbulb sidewall, that is, an unevenness in the electromagnetic waves due to the relief of rectangles and hemispheres of the inner wall of the lamp. The unevenness of the waves, magnified by the lens of the magnifying glass, was interpreted by the retina as the creation of several spectra.

An electromagnetic unevenness in the retina, with the colors of the spectrum separated, that is, the isolation of a color, what we call simple color and that practically does not exist in the spectrum as a whole because the single color of the spectrum would be obtained by isolating a single beam of light, since the spectrum is continuous. The first question raised: How was the light spectrum in experiment I diffracted by the 5mm hole in disc E? The answer can only be that the interpretation that the retina made of phase irregularity of electromagnetic waves caused by the prism surface unevenness set on rod B. The same explanation applies to experiment II with the difference that the spectrum is not caused by the unevenness of the surface of a prism, but by reflection surface unevenness, that is, uneven surface or oblique surface in relation to the light beam. Experiment III confirms this thesis because the unevenness on the aluminum foil also caused spectrum formation. The same explanation applies to the spectrum output on the compact disc (CD). The production of various colors on a grooved surface such as a CD generates the colors of the spectrum, for the same reason, and when the light from the surface of a CD is reflected onto another CD, that is, from a CD as a mirror, the formation of the spectrum was normal, without the interference of the mirror CD. We have produced a spectrum from another spectrum already formed. A simple example of this spectrum formation occurs when oil is added to water. It can be seen that, in general, the center of the oil with more agglutination, has a violet color tone while the ends of the oil puddle, which is in the lowest level and less agglomerated, present a reddish tone.

VI. HYPOTHESIS I - ELECTROMAGNETIC WAVE PHASE CONFUSIONS CAN BE INTERPRETED BY THE RETINA AS WHITE LIGHT

1st hypothesis: (a) the production of three primary colors in experiment I from disc E, that is, from the color separation of another spectrum; (b) experiment II with the production of various spectra with dichroic lightbulb and (c) experiment III of spectrum of production with aluminum foil surface leads us to reassess the common concept that a single color cannot be changed, since a simple color in the spectrum is, theoretically, a single wave or a group of waves within the spectrum and that had the same phase due to the unevenness of the production surface and that should be understood as different from monochromatic light. Monochromatic light is understood as identical light in frequency and electromagnetic wave phase. The production of the spectrum colors with a prism can be obtained from waves of equal frequency*, but with phase variation at the source.* But the central point at issue is that Newton had already explained that equal incidence generate different refrangibility.

So what is the white light, if not a combination of all colors? The white light is that, and more. The white light is also a mixture of electromagnetic waves that may be of the same nature or same frequency, but different phases, confused and unordered, due to different production time. These waves of confusing phase result in confused production of rhodopsin in the retina and, hence, the brain interprets as white. Following this assumption any color can be uneven to the retina, that is, visual organs read the magnetic field in two dimensions, and may, for example, interpret the frequency beams as red with little phase error, as dark red and the same frequency of light, but with a lot of phase irregularity as light red. In terms of surface reflection, the total reflection of the very irregular and disorderly light on their origin, that is, light-colored, means that the reflective surface offered more reflection and less friction. Darker surfaces offer less reflection, more friction and, therefore, greater heat production.

When the light of the spectrum passes through a second inverted prism, the light becomes identical to the light at the time of its production, that is, confused light and without phase realignment, which causes the sensation of white on the retina, since the original waves with phase confusion were restored. If the colors are characterized by the electromagnetic waves, the black color is a color characterized by the absence of frequency or with such frequency that it cannot be captured by the retina. It is known that although they do not activate the retinal cells, dark bodies normally emit radiation. Second conclusion: electromagnetic waves are composed of entangled photons. The wave frequency is when two photons are in sinusoidal and transverse movement and, in the case of polarized light, the entangled photons tend to smooth this movement. This photic pair structure is the one that most allows a beam of light from an x source to change its direction and frequency when colliding with a reflective surface with regular unevenness (gap) producing the spectrum. In this case, there is no phase confusion. If a second inverted prism is used, or if light is reflected on an irregular surface, the phase confusion is restored, which will be interpreted by retinal cells as white light. This structure leads me to a metal frame that compares an electromagnetic wave to a very malleable spring. And that this comparison would only

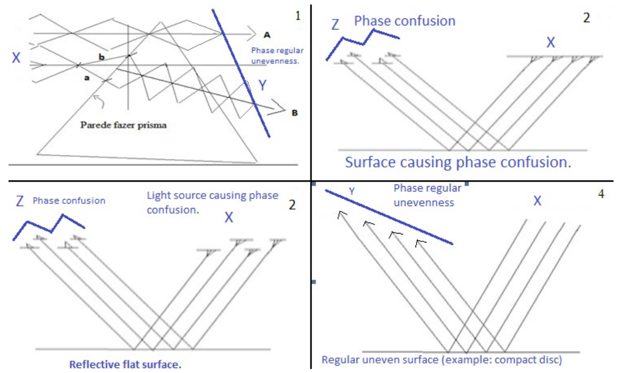

Figure 14. Electromagnetic waves are composed of entangled photons. There is a wave frequency when two photons are in sinusoidal and transverse movement and, in the case of polarized light, the entangled photons tend to smooth this movement. This photic pair structure is the one that most allows a beam of light from an x source to change its direction and frequency when colliding with a reflective surface with continuous slope (Tables 1 and 4) producing the spectrum. In this case, there is no phase confusion for the observer. If a second inverted prism is used, or if light is reflected off a continuous and inverse sloped surface, the phase confusion is restored (Table 2 and 3), and this will be interpreted by retinal cells as a form of white light.

