The length of the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave

Abstract:

The length of the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave is determined by the circumference of the Electron.
A self-sustaining electromagnetic wave made out of objects that have a mass and a charge. As light is mainly emitted from Electron, the fine structure of the Electron would be made out of these objects, which for the purpose of this paper we will call Attons. The electro-magnetic particle (EMP) wave would act mostly in the same way as an electro-magnetic field wave. Experiments conducted by Leong, V. at the university of Singapore show the wave of 780 nm light to be very close to 4 meters [1]. This paper will show the theoretical background for this result. It will also apply this theory for microwave to show the consistency.

I have postulate that charges (Attons) spinning off an Electron will natural will fly off in this Helix form as the Electron is also spinning around the Atom and maintain this Helix form due the then creation of a self-sustaining magnetic field. As the magnetic field is the moving electric field we can use the electrostatic force as a first approximation instead of the magnetic derivations. In actuality the negative atoms and the positive Attons spin in opposite directions resulting a "lopsided" wave (illustration1b). This lopsided wave will have a preferred aches perpendicular to the direct of the velocity. This is the background of these Attons flying clockwise and anticlockwise and thus both adding to the field leads to light having polarization.

$$\frac{MoV^2}{\mathrm{r}} = \frac{QoU}{r} \quad (1) \qquad => \qquad V^2 = \frac{QoU}{Mo} = C^2 \quad (1a)$$

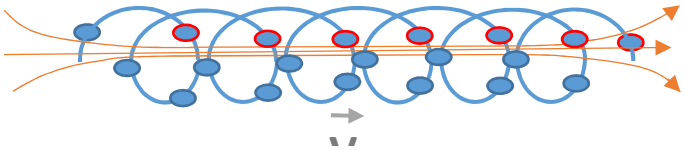

Illustration 1a Charges flying in a self-sustaining helix

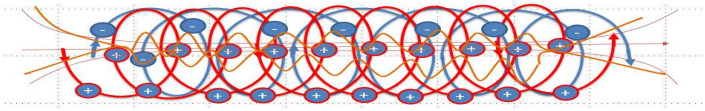

Illustration 1b Charges flying in a self-sustaining helix

The other way to look at it is that each Atton contributes its own magnetic field in the same strength as it would as an electric field. The λ of the Rydberg max frequency λR inserted in the equation 2 will give you all the clue that each Atton contributes to the magnetic field with one constant value. The important postulation that can be made that any magnetic force exerting force on a charge of atton greater than $2{,}2\ 10^{-32}$ [N} for a micro wave of 10 Ghz would lead to an unraveling of such microwave. In the evanescent light experiments we see this "rectification" of EPP waves that then can reform the stream of DC Attons when the magnetic fields of the atoms of the material behind the gab force the Attons back into a helix. The rectification is a phenomena that also probably could be studied in the superconducting. The magnetic field of material opens up at is surface creating different magnetic field situation as inside a material. Thus the phenomena of reflection and evanescent light at the surface of two different surfaces have the same cause. Particular if you take into

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account the open magnetic fields suspected at the surface produce a field that would create the force of around 10^{-32} [N]. Each "turn" can have around 10^{10} of Attons, thus giving a Δt of 100 10^{-15}[S}

$$\frac{MoC^2}{\lambda/4} = \frac{n * 4 * keQo^2}{(\lambda R/4)^2} \quad (2)$$

As a side note the above Helix Light structure in motion would also fulfill the Maxwellian Div $\vec{E}$=0.

We find that light is mainly emitted from an Electron. But Protons and Neutrons as well as all particles seeing forces typically due to acceleration will emit EMP waves. If light is made up of a multitude of charged Attons then so must be the Electron. If the Electron is made out of a multitude of charges. Of course there would be no conceivable structure that would only allow for just negative or just positive charges. And Electron must have then both positive and negative charges. I have come to the conclusion that the most "economic "structure is 1/3 positive to 2/3 negative charges for the electron. Naturally the Electrons anti-matter would be 2/3 positive and 1/3 negative charge.

Using premises that the Electron is made up of a multitude of Attons, we now can determine the approximate mass and the charge of the Atton. To start with we use the formula (6) to determine the mass of an Atton Mo. As stated we can set f=1 and thus n=1 .

$$\boldsymbol{Mo = \frac{h}{C^2} \Rightarrow Mo = 0.737\ 10^{-51}\ [Kg]\ (3)}$$

$$\frac{Me}{\mathrm{Mo}} = \mathrm{N}vme = \mathbf{1.235\ 10^{20}}\ \text{Attons (particles) per Electron (4)}$$

As per the structure of an Electron

$$\text{Volume} = \mathrm{Nv}\ me = \frac{4\pi r^3}{3} = 1{,}235\ 10^{20}\ [\text{Attons}]\ (5)$$

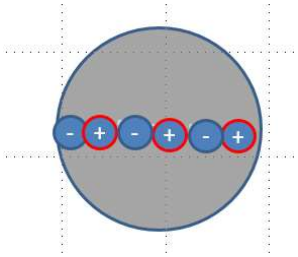

Illustration (2) shows that we are using each Atton as a measurement unit. (Picture shows radius r=6 as an example.)

