

Re: If a PHoton has no electric charge how does it create the EM field ?

## Re: If a PHoton has no electric charge how does it create the EM field ?

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- *From:* "PD" <[TheDraperFamily@xxxxxxxxxx](mailto:TheDraperFamily@xxxxxxxxxx)>
  - *Date:* 5 Aug 2005 13:33:38 -0700
- 

Ken S. Tucker wrote:

> Ken S. Tucker wrote:

>> PD wrote:

>>> Ken S. Tucker wrote:

>>>> gilheron wrote:

>>>>> If a Photon has no electric charge how does it create the

>>>>> ElectroMagnetic field ?

>>>>

>>>> A photon seems to consist of a (+) charge and

>>>> a (-) charge, because "pair-production" is always

>>>> possible since,

>>>>

>>>> Photon + photon => Positron + Electron + photon.

>>>>

>>>> (That converts energy to mass).

>>>>

>>>> Very simply an Electric field is really a relation like

>>>>

>>>> (-) =====>(+) )

>>>> E

>>>>

>>>> with E being an Electric Field vector.

>>>>

>>>> The magnetic part of the photon appears when

>>>> the photon is measured (annihilated) in an

>>>> antenna for example, as the E-field vector

>>>> encounters stationary matter and induces a

>>>> Magnetic Field at the speed of light.

>>>>

>>>> There does not seem to be any concensus of

>>>> what a "flying" photon is between emission

>>>> and absorption, but what happens at each of

>>>> those events is moderately understood.

>>>>

>>>> Anyway it seems quite reasonable to consider

>>>> a photon as a pair of charges.

>>>>

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>>>

>>> No, it's not reasonable. First of all, decay products say \*nothing\*

>>> about the composition of the parent,

>>> any more than a muon is composed

>>> of an electron and two neutrinos, any more than a pion is composed of a

>>> muon and a neutrino, any more than a neutron is composed of a proton

>>> and an electron and a neutrino. So the fact that pair production

>>> happens from photons implies nothing about what a photon is made of.

>>

>> Dr. Draper, you can convert a radio signal to gamma

>> frequency just using Doppler. The signal is intrinsic,

>> but by relative motion a radio wave is the same as a

>> gamma ray!

>>

>>> Secondly, a charged dipole is completely experimentally distinguishable

>>> from a photon, by virtue of field moments, by virtue of charge

>>> distribution probes, and by virtue of interaction cross-sections with

>>> charged objects.

>>

>> 3 virtues, how many "virtues" are allowed?

>>

>>> Third, you obviously are ignoring the \*coupled\* electric and magnetic

>>> field equations which give rise to electromagnetic energy propagating

>>> through space at a speed of -- miracle! -- light. These say that

>>> magnetic fields are not only end-effects.

>

> Dr. Draper,

>

> On your last point regarding magnetic fields.

>

> Let's understand a Magnetic field is relative.

So is the electric field. Fuv is not.

The electric field has no more priority than the magnetic field.

>

> Let's understand no relative relation exists between

> CS's when the relative velocity is  $v=c$ .

>

> Hence, the idea of magnetism within a photon

> has no merit,

I disagree. Within any reference frame or any set of reference frames that are moving at speed  $<c$  with respect to each other, an observer will observe both electric and magnetic fields in light. It is not necessary to move to the photon's frame itself to ask what that frame observes about the photon. (It's not only irrelevant but impossible.)

> it exists as an induction, as I clearly

> stipulated, when the photon's E field reacts with

> "stationary matter" like an antenna.

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- >
- > When Maxwell wrote up his equations, he didn't
- > figure the MMX would fail, well it did,

You'll note that it did nothing to affect the validity of Maxwell's equations. Maxwell was correct in his math — the interpretation changed a bit.

- > meaning
- > magnetism is a relative effect.

So is electricity.

- >
- > Regards
- > Ken S. Tucker
- >

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• **References:**

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