be possible if (a) the photons had mass (m_y), and (b) if these masses varied (Δm_y) in *f(x).*

VII. HYPOTHESIS II - THE PROBLEM OF THE INTERPRETATION OF THE FOURTH DIMENSION IN THE THEORY OF RELATIVITY

The structure of two photons in mutual transverse motion would require:

1. That one photon was produced by a particle and another photon by its anti-particle.
2. That each photon was produced at an angle of approximately 45° to the surface of the particle, producing curved paths.
3. That the photon pair could change its propagation form from the *y' z'* axis at a single wavelength, to the y' axis at one wavelength and *z'* axis at another wavelength.
4. That the set of photons would behave like a spring, obeying Newton-Hooke's Law, continually approaching and departing from the x' axis of wave displacement.
5. That the relationship of Energy (E) with the quantum (photons) due to the curved structure would follow those postulated by the Reimann Tensor.

Follow the diagram as shown below and the theoretical understandings for the explanation of the phenomenon.

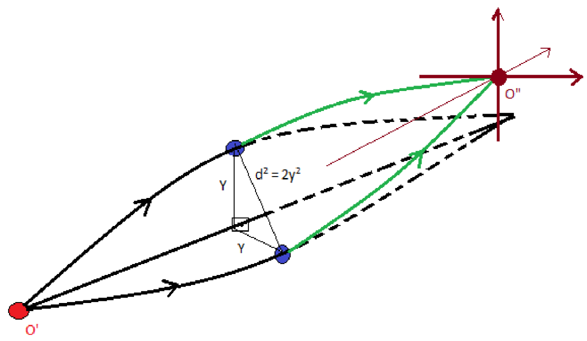

Figure 15. Geometric description of the trajectory of two photons in a curved sinusoidal transverse motion. This photic movement should only be perceived in the act of producing the electromagnetic wave. From the production on, any curved movement in the electromagnetic wave would scale at the point closest to two photons, that is, at the photic perihelion, rising from the following wave to always transverse to the previous wave.

O' is the source of production of electromagnetic waves, with photon projection at 45° in relation to the surface of the producing particle.

O" is the flattening point of the wave, with maximum approximation of the two photons. From that point, the wave will alternate at each wavelength between the a and b axis, that is, at each wavelength an alternation of 90°.

The crest of the electromagnetic wave is called the crest (y) here. The wave crest (y) should not be confused with the y' coordinate

$$ds^2 = \sum_{\mu=0}^{3}\sum_{\nu=0}^{3}(dx_\mu, dx_\nu)\eta^{\mu\nu}; \quad (1)$$

$$\eta^{\mu\nu} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix}; \quad (2)$$

$$ds^2 = \eta^{\mu\nu} dx_\mu dx_v; \quad (3)$$

$$\rho_\mu = (\rho_0, \rho_1, \rho_2, \rho_3); \quad (4)$$

$$\rho_0 = \frac{m_y V_R^2}{d^2}; \quad (5)$$

Where m_y is the mass of each photon.

Considering that there are two photons of mutual attraction:

$$\rho_0 = \frac{m_y V_R^2}{2d^2}; \quad (6)$$

Considering that on the central axis of the wave the distance (d) between the two photons becomes negligible (perihelion), and that at the farthest point between the two photons the distance between the two photons becomes maximum, he understands that the mechanism that produces a spring effect on the wave photons is the variation in the rotation of the photons, i.e. rotation speed (V_R).

$$E = \frac{m_y V^2}{2} + \frac{m_y V_R^2}{2}; \quad (7)$$

This structure would be very similar to the Newton-Hooke Law, where the second term receives the coefficient of elasticity k.

$$E = \frac{m_y V^2}{2} + \frac{m_y V_R^2}{2} kx^2; \quad (8)$$

It can also be hybrid with the Theory of Relativity in the form of the Newton-Hooke-Einsten Law.

$$E = \frac{mc^2}{2} + \frac{mc^2}{2} kx^2; \quad (9)$$

How much is K worth?

K is a constant relationship between rotational speed (V_R) and the distance (d) between the two photons:

$$k^2 = V_R^2 + d^2; \quad (10)$$

$$k^2 = 1^2 + 1^2; \quad (11)$$

$$k = \sqrt{2}; \quad (12)$$

$$E = \frac{mc^2}{2}(\cos x) + \frac{mc^2}{2}\sqrt{2}(\sin x)^2; \quad (13)$$

If the aphelion between the two photons is maximum and the photons are always produced at a 45° angle to the surface of the electron or positron:

$$E = \frac{mc^2}{2}(\cos 0) + \frac{mc^2}{2}\sqrt{2}(\sin 45°); \quad (14)$$

$$E=\frac{mc^2}{2}(1)+\frac{mc^2}{2}\sqrt{2}\left(\frac{\sqrt{2}}{2}\right); \quad (15)$$

$$E=\frac{mc^2}{2}+\frac{mc^2}{2}; \quad (16)$$

Then the total energy (E_t) takes into account the pair of photons in the system, or total mass (m_t).

$$E_t=m_tc^2; \quad (17)$$

The same formula could be rewritten as follows, since the energy of the photon pair is equivalent to 02 wavelengths (λ).

