A New Explanation for the Constancy of All Parameters of Photons

Gh. Saleh

Saleh Research Centre, Netherlands

1- Speed:

The speed of photons, or the speed of light, has been calculated numerous times in various experiments. Although these experiments have consistently measured the linear speed of photons and proven its constancy, in our previous articles, we have calculated the wave, rotational, and other speeds, demonstrating that these speeds are also always constant.

2- Mass:

2.1. Considering that each photon emits from an electron, and the mass of all electrons is identical and constant, so:

$$m_{e_1} = m_{e_2} = \cdots = m_{e_n}$$

Furthermore, the velocity of electrons is also constant. Consequently, if a photon emits from an electron, it will not differ from other photons, and therefore the mass of photons, as a physical parameter, will be equal:

$$m_{p_1} = m_{p_2} = m_{p_3} = \cdots = m_{p_n}$$

2.2. In previous articles, we have described different velocities for the photon and proved that the various types of a photon's velocity – linear, wave-like, rotational, etc. – are always constant. As a result, it can be said that the mass of photons will be constant. This is because a photon emitting from an electron undergoes a projectile motion, which transfers a specific and constant energy to the photon, propelling it into its surroundings. Consequently, since the photon's velocity will be constant everywhere, its mass must be constant too.

$$\left.\begin{aligned} V_{L_{p_1}} = V_{L_{p_2}} = \cdots = V_{L_{p_n}} \\ V_{W_{p_1}} = V_{W_{p_2}} = \cdots = V_{W_{p_n}} \\ V_{T_{p_1}} = V_{T_{p_2}} = \cdots = V_{T_{p_n}} \\ E_{T_{p_1}} = E_{T_{p_2}} = \cdots = E_{T_{p_n}} \end{aligned}\right\} \Rightarrow m_{p_1} = m_{p_2} = m_{p_3} = \cdots = m_{p_n}$$

2.3. Given that the method for calculating the energy of photons involves using Planck's ever-valid relation ($E = hf$) – where h is a constant (Planck's constant) and f is the frequency, and changes in frequency (wavelength, radius of rotation, and amplitude) are the influential variables for calculating photon energy, with the mass parameter never affecting this equation – it can be concluded that the mass of a photon must be always constant.

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postmaster@saleh-theory.com

3- Volume:

If the volume of photons were different, it would be expected that photons would possess different velocities. This is because, with a constant density, as the volume increases, the mass also increases. With a constant energy, this could lead to a reduction in velocity. However, given that the velocity is always constant and we observe no changes in mass, we therefore observe no changes in volume. It can thus be concluded that the volume of each photon is equal to that of any other photon.

4- Energy:

Given that photons are emitted by electrons, and that different photons emitted from a single electron acquire the same initial energy, it can be concluded that the total energy of each photon is equivalent to that of any other photon and represents a constant value.

Conclusion:

Based on the explanations above, it could generally be stated that the photon is a stable particle with a constant mass, constant velocity, constant volume, and so on. In other words, the aforementioned parameters of this particle are always constant, regardless of its location or situation.

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