Quantum of Energy - A Photon

Francis V. Fernandes
137 Bethany B, Kodaikanal, Tamil Nadu, INDIA - 624101
e-mail : vir_3000@yahoo.co.in

The math descriptors of various properties of a photon are tabulated in this paper. The equations have an experimental basis. Photons have mass and contained ether. The photon *particle* is the source of ether *waves* measured as light, electricity and magnetism. The photon acceleration is gravity or voltage.

Introduction

The understanding of light is limited to terms like wave-particle duality, fringes and waves, particulate photons and light speed, *c*. Very little is known about the structure of light. Despite this limited understanding of light, technological developments in manipulating light have taken optics to great heights.

I will attempt to discuss and unravel some of the features of light. To begin with photons are particles with mass, charge, radial length, ether and pulsate about a mean position. Photon pulsate motion is picked up as an ether wave on the laboratory detector screen as fringes. The screen is made up of matter which is basically clusters of photons about seed 186-ether. The arrival of the ether wave front orchestrates photons in the material of the detector to pulsate at new parameters of frequency, wavelength and there is a redistribution of photon mass and contained ether. Photon particles generate ether waves. Myriads of 186-ether masses comprise the etheric sea, which is the source of gravitational and electromagnetic field waves. Through pulsations, source photon bodies generate the radiation of waves in this ambient ether. These etheric radiation waves are ripples of the 186-field particles that have been modeled by the frequency of the source photon, also called the wave-maker, or signaler.

Normally, the locomotion of particles is associated with *convection* currents; that is to say, showers of particles that travel in locomotion through space can be treated as a convection current and not radiation. Cosmic rays are the well-known example of convection. A point to note here is that these showers or swarms of particles travel as matter waves and arrive, as they are meant to, as particles. This must be visualized in stark contrast to the phenomenon of light *radiation* where 186-field particles change shape about a mean position, that is, undergo mass contraction and expansion realized as a wave front of the etheric sea.

The ether wave front travels at the speed of light, *c*.

Evidence for the speed of light, *c*, related to the pulsation of a source photon: mass distributed within a time-period for one cycle for a photon is,

$$mass \times timeperiod \times 137.036 = 0.7372496364 \times 10^{-50}\, kg.s \quad \text{\{ref. 1\}}$$

For an electron, the speed of light, ***c*,** is a connection between the light's *wavelength* and its wave frequency,

$$c = \lambda \times f\,,\ f = \frac{2.99792458 \times 10^{8}}{2\pi R_e \times 137.036},$$

$$f = 0.169320307 \times 10^{22}\, s^{-1}$$

$$9.1093826 \times 10^{-31} \times 5.905966129 \times 10^{-22} \times 137.036 = 0.7372496364 \times 10^{-50}\, kg.s$$

The math clearly establishes a correlation between the speed of light, *c*, and the pulsation of the source photon (or electron, which is a type of photon). This source photon vibrating at a particular frequency, *f*, ripples ether at-large.

Now, listed below are equations that describe various attributes of light.

Photon mass, *m* and radius, *r*	$h = m \times Rk \times r$ Associated with the Von Klitzing constant, *Rk*
Charge squared of a photon particle, q^2	$q^2 = m \times r \times 10^7 \ C^2$ Photon mass pulsates thru radius, *r*
The ether wave	$\lambda = 2\pi \times r \times 137.036 \ m$ Created by a photon of radius, *r*
Cross section area, *A* of a photon	$A = \pi \times (r)^2 \times 137.036 \ m^2$ The photon radial extension of 137.036 is involved
Current, *I*	$\frac{1.16 \times 10^{10} \times v}{1C} \ A$ The momentum of 116-ether
Current squared, I^2	$I^2 = F, \ force \ N$ Unity of electric current and the force of gravity
Magnetic field, *B*	$\mathrm{B} = \frac{\mathrm{I}}{r} \ A/m$ Current per photon radius
Electric field, *E*	$\mathrm{E} = \frac{\mathrm{I}}{t} \ A/s$ Force per unit elementary photon charge
Resistance, *R*	$R = \frac{I}{186} = \frac{v}{q} \ A/kg$ Current associated with one 186-ether mass
Magnetic flux, Φ_B	$\Phi_B = \frac{I}{r} \times A$ or $\Phi_B = I \times \pi \times r \times 137.036 \ Wb$ The angular momentum of 116-ether
Electric flux, Φ_E	$\Phi_E = \frac{I}{t} \times A$ or $\Phi_E = eV \times R; \ R = \pi \times r \times 137.036$ A.m²/s Current thru a cross section area of a photon in time
Electron volts, *eV*	$eV = r \times E = r \times \frac{F}{q} \ N.m/C$ Electric field acting thru a distance, *r*
Heat, *H*	$H = \frac{1.16 \times 10^{10} \times v^2}{1C} \ J$ Energy associated with 1 coulomb of ether
Voltage, *V*	The gravitational acceleration of a photon body
Source of light speed, *c*	$c = \frac{r}{t} = \frac{1.380668031 \times 10^{-29}}{4.605412826 \times 10^{-38}} \ m/s$ The pulsate velocity of 186-ether
Ether force, *F*	$F = 1.210273708 \times 10^{44} \ N$ The force of 186-ether at speed of light, *c*
Photon force, *F*	$F = 29.05350661 \ N$ The force of a photon at pulsate speed, *c*
Ether contained within photon radius, *r*	$r \times 1.346611109 \times 10^{27} \ kg$ The ether mass consists of myriads of 186-ether

Properties of a photon

The formulae and characteristics of photons listed here are a summation of the research papers under the 4 references which comprise many parts.