$$E_y=\frac{m_tc^2}{4}; \quad (18)$$

Where E_Y is the energy of a single photon (y).
Or the formula could be rewritten as follows:

$$E_t=m_yc^4; \quad (19)$$

Where E_t is the total energy of the system and m_y is the single photon mass.
Thus, it is more sensible to say that the fourth dimension in the Equation of Relativity known today as $\frac{E}{c}$, would best be explained by the relationship:

$$\frac{m_yV_R^2\sqrt{2}}{2}=\frac{m_y^2V_R^4}{2}; \quad (20)$$

Relating to the matrix metric:

(I) If the distance between two photons is minimal, d is negligible,

d = 1 , $V_{R_{y1}}=V_{R_{y2}}=c$;

$$\rho_0=E=\frac{m.c^2}{\sqrt{1-\frac{V_{R'}^2}{V_{R''}^2d}}}; \quad (21)$$

$$\rho_0=E=\frac{m.c^2}{\sqrt{1-0}}=m.c^2; \quad (22)$$

(II) If the distance between the photons is between the minimum and maximum value,

$$\frac{1}{2}d^1-\frac{1}{2}d^2=0; \quad (23)$$

$$V_{Ry1}=V_{Ry2},V_{R_0}\neq V_{R_1},V_{R_1}\neq c; \quad (24)$$

Where,
V_{Ry} is the rotation speed of each photon in the photic set.
V_R is the speed of rotation of the photons in *f(x)*, that is, relative to the central axis of the wave.

$$\rho=E=\frac{m.c^2}{\sqrt{1-\frac{V_{R'}^2}{x}}}; \quad (25)$$

$$x=o \quad (26)$$

This would cause uncertainty.
(III) If the distance between the photons is maximum,

d = 1 , $V_{R_{y1}}=V_{R_{y2}}\neq c$;

$$\rho_1=\rho_2=\rho_3=E=\frac{m.c^2}{\sqrt{1-\left\{\frac{V_{R'}^2}{V_{R''}^2(-1)}\right\}}} \quad (27)$$

$$\rho_1=\rho_2=\rho_3=E=\frac{m.c^2}{\sqrt{1-\{-1\}}}; \quad (28)$$

$$\rho_1=\rho_2=\rho_3=E=\frac{m.c^2}{\sqrt{2}}; \quad (29)$$

$$\rho_1=\rho_2=\rho_3=E_y^2=\frac{m_y^2.c^4}{2}; \quad (30)$$

$$=\frac{m_y.V_{R.}^2\sqrt{2}}{2}; \quad (31)$$

This is part of the time equation.
Where m_y is the mass of each photon and V_R is the speed of rotation of the photon about itself.
The energy of production of the wave is equivalent to the energy of attraction between two photons at a distance (d) at an angle of 45° with respect to the perpendicular of the photon launch axis, making an angle of 90° with respect to the two photons:

$$a^2=b^2+c^2; \quad (32)$$

$$E^2=\left(\frac{m_yV_R^2\sqrt{2}}{2}\right)^2+\left(\frac{m_yV_R^2\sqrt{2}}{2}\right)^2; \quad (33)$$

$$E=\sqrt{\frac{4m_y^2V_R^4}{4}}; \quad (34)$$

For the potential energy or how much the two photons are at perihelion:

$$E_t = m_t c^2; \tag{35}$$

Thus, time-space dilation works as an elastic constant, and the fourth dimension is related to the variation of the photon rotation speed with the distance (d) between the pair of photons:

So, d = 1,

$$E_t = m_y^2 c^4; \tag{36}$$

So, d ≅ 0,

$$m_t = \frac{E_t}{c^4}; \tag{37}$$

VIII. RECALLING AND TESTING CLASSICAL EQUATIONS.

Thus, the relation of photons between each other can be given:

$$F = G\frac{\Delta m_\gamma \Delta m_\gamma}{d^2}; \tag{38}$$

Where G is the gravitational constant of Newton.
Δm_γ is the mass of each photon of mutual orbit.
d is the diameter that separates the two photons that moment together.
F is the force of attraction between the two photons.
y is the measurement of the crest of an electromagnetic wave.
Distance between 02 wave crests (amplitude) on the transverse axis (90°):

$$a^2 + b^2 = c^2; \tag{39}$$

$$y^2 + y^{'2} = d^2; \tag{40}$$

$$d^2 = 2y^2; \tag{41}$$

So,

$$F = G\frac{\Delta m_\gamma^2}{d^2}; \tag{42}$$

Replacing

$$F = G\frac{\Delta m_\gamma^2}{2y^2}; \tag{43}$$

Using the centripetal force equation for a single photon
For m_{y1} there is an R'.
For m_{y2} there is an R".
The radius R is $\frac{1}{2}$ of the total radius R_t.

$$F_y = \frac{\Delta m_\gamma V_\gamma^2}{\frac{1}{2}\Delta R_t}; \tag{44}$$

Equating Equations.
Where E is the total energy of the system in conjunction with the two photons
So,

$$G\frac{\Delta m_\gamma^2}{2y^2} = \frac{\Delta m_\gamma V_\gamma^2}{\frac{1}{2}\Delta R}; \tag{45}$$

Eliminating delta variations as they are proportional.

$$G = \frac{2y^2 m_\gamma V_\gamma^2}{\frac{1}{2}R m_\gamma^2}; \tag{46}$$

$$G = \frac{4y^2 V_\gamma^2}{R\Delta m_\gamma}; \tag{47}$$

$$R = d; \tag{48}$$

$$G = \frac{4y^2 V_\gamma^2}{d\Delta m_\gamma}; \tag{49}$$

Area between two perpendicular electromagnetic waves, 1/4 of the surface of a sphere.

$$\frac{A_s}{4} = \pi r^2; \tag{50}$$

As the cycle closes with two wavelengths, we divide by 2:

$$\frac{\pi r^2}{2} = \frac{1}{2}\pi y^2; \tag{51}$$

$$\frac{4y^2}{\frac{1}{2}y^2} = 8; \tag{52}$$

The sum of the partial energy of each photon to complete a wave cycle is equal to 8π.

