New Discoveries About the Speed of Electromagnetic Waves 2024 Part A

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1. Calculation of the New Speed of Electromagnetic Waves Using Mathematical and Physical Equations in the Universe($V_w \simeq 1.5\ C$)

2. New Calculation of the True Speed of Electromagnetic Waves Using Mathematical and Physical Equations in the Universe ($V_t \simeq 2\ C$)

3. New Calculation of the Speed of Nested Helical Motion in Electromagnetic Waves Using Mathematical and Physical Equations in the Universe (Total Speed; One Million Kilometers Per Second) ($V_T \simeq 3.3\ C$)

1. Calculation of the New Speed of Electromagnetic Waves Using Mathematical and Physical Equations in the Universe($V_w \simeq 1.5\ C$)

If we refer to any elementary physics book depicting the characteristics of electromagnetic waves, we will encounter the following figure:

$$V_l = C = \frac{\lambda}{T} = \lambda f$$

$$A = r \simeq \frac{\lambda}{4}$$

The above equations are linear, where "λ" represents wavelength, "T" is period, "f" is frequency and "A" is the wave's amplitude which is equal to the radius of the photon's helical motion. These equations express linear speed and are derived from dividing the linear traveled distance "λ" by the time of a complete period "T". Essentially, we have calculated the linear speed along a linear path.

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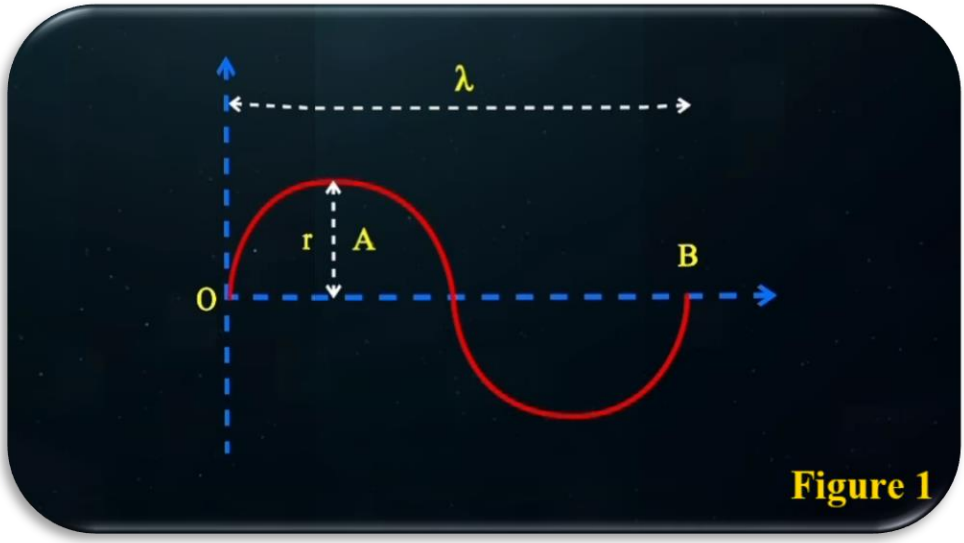


To calculate the wave path, or the curved path of electromagnetic waves, we proceed as follows:

Considering the Figure (2), the path traversed during the motion of an electromagnetic wave is equivalent to the circumference of a circle with radius “A”. To calculate the speed, we consider the following equations:

