

New, Important and Interesting Points About Photons New Explanations About Photons (Electromagnetic Waves)

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A) Why and How Photons (Electromagnetic Waves) Traverse in a Wave-Like Motion!?

Seeing as photons are usually emitted from electrons, and electrons orbiting around themselves and orbit around the nucleus, the electron's rotation and its orbit around the nucleus imparts a helical motion to the photon. This is considered the wave-like motion of the photon in order to explain Young's double-slit experiment or other experiments. In fact, one could say that the resulting motion pattern created by the electron's rotation and its orbit around the nucleus can cause the motion of photons to be wave-like.

B) Why the Velocity of Photons (Electromagnetic Waves) Always Is a Constant Value!?

Given that the source of photons is usually the orbiting electrons, and since the mass of electrons and their orbital speed around nuclei are approximately constant values, or in other words:

$$m_{e_1} = m_{e_2} = m_{e_3} = \dots = m_{e_n}$$

$$V_{e_1} = V_{e_2} = V_{e_3} = \dots = V_{e_n}$$

$$\frac{1}{2}m_{e_1}V_{e_1}^2 = \frac{1}{2}m_{e_2}V_{e_2}^2 = \frac{1}{2}m_{e_3}V_{e_3}^2 = \dots = \frac{1}{2}m_{e_n}V_{e_n}^2$$

$$E_{e_1} = E_{e_2} = E_{e_3} = \dots = E_{e_n}$$

One can conclude that the energy transferred to the photons, and consequently the speed imparted to them, are always equal and a constant value.

C) Why Photons Have Different Colors or Electromagnetic Waves Have Different Frequencies!?

Considering that we have various elements in nature, and the distance of electrons from the nucleus differs in diverse elements, and furthermore, the electrons in the outermost layer (valence layer) are capable of emitting photons, as a result, photons take on different radii of rotation when emitted. Consequently, they will have different amplitudes, and different frequencies, wavelengths and amplitudes will be created, and thus we have the various colors in electromagnetic waves.



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