Review of: "Some Considerations on the Speed of Light"

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In review of the paper:

Some Considerations on the Speed of Light

The author has tried to redefine the light, which reveals the physical nature and properties of this object of matter at the level of photons, some considerations are put forward about the speed of light.

Please note:

This approach increases the complexities of a simple scenario that has already stated:

light speed is constant in vaccum and even in matter. It's because only wavelength and frequency have been considered in this research**:** Frequency domain. **But not time domain!** Time domain behavior is the most powerful approach for analyzing light propagation. Transient time behavior of observer (photodetector-matter) is completely ignored in this paper. ***It's not acceptable***. This behavior occurs on the order of attosecond time-scales. Phobs and Jung in 1881, assumed different speed for different colors since they could not measure transient time behavior of observer at that time. But now we can. Using squeezed light as an example without violating uncertainty principle. As an example, It's directly applicable in Quantum Computer hardware implementation.

Photon in a corpuscular behavior can be defined in time domain with a more powerful viewpoint:

What is the "Single Photon" itself in Q.P.?

The notion of photon initially grew out of an attempt by Max- Planck in 1900, to resolve a long- standing riddle concerning the spectrum of Black- Body radiation. In 1905, Albert Einstein extended the notion of quantization by considered the light itself to be a collection of photons. This enabled him to successfully explain the Photo-electric effect.

From a Quantum Photonics viewpoint, light is assumed to be a stream of billions of photons, travel through the space and strike the interface between any two different non-absorbing media. Some of them transmit (refract) and others reflect, from the interface.

In addition, the atomic or molecular structure and intra- molecular forces (S.R.I.F.), at different media must be taken into account in computation of speed of light, there and also the rate of light angle deflection in refraction and reflection phenomena.

So, we have characteristics for photons in fifth theory of light:**Quantum Photonics (Q.P.),** as follows:

a) A single photon has it's own Electric and Magnetic fields.

b) Photon's energy is according to Planck's formula:

c) Photon carries momentum and orbital angular momentum.

d) Photon has zero dimension, zero rest mass and zero potential energy.

e) Photon velocity in vacuum is always 3E8 m/sec.

It's speed in transparent materials, reduces, because of retardation, caused by photon annihilation for a very short time, then recreation and re-emission after every encountering with matter.

f) Although photons demonstrate wave like behaviors in Macroscopic space- time scales, a single photon assumes to be a particle, carries energy with periodic fluctuations of it's field (frequency:)

g) Single Photon has field penetration depth. Means the distance at which photon can interact with matter.

h) Photon's field penetration depth is in the order of it's space repetition .

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According to Q.P.:

Here we introduce four main postulates of Q.P:

1. Knowledge of the real shape of each molecule in Real Material. (R.M.)
2. Knowledge of the physical shape of crystal- lattice structure in Real Material. (R.M.)
3. Knowledge of the rate of Short Range Interatomic Forces (S.R.I.F.) between molecules in Real Material. (R.M.)
4. Space, Time – domains analysis and simulation of electron photon interaction, when photons travel inside of (R.M.).

In other words:

-Using Schrodinger equation; to estimate; physical molecular shapes in R.M.

-X-ray diffraction interferometry and laboratory measurements to determine the lattice shape in R.M.

- Inter-atomic forces should be estimated mathematically using coulomb's law, ionic, covalence and Vandervals bondings for a specified lattice shape in R.M.

- MonteCarlo statistical dynamic method, is a good example for a powerful time-domain analysis and simulation of photon-

electron interaction in R.M.

In my opinion, this paper in current form without major revision, is not suitable for publication.