

Re: Photon, Momentum, Mass

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- *From:* vern@xxxxxxxxxxxxx
 - *Date:* 10 May 2007 17:52:00 -0700
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On May 10, 2:11 pm, Bilge <dubi...@xxxxxxxxxxxxxxx> wrote:

On 2007-05-09, Jeckyl <n...@xxxxxxxxxxxxxxx> wrote:

<snip>

Do you agree with Jeckyl's post that the "geometry" of the universe has no effect in the FOR of the source, but only affects things in other FORs?

That is not what he said and attempting to straighten out your misunderstanding is not worth the effort, since you have never once made the slightest effort to understand anything which might jeopardize your 15th century grasp of physical phenomena.

What I said was that from the FoR of the source, the light is emitted at, and measured at, c .. it never goes faster or slower than c as far as the source is concerned, so there needs to be no explanation of what makes it NOT travel at c from the FoR the source, because it always DOES travel at c from the FoR of the source.

The above may have what Jeckyl was trying to say, but what he said was:

"The geometry affects how someone else (another FoR) measure the light .. that measurement is independant of the source speed."

Re: Photon, Momentum, Mass

<snip>

What there DOES need to be is a 'geometry' that explains how the different FoR all measure the same speed for light.

Your last sentence is not quite accurate. In order to measure distances, you need to define a metric. For a physically sensible result, you can choose two groups of transformations that preserve the metric: the galilean group and the poincare group. In both cases, there exists a ``lightlike" vector which is invariant under the respective group of transformations and which has a velocity `c' which is frame independent. In the galilean case, that velocity is ∞ .

Once you choose a group of transformations either c is finite or c is infinite. The reason that vern thinks there must be some ``cause" for `c' to be constant and finite is that he assumes a geometry where `c' is constant and infinite so that he has to find some way to fix his erroneous assumption, which otherwise makes incorrect predictions.

The identification of `c' with the speed of light is an historical artifact due to the desire of einstein to explain maxwell's equations as his motivation for developing special relativity. The identification is only correct if maxwell's equations are correct (which implies the photon is massless). This has been explained to vern (and to many other kooks) before in an attempt to get them to separate geometry from the theory of electromagnetism. The choice of geometry only contrains the possibility for the theories which are self-consistent with the geometry and I can easily write down a relativistic theory of E&M in which the speed of light is not `c' and which contains a massive photon.

So it appears that the use of the word "geometry" is purely mathematical as opposed to representing a physical model. The term "metric" is just a mathematical concept for describing distance.

Tom stated that classical theories assumed Euclidean space. What I'm struggling to understand is how time works in Euclidean space. I've always assumed that time is just an abstract concept and cannot affect a physical model in any way. Newton's concept of time is that it is invariant. It seems that any other mathematical model changes the nature of time, which is inherently undefendable.

Vern

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