Using integration - Calculating the area under the sine curve.

$$f\left(x\right)=\int_0^2 \sin 45^\circ x; \tag{53}$$

$$f\left(x\right)=\int_0^2 \frac{\sin 45^\circ x^2}{2}; \tag{54}$$

$$f\left(x\right)=\int_0^2 \frac{4\sqrt{2}}{2}=2\sqrt{2}; \tag{55}$$

$$f\left(x\right)=\int_0^2 \frac{0}{2}=0; \tag{56}$$

$$A=2\sqrt{2}; \tag{57}$$

Calculating the area between the two sinusoidal parabolas:

$$a^2+b^2=c^2; \tag{58}$$

$$\left(2\sqrt{2}\right)^2+\left(2\sqrt{2}\right)^2=c^2; \tag{59}$$

$$8+8=c^2; \tag{60}$$

$$A=\sqrt{16}=4; \tag{61}$$

As the wave cycle is complete with 2 wavelengths:

$$A"=4.(2)=8\pi rad; \tag{62}$$

So,

$$G=\frac{4y^2V_\gamma^2}{d\Delta m_\gamma}; \tag{63}$$

Replacing:

$$G=\frac{8\pi V_\gamma^2}{d\Delta m_\gamma}; \tag{64}$$

Dividing the linear term by the geometric term:

$$\frac{V_y}{d}=T; \tag{65}$$

Where T is the Energy-Momentum Tensor.

$$G=\frac{8\pi V_y}{\Delta m_\gamma}T; \tag{66}$$

Kinetic energy of the two photons:

So, d = 1,

$$E_t=m_y^2c^4; \tag{67}$$

$$E_t=\Delta m_y c^4; \tag{68}$$

Adding to the formula the relationship with the speed of light c

$$G=\frac{8\pi V_y}{\Delta m_y c^4}T; \tag{69}$$

The photon's velocity is always in equilibrium with the photon's mass and its rotational velocity, that is, it is a constant of attraction.

$$G=\frac{V_y}{\Delta m_y}; \tag{70}$$

Replacing:

$$G^{'}=\frac{8\pi G}{c^4}T; \tag{71}$$

Or,

$$G_{\mu\nu}=\frac{8\pi G}{c^4}T_{\mu\nu}; \tag{72}$$

Where G is the force of attraction measured on a linear vector between two photons. And $G_{\mu\nu}$ is the force of attraction between two photons measured in a vector of curved geometry. On the metric of the Newton-Hooke-Einstein Equation:

$$E=mc^2-\frac{1}{2}mc^2kx^2g_{\mu\nu}=\frac{8\pi G}{c^4}T_{\mu\nu}; \tag{73}$$

Where $g_{\mu\nu}$ is the metric of the Newton-Hooke-Einstein Law, which is very similar to the Equation of Relativity:

$$E=R_{\mu\nu}-\frac{1}{2}Rg_{\mu\nu}=\frac{8\pi G}{c^4}T_{\mu\nu}; \tag{74}$$

This conclusion implies that at a certain moment, in a curvilinear displacement in the electromagnetic wave, the photons reach speed above c, although the speed of rectilinear displacement of the electromagnetic wave is compatible with c.

The largest area comprised between two transverse electromagnetic waves at the moment of wave production, and the plane area of two wavelengths are equal, that is, between them is 8π rad.

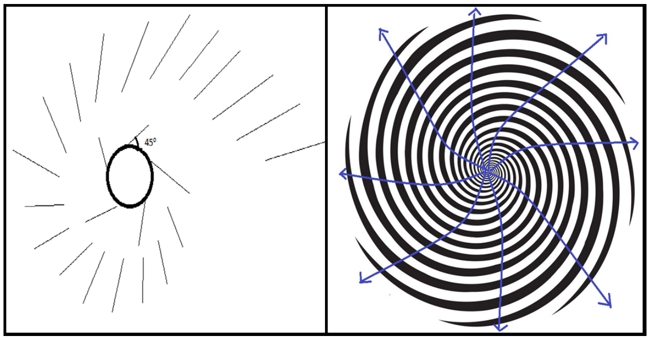

Figure 16. Photon pairs are produced from pairs of electrons and positrons. The light beams, it seems, are always fired very close to an angle of 45° from the electron's surface, in rotational shots, resulting in spirals of light in various directions and giving the ordinary observer the impression of a sphere of light. around x font.

IX. HYPOTHESES III - THE LOCATION OF G ON THE ATOM.

These experiments raise the following hypotheses: electromagnetic waves are produced at their origin by the particle and its antiparticle.

At the electronic level, for example, electrons and positrons must jointly participate in this production. Theory indicates that each of the entangled photons has an opposite final charge with equal masses. The wave production mode indicates triggers from 45° from the electrode surface and rotational triggers.