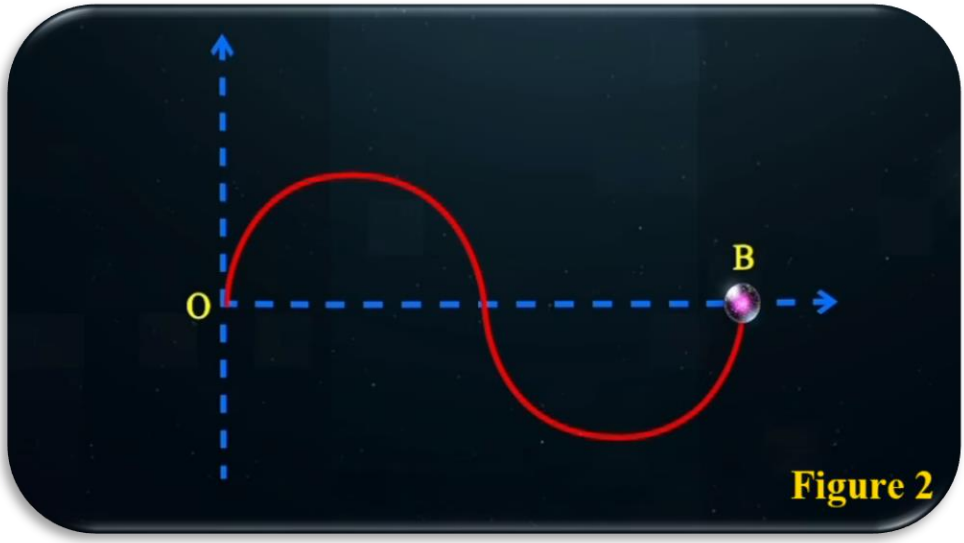
$$A = r \simeq \frac{\lambda}{4}$$

$$l = 2\pi r = 2\pi \frac{\lambda}{4} = \frac{2\pi}{4}\lambda$$

$$V_w = \frac{l}{T}$$

$$V_w = \frac{2\pi\lambda}{4T} = 1.57\ C$$

$$V_w \simeq 1.5\ C$$



Based on these calculations, we can consider the speed of an electromagnetic wave to be 1.57 times the speed of light "C". In other words, the speed of an electromagnetic wave is approximately $4.7 \times 10^8\, {}^{m}/_{s}$, indicating that about 170000 kilometers per second of the wavelike speed remains unaccounted.

2. New Calculation of the True Speed of Electromagnetic Waves Using Mathematical and Physical Equations in the Universe ($V_t \simeq 2\ C$)

The birthplace of a photon is an electron orbiting around the atomic nucleus. When we induce energy changes in the electron; exciting an electron, it emits a photon. Therefore, the photon undergoes projectile motion. However, the electron rotates at a speed close to the speed of light around the nucleus, and the combination of this motion with the projectile motion of the photon results in the released photon having both rotational and linear motion simultaneously. The combination of these two paths creates a helical path. The true speed of the photon is, in fact, the speed in this helical path, which can be calculated using the following equations:

True Velocity = Linear Velocity + Wave Velocity

$$\overrightarrow{V_t} = \overrightarrow{V_l} + \overrightarrow{V_w}$$

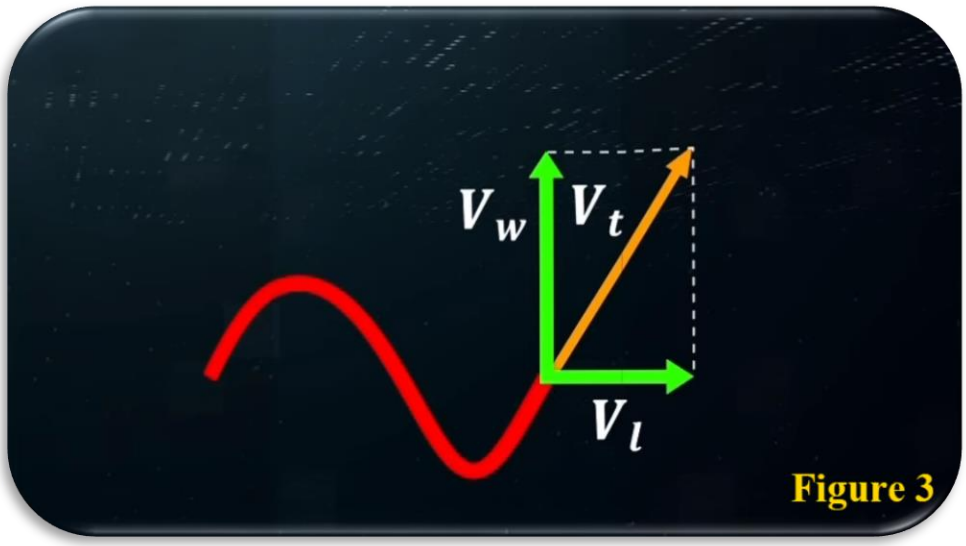
$$V_l = C$$

$$V_w = 1.57\ C$$

$$|\overrightarrow{V_t}| = V_t = \sqrt{{V_l}^2 + {V_w}^2} = \sqrt{C^2 + (1.57\ C)^2} \Rightarrow$$

$$V_t = 1.86\ C$$

$$V_t \simeq 2\ C$$



Notice:

1. The period “T” in wave speed is the same as “T” in linear speed. If they differ, it leads to the creation of two waves not one.
2. The main and true path of a photon is the same as the helical path.

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