

A New Explanation for the Difference in Frequencies of Visible Light

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If we consider the birthplace of light, findings of scientists have demonstrated that a photon detaches from the surface of an electron and is emitted outward. This is the simple definition of how a photon is created in nature. However, electrons spin around their axis and around the nucleus of an atom. So, when photons are about to be emitted from their electron, as they travel in a straight line, a spinning motion is added to their forward movement due to the electron's rotation around the nucleus.

In fact, one could say that a photon, upon being emitted from an electron, has both a linear, propulsive motion and a rotational motion. It means that while a photon exists or is emitted from an electron, the photon exhibits a motion equal to the sum of two linear and rotational motions, which is known as helical motion.

It is clear that the mass of electrons and their tangential speed around the nuclei are constant. However, since the rotational radius of the valence layer electron (or the electron's distance from the nucleus) varies in different atoms, the value of the radius for the emitted photon's rotational motion, 'R', is always different. This is because each element or atom has its own specific atomic radius.

In other words, the difference in atomic radii (or the distance from the atomic nucleus to the outermost electrons from which photons are ejected) in different atoms causes a difference in the rotational radii of the photons, and this difference in the photons' rotational radii leads to the creation of various frequencies and colours in the different spectrum include visible light spectrum.

Frequency (Hz)	9.00E+14	8.00E+14	7.00E+14	6.50E+14	6.00E+14	5.50E+14	5.00E+14	4.50E+14	4.00E+14	3.00E+14
Wavelength (m)	3.33E-07	3.75E-07	4.29E-07	4.62E-07	5.00E-07	5.45E-07	6.00E-07	6.67E-07	7.50E-07	1.00E-06
Rotational Radius (m)	1.24E-07	1.43E-07	1.60E-07	1.68E-07	1.75E-07	1.82E-07	1.89E-07	1.96E-07	2.02E-07	2.14E-07

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