Re: Article: A Century of Einstein

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From: RP (*no_mail_no_spam_at_yahoo.com*)
Date: 08/30/04

Date: Mon, 30 Aug 2004 07:36:32 −0500

Bill Hobba wrote:
> "RP" <no_mail_no_spam@yahoo.com> wrote in message
> news:2pfjlaFkfpdlU1@uni−berlin.de...
>
>>
>>Tom Roberts wrote:
>>
>>
>>>RP wrote:
>>>
>>>
>>>>Let me put it this way, [...]. If the PoR is to be strictly
>>>>maintained, then frames won't enter into the laws of physics. By this
>>>>I mean, "no transformations".
>>>
>>>
>>>Sure. That's what we do in modern physics. The equations of all modern
>>>fundamental theories of physics are completely independent of "frame"
>>>(i.e. coordinates).
>>>
>>>Perhaps you should put down your comic books and actutally LEARN some
>>>modern physics....
>>>
>>> Transformations between coordinate systems only arise when
>>> one considers tensors projected onto specific coordinate
>>> systems. But the equations of the theory relate the tensors
>>> themselves, not their components projected onto some
>>> coordinates (though some older treatments did so −− there is
>>> an equivalence here, but it hides the underlying structure).
>>>
>>>
>>>
>>>>IOW, if you have valid laws of physics, then you will never perform a
>>>>transformation between frames, you'll simply plug in the values that
>>>>are frame invariant. Covariance doesn't cut it.
>>>
>>>

>>>Sure. You can do that. But usually one uses rulers and clocks (etc.) to
>>>make measurements, and they intrinsically PROJECT the quantity being
>>>measured onto themselves. As we usually need to make an array of such
>>>measurements over a defined region in space and time, it is simplest to
>>>erect a coordinate system using a convenient set of clocks and rulers,
>>>and to reference all measurements to those coordinates. Doing that
>>>inherently means everything is projected onto those coordinates.
>>>
>>>So while the theory is coordinate independent, actual measurements are
>>>not −− every measuring apparatus inherently projects the quantity being
>>>measured onto itself.
>>>
>>>
>>>
>>>>Look at my electromagnetic equations: [...]
>>>
>>>
>>>I don't know what "your" equations are, but look at the standard
>>>equations of classical elecrodynamics:
>>>
>>> dF = 0
*>>> *d*F = J*
>>>
>>>All quantities therein are tensors (differential forms), and therefore
>>>independent of coordinates.
>>>
>>>
>>>
>>>>Have I made myself clear yet on what the PoR must be, on a logical
>
> basis?
>
>>>
>>>Sure. But you seem utterly ignorant of its relationship to modern
>>>physics. Your central idea is valid in modern physics, but you get the
>>>details wrong.
>>>
>>>
>>>
>>>>IOW, The E and B fields have no place in the real laws of
>>>>electromagnetism, they are simply arbitrary divisions of a single
>
> field.
>
>>>
>>>Look at the equations above. F is a single field encompasing both E and
>>>B. But E and B are not "arbitrary", they are PROJECTIONS of F onto a
>>>specific coordinate system.
>>>
>>>
>>>

>>>>Thus once again I state unequivocally that "On the Electrodynamics of
>>>>Moving Bodies", was contradictory to the central idea that is the PoR.
>>>
>>>
>>>You are wrong. That paper showed how to restore the PoR to
>>>electrodynamics. As has been remarked elsewhere, perhaps a better name
>>>for relativity would have been "theory of invariances". For instance,
>>>note that Einstein's two postulates are both statements of invariance.
>>>
>>>
>>>
>>>>Light speed is no more required by the PoR to be invariant than is the
>>>>speed of sound.
>>>
>>>
>>>Sure. That's why Einstein had to have a second postulate.
>>
>>A second postulate, yes, one that leads to contradiction.
>
>
> It is well known SR is as logically consistent as Euclidian geometry.
>
>
>>More on that
>>later.
>>As for your essay on invariance, it was very elegant, though you still
>>didn't get my point.
>>Ironically, I read today in the Sept. Scientific American pretty much
>>what you said above. Almost word for word.
>>
>>But you still haven't registered what I've been stating. You are of the
>>opinion that no form of the electromagnetic laws can be scripted that
>>aren't Galilean invariant. If you abandon the E and B fields, and the
>>macroscopic terms used by Maxwell/Heaviside (e.g. charge density,
>>current density, etc.) then automatically you must opt for a treatment a
>>bit less statistical in nature. IOW, the relativistic treatment of
>>electromagnetism is macroscopic in its approach, as is QM.
>>When you attempt to relate the behaviors of individual quanta of charge,
>>then both Maxwell/Lorentz and QM are insufficient, i.e. neither can
>>describe the fluid interaction between two particles.
>
>
> 'the fluid interaction between two particles' − what a load of hooey. QED
> is the most accurately experimentally verified theory in history.
>
>
>>This is the very
>>reason that these two approaches are incompatible, each describes large
>>numbers of events on average, but within different systems. Attempting
>>to unify them is a bit synonymous with an attempt to unify gravitational
>>orbits and the gas laws. Neither can be derived directly from the

>>other, though both are accurate, and both are subsets of the more
>>fundamental Newtonian thermodynamic laws.
>>
>>Neither special relativity nor QM are a subset one of the other, they
>>are both special cases of another yet more fundamental theory.
>
>
> The theory that combines the two is QFT.
>
> Rest of rubbish mercifully snipped.
>
> Bill

Bill, I would rather have had Tom's response, since thus far, his are the only learned responses.
OTOH, I disagree with him. Perhaps he can change my stance, that is, if that's possible.
What I had ready in return for his expected reply, was this:
If the speed of two particles wrt each other is invariant, to which he has already agreed, then isn't relativistic velocity addition just an admission that the relativistic measurement procedure is inconsistent with Galilean transformations? IOW, if two observers in motion wrt each other measure different speeds of the particles wrt their frames respectively, and if they, by using normal velocity addition don't get the same velocity of the particles relative to each other, then the obvious option to Tom, and to any relativist, is to apply the lorentz transform, i.e. to transform to the frame of one of the particles to get the actual speed of the particles wrt each other.
This is equivalent to an admission that the measurement procedure is wrong, i.e. that light speed is not invariant. Your incorrect assumption about light speed invariance is the cause of the incorrect measurement.

Thus invariance wrt the lorentz transform isn't a requirement of nature, i.e. space time is not lorentzian in any absolute sense. Invariance wrt the lorentz transform is required only of those equations that aren't valid independently of frames of reference, and that assume constancy of light speed. IOW, if Maxwell demands lorentz transformations, then Maxwell was wrong, or else your interpretations of Maxwell are wrong.

I derive c as the rms. speed of fundamental charged particles (not necessarily electrons). By relating permeability and permittivity I get the average speed of the particles, not the speed of waves, though it is no small coincidence that this is also light speed given that waves travel in such a gas at rms. speed of the particles.
The speed of light wrt an observer is thus a function of the observers motion wrt the background charge, IOW, c is not an invariant quantity wrt observers, it is rather a constant in much the same way that the temperature of an object is constant, i.e. when we assume the frame of an object's c.g. then the average KE of the electrons is pretty much constant.

Richard Perry