1. Photons have mass. {ref. 1, Part 2, Pg. 7}
2. Photons have momentum. {ref. 2, Pg. 14, Eq. (108)}
3. Ether mass is photon mass for 186-ether. {ref. 4, Pg. 1}
4. Acceleration of a photon body is voltage. {ref. 2, Part 4, Pg. 14}
5. Heat is the energy of a 116-ether mass. {ref. 2, Part 5, Pg. 15}
6. Force of a photon body is current squared. {ref. 1, Part 8, Pg.(28), (29), Eq. (35)}
7. Elementary charge, *e* is the pulsation of 186-ether. {ref. 1, Pg. 3}
8. Photons radiate energy. {ref. 2, Part 5, Pg. 15}
9. Light is radiation not convection of photons. {ref. 2, Pgs. 6&7, Eq. (31),(32)}
10. The photon is a particle. {ref. 1, Part 2, Pg. 7}
11. The photon particle ripples waves. {ref. 2, Pg. 7}
12. The hand of god factor is part of the wave formula. {ref. 1, Part 3, Pg. 9}
13. The etheric sea is comprised of infinite 186-photon/ether bodies. {ref. 2, Pg. 3}
14. The speed of light, *c* is associated with 186-ether. {ref. 2, Pg. 11}
15. The cross section area of a photon body is defined by a formula. {ref. 2, Part 2, Eq. (71)}
16. The photon contains ether. {ref. 1, Part 1, Pg. 3}
17. Ether contained within a photon can be measured accurately with the ether mass to radius ratio. {ref. 1, Part 1, Pg. 2}
18. The field is ether. { ref. 1, Part 1, Pg. 2}
19. The ether is comprised of 186-ether/photon mass which can dilate to the parameters of an electron. {ref. 1, Part 1, Pg. 3}
20. The resistance of a conductor or electrolyte is the velocity per elementary charge of 186-ether. {ref. 1, Part 6, Pg. 22, Eq. (22)}
21. 186-ether is the source for unity of all forces in nature. { ref. 1, Part 1, Pg. 4}
22. The radius of 186-ether is the Boltzmann constant.{ref. 1, Part 1, Pg. 3}
23. Clusters of photons emanate visible matter. {ref. 1, Part 5, Pg. 19}
24. The photons cocoon a 186-seed ether that is measured by electricians as charge, *Q*. {ref. 4, Pg. 2}
25. The huge ether force of 10^{44} *N* is the 186-ether mass that accelerates at the speed of light in a defined time. {ref. 2, Pg. 10, Eq. (69)}
26. A two body mass or twin 186-ether super-impose to create the inverse squared relationship. {ref. 2, Pg. 3}
27. Photons obey Newton's laws. {ref. 1, Part 1, Pg. 4}
28. An electron is a type of photon. {ref. 1, Part 3, Pg. 10}
29. The energy of a photon is *eVe,* and not *eV*. {ref. 1, Part 6, Pg. 22}
30. The photon velocity is the Von Klitzing constant. {ref. 2, Pg. 11}
31. Light, electricity, magnetism and gravity stem from photons. {ref. 2}
32. Photons are reversibly involved in the phenomenon of pair production. {ref. 1, Part 2}
33. Finally a photon must obey the equation, {ref. 1, Part 2, Pg. 7}

$$q^2 = m \times r \times 10^7$$

Significance

The introduction, formulae and statements tell the story of the various attributes of a photon body.

The next challenge is to put the formulae listed in this paper to use.

A first step would be to construct a scale up model of the photon body utilizing these formulae. To achieve this, one would need to know the shape of a photon. This is a difficult task. However, possible candidate shapes that emerge are as follows: torus, sphere, hypercube, disc, cone

Why is the photon shape important?

The photon is the ultimate dynamo. Perhaps a scale up model will provide the answer for the energy crisis facing humanity.

The artificial model of a photon may have an important application in microscopic imaging up-to $10^{-50}m$.

Artificial intelligence, robotics and communication technologies at faster than light speed, could become a reality.

Ablation of unwanted cells could reach fascinating limits of success with photon bodies locking on-to target sites with lock and key precision.

The field of proteomics would find enhanced capabilities in terms of gene expression.

Similarly cognitive genetics could have clinical interventions in terms of the not so junk DNA that are now discovered to be involved with creativity, language and artistic temperament.

So, it is imperative that the shape of a photon be discovered.

I thought that I had the shape figured out! However, like Rubik's cube another facet gets disturbed just when one facet seems to take shape.

One thing is apparent: the photon is fractal.

May the modeling continue….

References

[1] F.V. Fernandes, *Photo-Electric Conversions*, Parts 1-8, www.worldnpa.org

[2] F.V. Fernandes, *Unification of Gravity with Electro-Magnetic Phenomena: GEM*, www.worldnpa.org

[3] F.V. Fernandes, *Emanation of Matter*, www.worldnpa.org

[4] F.V. Fernandes, *Faraday's equation*, www.worldnpa.org

Acknowledgements

I would like to express my deep appreciation to my loving wife Christine as well as to our children Joel and Mikhail for all their patience and support through the years of this research. Thanks to Mark Antrobus for his creative suggestions.