

# Paper on the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave

## Abstract:

Since Einstein's "photo electric effect" discovery in the early 1920ties there has been the discussions about the wave particle duality. The recent Nobel Prize 2018 to Arthur Ashkin's "optical tweezers again shows that the micro size pall is moved with the light beam. This paper is a theoretical attempt to consider the possibility of two different forms of electromagnetic waves and thus eliminating the wave particle duality contradiction. Today's electromagnetic wave is well described by Maxwell equations based on the condition  $\text{Div } \vec{E}=0$ .

The 2<sup>nd</sup> possibility that is explored in this paper is 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 such as the single photon double slit, the photo electric effect and red shift effect can be inherently explained by an EMP wave. In this paper we will not investigate at what frequency we can expect the EMP wave to start and the possible overlap frequency range of the EMF wave.

In this paper I 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.

$$\frac{Mo^2}{r} = \frac{QoU}{r} \quad (1) \quad \Rightarrow \quad V^2 = \frac{QoU}{Mo} = C^2 \quad (1a)$$

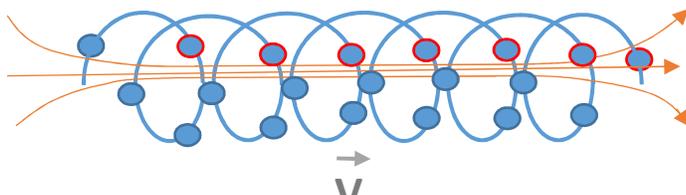


Illustration 1 Charges flying in a self-sustaining helix

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  $\lambda$  of the Rydberg max frequency  $\lambda R$  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  $2,2 \cdot 10^{-32}$  [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 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  $\Delta t$  of  $100 \cdot 10^{-15}$ [S]

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

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

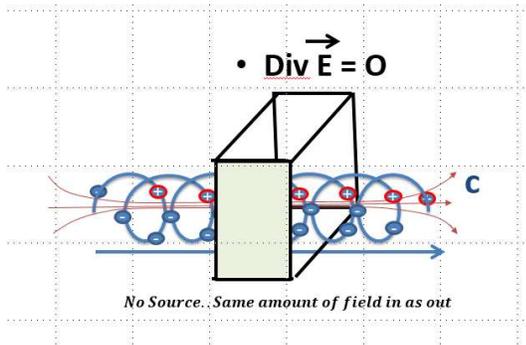
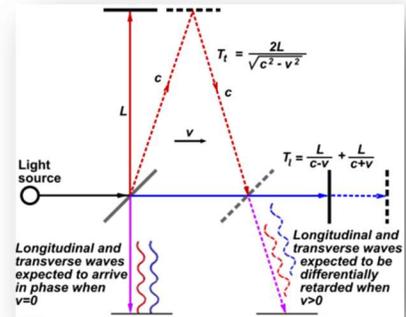


Illustration 2 The fulfillment of Maxwell condition for light.

The equation (2) demonstrates that since the mass and the charge is constant, the velocity of the Helix would be a constant as the potential in this Helix would represent a constant value. This leads to a constant speed and this is of course the speed of light.

Illustration 3 The fundamental structure of the Michael Morley Experiment



This is fundamentally also the result of the Michael and Morley experiment in Chicago and the subsequent hypothesis of Einstein 1905 paper, that the speed of light is independent of the speed of the source as the speed is fundamentally the quotient of  $Q_0/M_0$ . This speed occurs once the light helix /electro-magnetic material wave is formed.

The other fundamental issue with this idea is that if the light speed  $V = C$  then the charges would be flying at a speed of  $\sqrt{2}$  square root of two faster than  $C$  if Helix shape is symmetrical. If we use the universal energy equation and insert  $\sqrt{2}x V$  then we should again see the time proven energy formula of light. This assumption easily proves correct as the resulting energy leads to the same Einstein simplified light energy equation.

$$\frac{M_0 (\sqrt{2} V)^2}{2} = \frac{M_0 V^2}{1} \quad (3) \Rightarrow V^2 = C^2 \quad (4) \Rightarrow E = M_0 C^2 \quad (5)$$

The speed of the actual light remains at a maximum of  $C$  in vacuum and does not exceed the speed in any manner. The speed of a single Atton is  $\sqrt{2}$  faster than light. Before we dissect this phenomena we need to look at the origin of light.