The energy of particles that are related in conjunction with their antiparticle have a fractal potentiation relationship.

About the flattening index of electron.

Electrons and positrons have an $\alpha_{e-/+}$ flattening when they are parked together:

Electromagnetic waves or entangled photons are emitted together by a particle and its antiparticle counterpart. The entire calculation that follows is based on the hypothesis that the energy of particles that are related together with their antiparticle have a fractal potentiation ratio.

X. ABOUT THE FLATTENING INDEX OF THE ELECTRONS

Electrons and positrons have an $\alpha e-/+$ flattening when they are parked together.

This steady state well represents the balance of three forces: the attraction force of an electron, the attraction force of a positron, and the force of attraction of the vacuum between the electron and the positron.

$$\frac{\alpha_{e-/+}}{3} = \frac{x^3}{3}; \tag{75}$$

There must still be for that same steady state a way to describe it in motion, as in the case of particles traveling at the speed of c, plus an additional fractal flattening capable of generate the friction of an electron and a positron.

The fractal relationship /3 arose from the need to think of 01 electron 01 positron and 01 empty space between these two stationary particles.

The rotation 10 fractal relation arose from the need to reconcile rotation 5 (asymmetric metric rotation) from the study of the quasi-crystal, multiplied by 2 in view of the notion of center of gravity by Issac Newton and Archimedes as well as the behavior of 2 entangled particles. The idea of using base 10 fulfilled the need to reconcile asymmetric rotation 5 with the notion of fractals (symmetric rotation).

$$\alpha_e = 3x^3 + a_{e-/+\to y}; \tag{76}$$

So,

A known force capable of generating attraction between masses is G.

A constant force capable of measuring the quantum is h.

Replacing,

$$a_{e-/+\to y} = \frac{x^3}{3} - 3x^3; \tag{77}$$

$$a_{e-/+\to y} = \frac{G^3}{3} - h; \tag{78}$$

$$a_{e-/+\to y} = \frac{\left(6{,}67408.(10)^{-11} m^3 Kg^2/s^{-2}\right)^3}{3} - 6,6260693.(10)^{-34} m^2 Kg/s; \tag{79}$$

$$a_{e-/+\to y} = \frac{\left(6{,}67408.(10)^{-11} m^3 Kg^2/s^{-2}\right)^3}{3} - 6,6260693.(10)^{-34} m^2 Kg/s; \tag{80}$$

$$a_{e-/+\to y} = \frac{\left(6{,}67408.(10)^{-12} m^2 Kg^2/s\right)^3}{3} - 6,6260693.(10)^{-34} m^2 Kg/s; \tag{81}$$

$$a_{e-/+\to y} = 6,67408.(10)^{-36}\left(Kg^2\right) - 6,6260693.(10)^{-34}\left(Kg\right); \tag{82}$$

$$a_{e^{-/+}\to y} = 0,0480107.(10)^{-3}\,(Kg)\,; \tag{83}$$

If the orbit of an electron with a positron is perpendicular, then electrons and positrons will approach at least 04 times with excess fractal flattening to complete one full revolution.

$a_{e^{-/+}\to y} = 0,0480107.(10)^{-3} + (4.(0,000480107)).(10)^{-3} \cong 0,00005;$ (84)

If an electromagnetic wave has two photons in mutual attraction, then the flatness coefficient of an electron or a positron alone is sufficient to produce a photon will be:

$$a_{e\to y} \cong 0,000025; \tag{85}$$

Subtracting the fractal index itself:

$$a_{e\to y} = \frac{\alpha_{e\to y}}{2^2} - \frac{\alpha_{e\to y}}{2^2}10^{-2}; \tag{86}$$

Flatness (deformation) index of the electron to produce a photon:

$$a_{e\to y} = 0,00002475; \tag{87}$$

$$F = k\frac{q_1 q_2}{r^2}; \tag{88}$$

$$k = \frac{1}{4\pi\varepsilon_0}; \tag{89}$$

$$k = 8.9875.(10)^{-9}Nm^2/C^2; \tag{90}$$

For stationary electrons and positrons:

$$k_x = 0,00002475.\frac{1}{4\pi\varepsilon_0}; \tag{91}$$

$$k_x = 0,0222440625.(10)^{-11}Nm^2/C^2; \tag{92}$$

$$k_x = 2,22440625.(10)^{-13}Nm^2/C^2; \tag{93}$$

Considering that the joint forces of the electron, positron and empty space (vacuum between these two particles):

$$3k_x = 3.(2,22440625).(10)^{-13}Nm^2/C^2; \tag{94}$$

$$k_x = 6,67321875.(10)^{-13}Nm^2/C^2; \tag{95}$$

Added to the energy fractals due to the parking of the two particles:

(I)

$k_x + k_x 10^{-4} = 6,67321.(10)^{-13}Nm^2/C^2 + 0,0006673.(10)^{-13}Nm^2/C^2$

$$= 6,67388.(10)^{-13}\ Nm^2/C^2 = k_1; \tag{96}$$

(II)

$$k_2 = k_1 + k_1\frac{10^{-4}}{4} = 6,67388.(10)^{-13}Nm^2/C^2 \tag{97}$$

$$+0,000166.(10)^{13}Nm^2/C^2 = 6,67405.(10)^{13}\ Nm^2/C^2 \tag{98}$$

(III)

