

Re: The physical motions of photons in free space!

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- *From:* surrealistic-dream@xxxxxxxxxxx
 - *Date:* 11 Nov 2005 09:22:15 -0800
-

Harry wrote:

> <surrealistic-dream@xxxxxxxxxxx> wrote in message
> news:1131712101.771816.89030@xx
>>
>> Harry wrote:
>>> "Gerald L. O'Barr" <globarr@xxxxxxxxxxx> wrote in message
>>> news:1131661749.939496.19980@xx
>>>> The physical motions of photons in free space
>>>> are absolutely equal!
>>>>
>>>> Yes, let us take a fixed inertial line in free
>>>> space, and let points A and B be fixed points upon
>>>> this line. At point A, let there be two objects
>>>> moving upon this line at two different velocities,
>>>> positioned such that they will cross point A at the
>>>> same instant of time. At the instant they cross
>>>> point A, let them both send a photon towards point B.
>>>> Both photons will physically reach point B at the
>>>> same instant of time.
>>>> (Sub note: Each 'object' that simultaneously met at
>>>> point A can each actually represent a whole inertial
>>>> reference frame, in which they are each at rest. And
>>>> we will let each frame extend to both points A and B
>>>> and beyond. Thus, each photon emitted by each
>>>> object are each traveling in their own different inertial
>>>> reference frame at all times.)
>>>> Now please note, at any point on this original
>>>> line, as measured by any object on this line, no
>>>> matter what velocity any object might be moving on
>>>> this line, will show that at any meeting of any one
>>>> of these photons, will instantaneously include the
>>>> meeting of the other photon. Thus, step by step, at
>>>> every point, by all observers (by all inertial
>>>> frames), moving or not moving one way or the other,
>>>> they will all confirm that these two photons, sent by
>>>> two differently moving objects, moving in different
>>>> reference frames, will be physically moving together
>>>> in an absolute way across the space they are using.
>>>>

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>>>> Thus, something exists in this space, that
>>>> controls the rate at which all photons physically
>>>> move, no matter what their original source might have
>>>> been, and no matter what reference frame they are in.
>>>
>>> Upto here, both Lorentz and Einstein would have agreed.
>>
>> A photon is a quantum object and nobody knows what it does when it is
>> not being observed. All we know in SR kinematics is that its measured
>> speed in an inertial frame in a vacuum is the fixed number c . See
>> Feynman's QED for more on this.
>
> Sure; nevertheless I'm pretty sure that Lorentz and Einstein would have
> agreed that a photon's speed is a property of space, and not of the photon.
> Perhaps Einstein even stated that, do you know if he did or not?

I haven't ever come across such a statement per se. Einstein might have said something to that effect but with the word "space" replaced with the word "spacetime." In any case, as far as I know, Einstein never attempted to explain any mechanical aspect of light propagation. In fact, he repeatedly claimed after 1905 that there was none to give. He claimed that the attempt to do so (called the Mechanical Program) had completely failed.

Einstein had a hard enough time dealing with an ontology of two independent things: particles and fields. He had as his ultimate goal the reduction of all things to fields. So, he sure as hell didn't want to admit to a third independent kind of thing, called ether. However, if that "ether" was, in fact, describable in purely field-theoretic terms (i.e., as partial differential equations), then that was OK by him, in principle at least. But Maxwell's ether wasn't.

>
>>>> This concept is absolute, and it absolutely
>>>> tells us that there is an absolute reference that
>>>> controls these physical acts.
>>>
>>> This is where Einstein disagreed, but AFAIK he didn't explain his
> reasoning.
>>
>> You're right. Einstein would not have agreed to any such thing post his
>> SR paper.
>>
>>> Is there someone here who is able to explain Einstein's reasoning on
> this?
>
>> Einstein made it very clear in his essays, even if SR books do not. To
>> Einstein, such an absolute space (i.e., inertial frame) would imply
>> that Nature has arbitrarily selected one inertial frame out of an
>> infinite number of them to be special (i.e., the laws of
>> electrodynamics are "true" in that frame only because measuring rods

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>> and clocks are undistorted in that frame). Einstein regarded such a
>> possibility as a violation of his philosophic notion of the harmony of
>> nature and the egalitarianism of inertial frames (PoR). He also claimed
>> that nature does not seem to reveal any such frame in practice: Neither
>> the mechanics of Newton nor any experiment in electrodynamics seems to
>> reveal that any inertial frame is any different for the invention of
>> the laws of physics from any other inertial frame. So, to Einstein, at
>> heart Nature acts to rigorously maintain the PoR and the Light
>> Principle (locally), but not the dependence of light speed on the
>> source's motion. I emphasize that when I say "speed," I mean actual
>> measured speed, not some hypothetical, unmeasurable speed.
>
> I also read all that. But what I meant, can you clarify the physical light
> propagation model that Einstein had in mind?

I can't. And I don't think it can be done, for reasons I gave above. Einstein referred to SR as a principle (as opposed to a constructive) theory because it lacked any attempt whatsoever to provide a hypothetical model of propagation of E&M effects. He said that SR was the logical step away from Maxwell's mechanical ether, taking in the practice of late nineteenth century physicists to treat the E and B fields as irreducible to mechanical explanation. In other words, their habit was to treat the E and B fields as described solely by the so-called Maxwell equations and leave it at that, leaving the ether as superfluous to calculation. If you want a model of light propagation based on SR, see Feynman's treatment in his book QED.

I may be wrong, but I think that it was Heaviside who said, poetically, that electrodynamics and Maxwell's equations are the same thing.

> Don't forget that Einstein
> believed that photons really travel from A to B, and that light speed is
> dictated by space.

My only answer to that is to reply that Einstein said that the MMX null result is strange. He knew that light was not obeying commonsense, whatever it was really obeying.

• References:

- ◆ ***The physical motions of photons in free space!***
◇ From: Gerald L. O'Barr
- ◆ ***Re: The physical motions of photons in free space!***
◇ From: Harry
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- Prev by Date: *Re: absolute and relative launch pad*
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