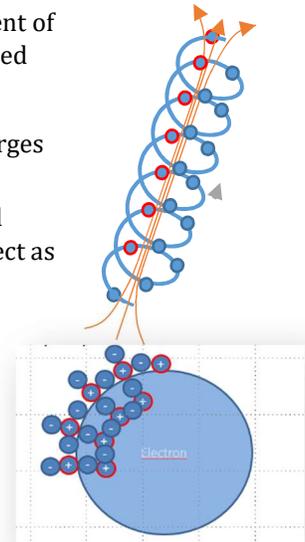


Illustration 4 Structure of an Electron

As can be seen from equation (5) we have used  $M_0$  to designate the mass of one single Atton. A beam of light would be any number greater than at least three, but most likely the Atton light would start somewhere with a  $10^5$  Attons. The  $n$  number of Attons then represents the frequency of the light wave  $n=f$ . In fact it is perceivable to create an  $h_n [AsV]$  that would just need to be multiplied by the number of Attons to determine the energy of the light beam. This fundamentally why the Plank Quantum energy formula is so

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simple. As the frequency of a particle wave represents the number of Attons we can write instead of  $fn \cdot h$  the equation  $h \cdot n$ .

$$E = n M_0 c^2 = h n \quad (6)$$

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 (5) to determine the mass of an Atton  $M_0$ . As stated we can set  $f=1$  and thus  $n=1$ .

$$M_0 = \frac{h}{c^2} \Rightarrow M_0 = 0.737 \cdot 10^{-51} \text{ [Kg]} \quad (7)$$

$$\frac{M_e}{M_0} = N v m_e = 1.235 \cdot 10^{20} \text{ Attons (particles) per Electron} \quad (8)$$

As per the structure of an Electron

$$\text{Volume} = N v m_e = \frac{4\pi r^3}{3} = 1,235 \cdot 10^{20} \text{ [attons]}$$

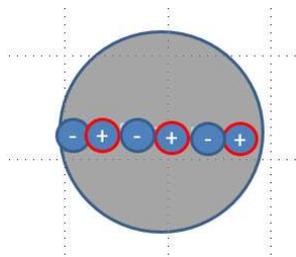


Illustration (5) shows that we are using each Atton as a measurement unit. (picture shows and  $r=6$  as an example.)

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

$$A_e = (4\pi r^2) = 1.19 \cdot 10^{14} \quad (10)$$

$$Q_0 = \frac{Q_e}{A} = 1.34 \cdot 10^{-33} \quad (11)$$

Once we have the surface quantity of the Attons we know the charge  $Q_0$  of the Atton.

$$Q_0 U = 2h \quad (12)$$

# Paper on the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave

As we can see  $Q_0$  stands in a close relationship to the Plank constant  $h$ . In a later paper I will investigate if the potential is always truly 0.5 or if due to the structure the surface Area  $A$  actually is a factor of two greater. Fundamentally I believe you could eliminate the Plank Constant and introduce the the Atton charge instead as in equation 13 with  $n$  being the number of Attons in the light beam and at the same time  $n$  is the same amount as the fereequency.

$$Q_0 * U * n \text{ [AsV]} \quad (13)$$

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 Illustration6 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 freuqncies correspond to the exact same number of Attons. Thus we can inerpret the Rydberg function as :

$$fvac1 = c * R = A = (4\pi rmax^2) = 3.28 \cdot 10^{15} \quad (14)$$

$$f_{vac\ series} = A_{n1} - A_{n2} \text{ [Attons]} \quad (15)$$

$$fvac\ series = (4\pi rmax^2 / N1^2) - (4\pi rmax^2 / N2^2) \quad (16)$$

For different series in the classical term as a frequency

$$fvac\ series = c * R \left( \frac{1}{N1^2} - \frac{2}{N2^2} \right) \text{ [1/s]} \quad (17)$$

The force on each particle on the Electron is

$$N^2 * d_{1-2} = ke * Amax * Q_0 * Q_e / Mo * (V)^2$$

The next question which should arise is that the distance between layers increases by  $N^2$ . In illustration 7 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  $2.65 \cdot 10^5$  higher than the max change in the

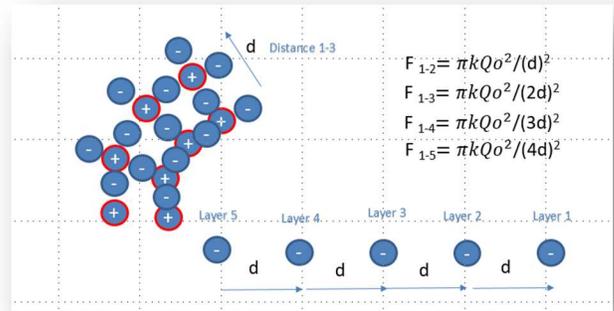


Illustration 6 of Electron structure with partial depiction of the achton structure of the first two layers. The blue rings indicate the first three layers. The distance 1-2 is 4x and the distance 2-3 is 9x.

