

Re: Critique of the "photon" theory of electromagnetic radiation

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- *From:* Marcel LeBel <lebel@xxxxxxxxxxxxxxxxx>
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Robin Whittle wrote:

.....

> If we consider emr which arises from a specific quantum of
> energy, a-la photon, it seems to me that this emr carries
> with it either the whole amount of energy and momentum, or
> the probability of this energy and momentum. But when the
> emr is mixed with other emr the resulting patterns of
> energy deposition depend on all the relevant sources
> and how they interfere at each point which could absorb
> them.

>

> We observe that there is a direct relationship between the
> frequency spectrum of the emr and the distribution of
> energies in the quanta it deposits. A sine-wave leads to
> only one energy level. A single arbitrary shaped pulse
> creates a particular and easily predicted probability
> distribution for the relationship between quanta energy
> levels and the number of such quanta deposited.

>

> So I think the quanta which may have given rise to the emr
> do not necessarily have anything to do directly with the
> quanta which are deposited.

>

Robin,

I used to have the same problem with the energy of the photon. I have solved it, to my satisfaction. My problem was with the "fact" that a radio photon of, say, a 100km wavelength has less energy than a light photon just a few hundred nanometers in wavelength. It appears to be a reversed correlation. Lets try with the photon as a power, i.e. lets consider the photon as a quantum of action as a power. It is after all pre-packaged in a fixed amount of time, the period, that specifically determines how long it will take to deliver the said quantum of action. This is demonstrated in the photon absorption by an oscillator. The radio antenna will have to wait-feel that the whole 100km of the radio wave go by before having absorbed the energy of each radio photon.

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This picture does make the photon–energy understandable but does not solve my problem since this way, all photons have the same quantum of action; their only difference resides in the time package they come with and that determines how quickly this quantum is delivered. But at least, I don't have a reversed correlation anymore; a longer photon takes a longer time to deliver its quantum of action and is logically less powerful.

Problems in understanding quantum mechanics, I believe, come from not understanding that the nature of the photon appears to change between a pre–packaged power potentiality (photon flying by) and the integrated event that constitute the absorption. In fact, the absorption IS the actual event, which takes a certain amount of time to happen. The signature of this power, or work over time, is dismissed/dismissed and integrated as the total and final energy, or work done.

So, to me, the photon is a quantum of action pre–packaged in a certain amount of time, a power, which will interact only with oscillator tuned to receiving this quantum of action, exactly at the same rate as it is meant to be delivered. A power that induces and allows the absorption event to happen only in a certain amount of time. ENERGY is just about us tallying up the final integrated result. Big difference here!

Marcel–M. LeBel

- **References:**

- ◆ [Critique of the "photon" theory of electromagnetic radiation](#)

- ◆ From: Robin Whittle

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