From there we can easily determine the surface area in terms of the quantity of Attons.

$$Ae = (4\pi \boldsymbol{r^2}) = 1.19\ \mathbf{10^{14}} \quad (6)$$

$$\boldsymbol{Qo = \frac{Qe}{A}} = 1.34\ \mathbf{10^{-33}} \quad (7)$$

Once we have the surface quantity of the Attons we know the charge Qo of the Atton.

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$$Qo\ U = 2h \qquad (8)$$

As we can see Qo stands in a close relationship to the

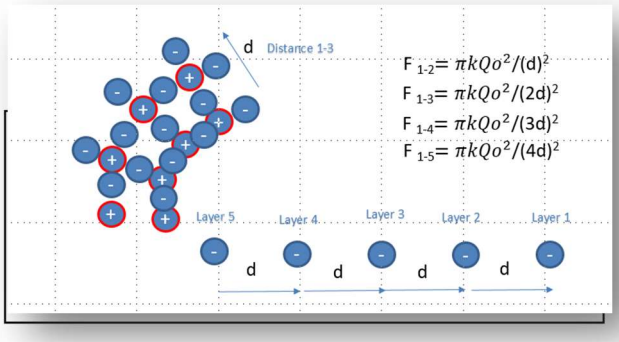

Illustration 3 showing the structure of the electron shift electro-magnetic particle waves.

The fundamental structure of all particles is 1/3 to 2/3 charge. In case of an electron the outer layers 1/3 are positive atton particle and 2/3 are negative atton particles. For the positron (antimatter) would be 2/3 are positive light or atton particle and 1/3 are negative particles. The principle structure could be as shown below. Taking the structure into account of Illustration 3 we see that each "layer" is made up of two layers. On is the pure negative layer and the other is the plus/minus layer. Again the frequencies correspond to the exact same number of Attons. Thus we can interpret the Rydberg function as :

$$fvac1 = c * R = A = (4\pi rmax^2) = 3.28\ \mathbf{10^{15}} \qquad (9)$$

$$\mathbf{f}_{\text{vac series}} = \mathbf{A_{n1} - A_{n2}}\ [\text{Attons}] \qquad (10)$$

$$fvac\ series = (4\pi rmax^2/N1^2) - (4\pi rmax^2/N2^2) \qquad (11)$$

For different series in the classical term as a frequency

$$fvac\ series = c * R\ (\tfrac{1}{N1^2} - \tfrac{2}{N2^2})\ [1/s] \qquad (12)$$

	Rn	A
1	1.62E+07	3.28E+15
2	8.08E+06	8.20E+14
3	5.39E+06	3.64E+14
4	4.04E+06	2.05E+14
5	3.23E+06	1.31E+14
6	2.69E+06	9.11E+13

Illustration 4 showing that the Rydberg can be calculated using the surface of shere.

The force on each particle on the Electron is

$N^2 * d_{1\text{-}2} = ke * Amax * Qo * Qe / Mo * (V)^2$

The next question which should arise is that the distance between layers increases by N^2. In illustration 6 we can see the physical reason why the spacing from layer 1 to the subsequent layers increases to the power of two for each layer distance. And precisely because of the clear cut specific force of each layer a resulting "jolt" of the Electron will lead to specific "break points". Important to note is that the reducing Charge of the Electron as the layers peel off leads to the classical reduction of velocity, but the orbit radius will stay the same. The number of Attons in the Volume are 2.65 10^5 higher than the max change in the surface. This difference most likely is extremely difficult to measure.

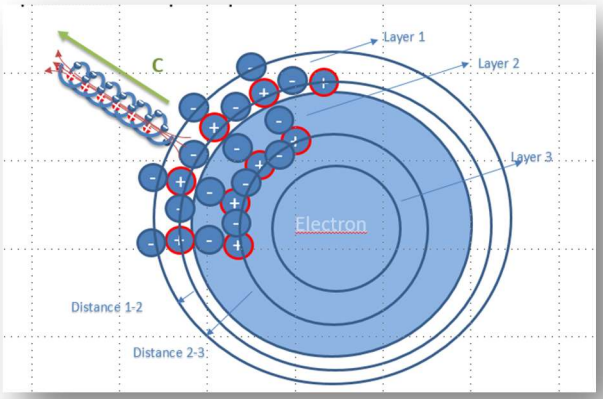

Illustration 5

Also important is that the free Electron will have a charge Qe in the neighborhood of the 6 layer as this also constitutes the last of the Hydrogen series (which is the Murphy series). The spectral lines of the Murphey series are also more inherently fuzzy compared to the higher energy series. In other words somewhere around the 6th layer the Electron can drift away from the Proton orbit and thus all measurements of the Electron are free electrons with the charge between 5th and 6th layer. Another issue is that the velocity of the