$\mathrm{k}_3 = k_2 + \frac{k_2 10^{-5}}{2} = 6,6740529.(10)^{-13}\frac{Nm^2}{C^2}$

$+0{,}00003337\ .\ (10)^{-13}\frac{Nm^2}{C^2}$

$$= 6,67408.(10)^{-13}Nm^2/C^2 \tag{99}$$

$$k_3 = G10^{-2}; \tag{100}$$

By the mass attraction hypothesis of electrons and positrons.

$$e^- = 9,10938356\times 10^{-22}Kg; \tag{101}$$

$$e^+ = 9,10938356\times 10^{-22}Kg; \tag{102}$$

$$r = 0,00002475c^2; \tag{103}$$

$$r = (7419,86)^2 m; \quad (104)$$

$$F\frac{1}{4} = k.\frac{82,980868x10^{-44}}{(7419,86^2)^2}; \quad (105)$$

$$F = k.6,0290175.(10)^{-11} m^2 Kg/c^2; \quad (106)$$

F involves a complete cycle of two electron and positron approximations.

$$F^{'} = F\frac{1}{2^2}; \quad (107)$$

F fractal potentiation ratio:

$$F + F10^{-1} + F\frac{10}{2}^{-2}; \quad (108)$$

$$F_{e\to y} = k.0,0667408.(10)^{-11} m^2 Kg/c^2 = G; \quad (109)$$

XI. ABOUT THE FRACTAL FLATNESS INDEX OF PHOTONS

$$a_e = \frac{\alpha_y}{2^2} = 0,000025; \quad (110)$$

Photon particles emanating from electrons and positrons will have a maximum square root flatness index of α_1 given the maximum distance between the two photons emitted by the product of 1â„4 since a complete sine wave cycle involves two wavelengths.

Subtracting your maximum fractal index:

$$a_v = a_{e\to e} - \left\{ \left(\frac{\alpha_y}{2^3}10^{-2}\right) + \left(\frac{\alpha_y}{2^4}10^{-2}\right) + \left(\frac{\alpha_y}{2^3}10^{-3}\right) \right\}; \quad (111)$$

$$a_v = \frac{0,0000248c^2}{s} = (7434)^2 m/s; \quad (112)$$

Using the law of mass attraction applied to an electron and a stationary positron with maximum flatness index, that is, contact point of the energy of electrics and positrons.

F fractal potentiation ratio:

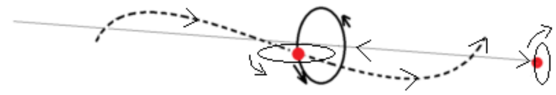

Figure 17. Representation of the vector movements of a neutrino pair. A retarded neutrino travels in a constant spiral. Another advanced neutrino travels like a tensioned spring advancing and slowing its speed relative to its peer.

$$F = k\frac{m_1 m_2}{r^2}; \quad (113)$$

$$r = 0,0000248c^2/s; \quad (114)$$

$$r = 7434^2 m; \quad (115)$$

$$F\frac{1}{4} = K.\frac{\left(9,10938356 \times 10^{-22}\right)^2}{\left(7434^2\right)^2}; \quad (116)$$

$$F = 6,006104x10^{-11} Nm^2/c^2; \quad (117)$$

$$F' = F + F10^{-1} + F10^{-2} + F10^{-3} + 2F10^{-4} + 2F10^{-5} + 2F10^{-6}; \quad (118)$$

This more sophisticated fractal formula suggests the creation of a particle from the electron, but in this specific case it is not a photon but a neutrino.

$$\frac{F_v}{k} = 6,67408.(10)^{-11} Nm^2/c^2; \quad (119)$$

$K = 10^2$ (stationary particles)

The force required to produce a flattening in a stationary electron or positron capable of producing a neutrino by the product of 10^2 is equal to G.

$$F_{e\to v} = kG; \quad (120)$$

$$F_{e\to v}.(10)^2 = G; \quad (121)$$

XII. ABOUT THE ORIGIN OF NEUTRINO (ν) PRODUCTION

$$x = V_v - V_v 10^{-2} - \frac{V_v 10^{-2}}{2} - \frac{V_v 10^{-2}}{2^2} - \frac{V_v 10^{-2}}{2^4} - \frac{V_v 10^{-2}}{2^8}; \quad (122)$$

$$x = \cong 7297,7728569795 \cong \alpha 10^6; \quad (123)$$

Where,

V_ν the possible velocity of a neutrino above c.

α is the Fine Structure Constant.

Therefore, the production of the electron's neutrino takes place through the interaction of the electron with the atomic nucleus.

XIII. ABOUT THE MASS OF THE PHOTON AND THE NEUTRINO

Photon mass must be x less than the electron mass:

So,

Dual photon ensemble mass:

