Electromagnetic interaction between photons

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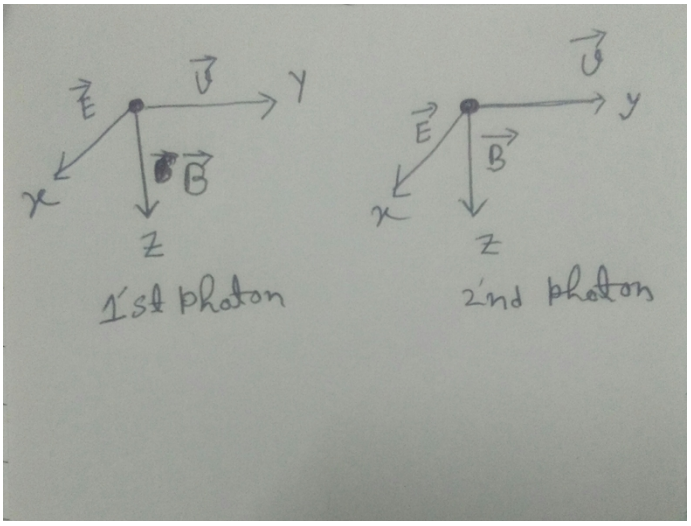
According to previous experiments, light is an electro-magnetic wave. But , our question is that from where it gets electric field and magnetic field? There are no answer! Because photon is charge less particle.

For electric field we must need charge or time varing magnetic field.so , I predict that photon has some kind of charge. This charge of the photon is the origin of E-M field of light.

Now we consider two photon in an E-M wave, both have electric field E and magnetic field B.



Now ,the electric field and magnetic field at the position of 2nd photon due to 1st photon are E and bB respectively . Electric force on 2nd photon due to 1st photon is

F(electric)=qE and the magnetic force on 2nd photon due to 1st photon is

F(magnetic)=qvB. Where q is the charge of photon and v is the velocity of photon. According to picture electric force directed along positive x axis and magnetic force directed along negative x axis.

Now, E/B=v

i.e E=vB

i.e F(magnetic)=qE.

So, electric force and magnetic force equal in magnitude but opposite in direction.

So, net force on 2nd photon due to 1st photon is zero. So, this E-M force can not deviate the path of photon.

So, if we fixed the direction of electric field and magnetic direction of propagation of photon then magnetic field must be in one single direction which is perpendicular to both electric field and propagation direction.

Now, from previous concept magnetic field of E-M wave is in the form

B(t)=B(0)sin(wt+ky).now , a charge particle when it moves with uniform velocity can not produces time varing magnetic field. But the magnetic field of E-M wave is time varing and photon moves with constant velocity in free space. So, we must need that the charge of photon is time varing in the form q(t)=q(0)sin(wt). where w is the frequency of E-M wave.

As , the charge of photon is time varing so, time average force on photon in an external electric field or magnetic field is zero. For this reasonavarage deviation of path of photon i.e E-M wave in an external field is zero. But the instantaneous deviation of E-M wave in an external E-M field is not zero, but to see this deviation we need very strong magnetic field of the order 10^5 to 10^7 tesla.