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Electron may also determine its absorption capability. As per the result of equation 10 the atton number for the Area of and Electron Ae with the charge Qe is close to the 5^{th} /6^{th} layer. Theoretical it could be possible to have a charge 2 x 13.7 Qe, but then the Electron could start spinning the Proton at a speed where the Proton would start losing charge and thus lead to a slowdown of the Electron. Another scenario is that the electromagnetic particle wave need to add to a super Qe charge would lead to a destruction instead of an absorption process.

The experiments conducted by Victor Leong shows that a four-meter photon of 780 nm takes about 13,3 nanoseconds to pass the atom. [1] Every time a photon was sent towards the atom, the team watched to see if and when the atom got excited. By noting the excitation times and collecting them together, the researchers could map the probability of the atom absorbing the photon as a function of time.
The team tested two different photon shapes – one rising in brightness, the other decaying. Hundreds of millions of measurements made over 1500 hours showed that the overall probability that a single Rubidium atom would absorb a single photon of either type was just over 4%. However, when the team looked at the process on nanoscale timeframes, they saw that the probability of absorption at each moment depends on the photon's shape. [2]. This is different then the 100 fs mentioned in the paper [3].

As the Attons are spinning off the electron each set of $l = 2 \pi r$ constitutes the 360 degree of one λ. Thus the total number of Attons = frequency of the light beam also is the surface area of the electron lost due to the radiation. Whereas r is measured in atton units. Then the circumference l_c is the circumference of average A' of the electron need for the specific frequency.

$$f = A' = 4 \pi r_{av}^2 \quad \textbf{[Attons]} \quad => \qquad (13)$$

$$l_c = 2 \pi r = (\pi A')^{0.5} \quad \textbf{[Attons]} \qquad (14)$$

The number of circumference Attons l_c divide by the total Attons flying in the helix gives you the number n_λ of lambdas needed to create the helix.

$$n_\lambda = A'/(\pi A')^{0.5} \quad => \qquad (15)$$

Then numbers of Lambdas multiplied by length of one Lamda of the wave gives you the length L of the Photon or Light Helix.

$$L = c \cdot (A')^{0.5} \ / f \cdot (\pi)^{0.5} \ [m] \qquad => \qquad (16)$$

At very last we must divide by 2, because of the string l_c structure

$$L = c \cdot (A')^{0.5} \ /2 \cdot A' \cdot (\pi)^{0.5} = c \ / 2 \cdot (A')^{0.5} \cdot (\pi)^{0.5} \ [m] \quad (17)$$

So at lambda of 780 nm gives a frequency of $f = A'' = 3.84\ 10^{14}$

In the case A" is smaller then A' which will lead to a slightly bigger number then the measured number.

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This gives Helix length of :

L= 4.31 meter versus experiment of 3.98 meter

As the chains of atton strings are unravelling around the electron the surface area gets smaller and so does l_c . This means you need take the average radius $r_{av.}$ This function needs to be investigated further to come up with the correct average.

For a microwave you would use the murphy radius as $r_{av.}$ of an Electron $2.69\ 10^6$ as the number of Attons would not be enough for a full spherical surface. The murphy radius is when the electron detaches from the orbit.

If we take the 8.2 Ghz then we have a Lambda of 0.036 [m]. We the divide $8.2\ 10^9$ by r_{av} to obtain n_λ. This number n_λ the is 3000.

$$L = n_\lambda * \lambda = 108\ [m] \qquad (17)$$

The pulse was measured [3] at 4 ns which would be 120 [m]. Evanescent light would presumably be 2π*L.

Conclusion:

The theoretical results match the two available experimental result within +/- 10%. At this point especially on the visible light wave the discrepancy can be reduced, if the correct r_{av} is calculated more in detail. I had predicted this result, but just two days ago I obtained the paper from Victor Leong with the extraordinary measurements of the length of a light Helix. In general terms these results cannot be ignored and show that this new approach can be used to envision new test and predict the outcome.

References

[1]Leong,V et al. Time-resolving scattering of a single photon by a single atom. Nat. Commun.7 13716 doi:

[2] https://phys.org/news/2016-12-interaction-atom-photon-quantum-devices.html

[3] Prof Nimtz and Horst Aichman paper 2018 Super Luminal Tunneling Story

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