Neutrino's mass must be x less than the electron's mass:

$$x = \left[\left(\frac{1}{0,0025}\right) \cdot \left(\frac{1}{0,0025 - 0,002475}\right)^2\right]^2; \quad (124)$$

$$x = \left[\left(4.(10)^2\right) . \left(4.(10)^4\right)^2\right]^2; \quad (125)$$

$$x = \left[\left(4.10^2\right) . \left(16.(10)^8\right)\right]^2; \quad (126)$$

$$x = \left[64.(10)^{-10}\right]^2; \quad (127)$$

$$x = 4,096.(10)^{-23}; \quad (128)$$

$$e^+ = e^- = 9,10938356 \times 10^{-25} g; \quad (129)$$

$$y^+ = y^- = \frac{9,10938356 \times 10^{-25} g}{4,096.(10)^{23}}; \quad (130)$$

$$= 2,22397059.(10)^{-48} g; \quad (131)$$

Dual photon ensemble mass:

$$m_{y^-} + m_{y^+} = 4,44794118.(10)^{-48} g; \quad (132)$$

Neutrino's mass must be x less than the electron's mass:

$$x = \left[\left(\frac{1}{0,0025}\right) \cdot \left(\frac{1}{0,002475 - 0,00248}\right)^2\right]^2; \quad (133)$$

$$x = \left[\left(4.(10)^2\right) . \left(2.(10)^5\right)^2\right]^2; \quad (134)$$

$$x = \left[\left(4.(10)^2\right) . \left(2.(10)^{10}\right)\right]^2; \quad (135)$$

$$x = \left[8.(10)^{12}\right]^2; \quad (136)$$

$$x = \left[8.(10)^{12}\right]^2; \quad (137)$$

$$x = 64.(10)^{24}; \quad (138)$$

So,

$$e^+ = e^- = 9,10938356 \times 10^{-25} g; \quad (139)$$

$$m_{v^-} = m_{v^+} = \frac{9,10938356 \times 10^{-25} g}{6,4.(10)^{25}}; \quad (140)$$

$$m_{v^-} = m_{v^+} = 1,42334118.(10)^{-50} g; \quad (141)$$

About the relationship of Planck's Constant to the photon's mass

So,

$$a_e = \frac{a_y}{2^2} + \left(\frac{a_y}{2^2}.(10)^{-2}\right) = 0,00002475; \quad (142)$$

If the photon undergoes decompression after being emitted from the electron:

$$-\frac{2a_y}{2^2}.(10)^{-4}; \tag{143}$$

And if the set of two photons interacts twice in a fractal order of:

$$\left(\frac{4a_y}{2^2}.(10)^{-6}\right) + \left(\frac{4a_y}{2^2}.(10)^{-9}\right) + \left(\frac{2a_y}{2^2}.(10)^{-10}\right); \tag{144}$$

$$+\left(\frac{1}{2.}\frac{a_y}{(2)^2}.(10)^{-10}\right); \tag{145}$$

The flatness coefficient of a photon will be:

$$a_{y\to y} = \frac{a_y}{2^2} + \left(\frac{a_y}{2^2}.(10)^{-2}\right) + \tag{146}$$

$$\left(-\frac{2a_y}{2^2}.(10)^{-4}\right) + \left(\frac{4a_y}{2^2}.(10)^{-6}\right) +$$

$$\left(\frac{4a_y}{2^2}.(10)^{-9}\right) + \left(\frac{2a_y}{2^2}.(10)^{-10}\right) + \left(\frac{1}{2.}\frac{a_y}{(2)^2}.(10)^{-10}\right);$$

$$a_{y\to y} = 0,00002474501001625; \tag{147}$$

$$m_y = 2,22397059x10^{-48}g; \tag{148}$$

$$F = k.\frac{\left(2,22397059.(10)^{-48}g\right)^2}{\left(0,00002474501001625c\right)^2}; \tag{149}$$

$$F = k.\frac{\left(2,22397059.(10)^{-48}g\right)^2}{\left(0,00002474501001625c\right)^2}; \tag{150}$$

$$F = k.\frac{\left(2,22397059.(10)^{-48}g\right)^2}{\left(7418,36737113458\right)^2}; \tag{151}$$

$$F = k.\frac{\left(222397059.(10)^{-34}kg\right)^2}{\left(7418,36737113458\right)^2}; \tag{152}$$

$$F = k.299792458.(10)^{-38}kg/m^2; \tag{153}$$

Entering the wavelength and frequency of the wave:

$$F_{y\to y} = k.299792458.(10)^{-38}kg/m^2; \tag{154}$$

Where must be the force needed to produce a flattening of the photon.

$$(F_{y\to y}) = k.c.(10)^{-38}kg/m^2; \tag{155}$$

$$(F_{y\to y}) = k.\lambda.f.(10)^{-38}kg/m^2; \tag{156}$$

The equation from the point of view of photon emission by period:

$$\frac{(F_{y\to y})}{\lambda} = k.f.(10)^{-38}kg/m^2; \tag{157}$$

The smaller the wavelength λ, the greater the frequency f of photon emission in the
same period of time. With respect to Planck's Constant:

$$\left(\frac{\lambda^2}{c}\right)\frac{(F_{y\to y})}{\lambda} = \left(\frac{\lambda^2}{c}\right)k.f.(10)^{-38}kg/m^2; \tag{158}$$

$$\frac{(F_{y\to y})\,\lambda}{c} = \frac{k.f.\lambda.\lambda.(10)^{-38}kg/m^2}{c}; \tag{159}$$

$$h = \frac{k.c.\lambda.(10)^{-38}kg/m^2}{c}; \tag{160}$$

$$h = k.\lambda.(10)^{-38}kg/m^2; \tag{161}$$

$$0 = k.\lambda.(10)^{-38}kg/m^2 - h; \tag{162}$$

$$k.\lambda = h.(10)^4kg/m^2; \tag{163}$$

The order of attraction k of two photons that attract each other in the photic array multiplied by the wavelength is equal to Planck's Constant multiplied by 10^4.