	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
7	2.31E+06	6.69E+13
8	2.02E+06	5.12E+13
9	1.80E+06	4.05E+13
10	1.62E+06	3.28E+13
11	1.47E+06	2.71E+13

Illustration 7

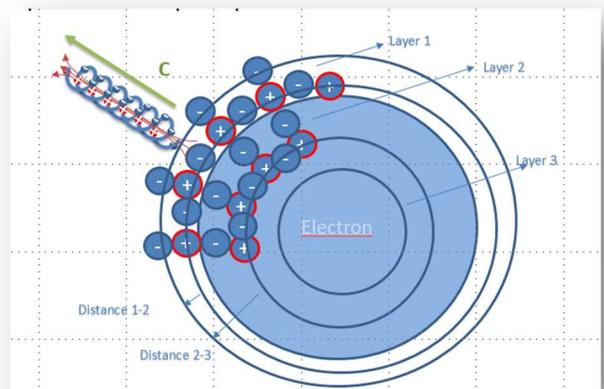


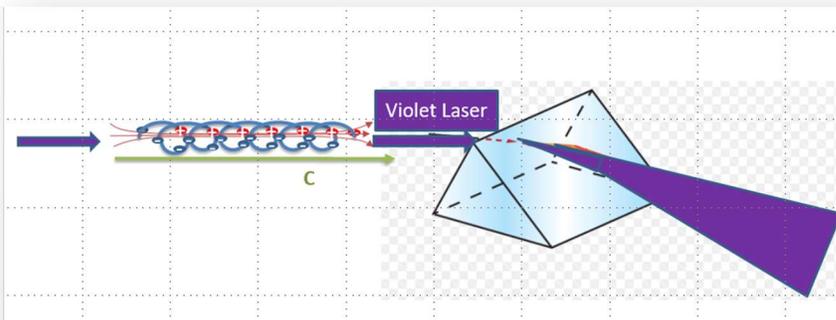
Illustration 8

## Paper on the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave

surface. This difference most likely is extremely difficult to measure.

Also important is that the free Electron will have a charge  $Q_e$  in the neighborhood of the 6 layer as this also constitutes the last of the Hydrogen series (which is the Murphey 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 6<sup>th</sup> layer the Electron can drift away from the Proton orbit and thus all measurements of the Electron are free electrons with the charge between 5<sup>th</sup> and 6<sup>th</sup> layer. Another issue is that the velocity of the Electron may also determine its absorption capability. As per the result of equation 10 the atton number for the Area of and Electron  $A_e$  with the charge  $Q_e$  is close to the 5<sup>th</sup> /6<sup>th</sup> layer. Theoretical it could be possible to have a charge  $2 \times 13.7 Q_e$ , 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  $Q_e$  charge would lead to a destruction instead of an absorption process.

I have demonstrated that the electro-magnetic particle wave leads to a reasonable Electron structures. The structure leads to inherent stable operation. The electro-magnetic particle wave is also inherently stable. Two mechanisms can lead to both higher energy and lower energy waves. Most likely we will see the predominance of a shift to lower energy waves (red shift). The experiment in illustration 9 shows the possible effect of using two violet lasers. If one laser crosses the other in a perpendicular fashion, there is a chance that individual Attons are kicked out of the other laser Helix and thus this violet laser will have some individual helices with lower energy. The only reason for the prism is to more easily detect the "red shifted" beams



## Paper on the second electro-magnetic wave which is described as a self-sustaining electro-magnetic particle wave

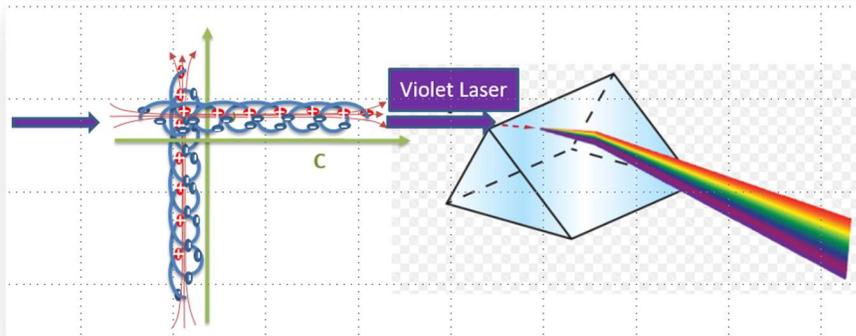


Illustration 9 showing a possible experiment to red shift electro-magnetic particle waves.

Another reason for the red shift of the electro-magnetic particle waves is that the predominant material in space would have to be at least one negative and one positive Atton connected. The density of dark matter is about  $6 \times 10^{-28} \text{ Kg/cm}^3$ . That would amount to  $8.1 \times 10^{22}$  Attons per  $\text{cm}^3$  leading to positive and negative forces in the neighborhood of  $7 \times 10^{-47}$  Newton.

Unfortunately there are a lot more phenomena's that this hypothesis helped me uncover. But my limited time only permits me from time to time to publish these phenomena's. I have been studying this since the early 90ties and the publications of Prof Nimtz fortified my will to pursue this.

### References

Prof Nimtz and Horst Aichman paper 2018 Super Luminal Tunneling Stor