$$k.\lambda = h.(10)^4kg/m^2; \tag{164}$$

XIV. HYPOTHESIS OF C AS A DIMENSIONLESS GEOMETRIC CONSTANT

The speed limit of light is a fractal geometric process of relation of photon strength given a curve measured by the fourth part of the circle and the line connecting their ends.

$$\sin\vartheta = I = \frac{\left(\frac{\pi}{4}\right)}{\sqrt{2}} = 0,555360367\ldots \qquad (165)$$

This index is fractal in itself, generating a final index (I_{frac}) one hundredth lower, which should be applied to fraction of a tenth of π.

$$I_{frac} = \left\{\left(\frac{4\pi}{\sqrt{2}}\right) - \left\lfloor\left(\frac{4\pi}{\sqrt{2}}\right)10^{-3}\right\rfloor\right\}.\pi 10^{-1}; \qquad (166)$$

The final index (I_{frac}) should be fractally reduced from π.

$$c_1 = (\pi - I_{frac}) + (\pi - I_{frac})\,10^{-2} + (\pi - I_{frac})\,10^{-3} + \ldots \qquad (167)$$

$$c_1 = 2,99726520495; \qquad (168)$$

That the maximum rate achieved (c_1) should be increased by (1) a double increase in photon curvature due to the lateral standard deviation of the particle shock and (2) a double increase in photon curvature due to the standard longitudinal deviation caused by the repulsion the two photons.

$$c_2 = 2C_1 10^{-4} + 2C_1 10^{-5}; \qquad (169)$$

$$c_2 \cong 2,99792460\ ; \qquad (170)$$

Where c_2 would explain by dimensionless fractal geometry the constant c.

XV. ABOUT THE STANDARD MODEL OF PARTICLE PHYSICS

On the hypothesis of a better understanding of the nature of photons: The photons (y) of spim 1 and mass 0: they are from spim 1 at the moment of production until a certain moment of approximation of its antiparticle (y"). That would require a tweak to the standard model: the discovery of the antiphoton. Thus, the best description for photons (y) would be: electron photons y_{e-} of mass 0 and spim 1 and positron photons y_{e+} of mass 0 and spim -1.

From the approximation of y_{e-} and y_{e+} the photons can be described: a photon of the pair that originated from the electron could be called an electrino E^- with mass 1 and spin $\frac{1}{2}$, another photon of the pair that originated from the positron could be called a positrino E^+, with mass -1 and spin $\frac{1}{2}$. A set of electrino and positrino (E^+ and E^-) could be called a photonium. Light travels in photonium.

On the hypothesis of a better understanding of the nature of neutrinos:

How neutrinos ν behave in pairs: One neutrino of the pair that originated from the electron is a nanoelectrino (nE^-). Another neutrino of the pair that originated from the positron is nanopositrino (nE^+). Both with $\frac{1}{2}$ spin.

Hypothetically these four particles E^- , E^+ , nE^- and nE^+ when accelerated above c + 0.00248Possible discoveries: antiphoton (positron photons (y_{e+}) of spim -1, electrin (E^+) of spim1/2, positrino (E^-) of spim1/2, photonium, nanoeletrino (nE^-) of spim 1 and nanopositrino (nE^+) of spim $\frac{1}{2}$ A hypothesis was raised on how particles enter the Higgs field and how the four Majorana neutrilinos could occur.

XVI. CONCLUSION

The present study concludes that photons travel in entangled pairs: photons and antiphotons confirming the existence of antiphotons; that the entangled structure of a photon and its antiphoton in mutual transverse motion requires that the photons be produced by a particle and its antiparticle, in the specific case exemplified by the interaction of electron and positron; that the photic pair has a symmetric curved path at the time of production, given the sphericity of the electron and the positron, leading to the application of the Reimann Tensor in Special Relativity in certain respects, resulting in entangled particles of photons behaving like springs to each other , what could be described as a Newton-Hooke-Einstein law, equivalent to General Relativity in certain respects; that likewise, neutrinos are produced by a particle and its antiparticle and travel in entangled pairs, obeying in some respect the same Newton-Hooke-Einstein law. In another aspect, due to the strong jolt at the moment of production of the pair of neutrinos, due to the nuclear force, a neutrino of the set would travel with a speed compatible with c, V_{v1} =c. The other neutrino in the set with a speed of $V_{v2} \cong (c + 0,00248\%c)$. Thus, it would be correct to say that the neutrino velocity undergoes variation in relation to an observer at rest $\Delta V_v \cong c \leftrightarrow (c + 0.00248\%c)$; that neutrinos exchange speeds between, also allowing types of neutrinos with each other resulting in neutrino oscillation; that neutrinos hypothetically accelerated beyond c+0.00248%c tend to enter the Higgs field; that the theory of fractal geometry can be applied to the behavior of photons and neutrinos, given the hypothesis of origin of these particles and common behaviors; that particles and their respective antiparticle when stationary are connected by a force vector equivalent to G; that only a flattening (asymmetry) in the electron and positron would be able to produce a pair of photons; that quantum entanglement is a natural phenomenon and the basis of atomic organization and behavior of paired particles in electromagnetic waves; that the study opens up the understanding of the curvature of light, declaring the mass of the photon and the mass of the neutrino, understanding the prismatic effect of gravitational lenses; it also opens up the understanding of how retinal cells detect light, paving the way for the construction of ocular lenses with microprisms in their structure to reduce certain aspects of some visual impairments.

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