Re: Neutrino Mass and Supernovae

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From: Bjoern Feuerbacher (*feuerbac_at_thphys.uni−heidelberg.de*)
Date: 10/12/04

Date: Tue, 12 Oct 2004 12:19:52 +0200

Ken S. Tucker wrote:
> Bjoern Feuerbacher <feuerbac@thphys.uni−heidelberg.de> wrote in message news:<ckdkr6$6hp$1@news.urz.uni−heidelberg.de>...
>
>>Ken S. Tucker wrote:
>>
>>>Bjoern Feuerbacher <feuerbac@thphys.uni−heidelberg.de> wrote in message news:<ck8elekub1@news.urz.uni−heidelberg.de>...
>
> ...
>
>>>google "w.w.sawyer" >1000 hits.
>>>((worked together from 1968))
>>
>>Thanks. Giving his name would have been enough.
>
>
> Well if you have a chance you should read his ideas,
> I didn't fully appreciate his help, I was a 15 year
> old brat. I was using balloon membranes and drawing
> graphs on them and then streching them to study Grad
> Div and Curl, in LT and GR. We had some very interesting
> conversations.

You learned GR already at the age of 15??? Wow.

[snip]

>>>>And did this Prof also say this stuff about "u_j=0 in GR",
>>>>and that this means that "absolute velocity vanishes", and that
>>>>a Lorentz boost is a translation, and that Lorentz boosts are not
>>>>allowed in GR?
>>
>>I notice that you did not answer this question below.
>
>
> No, I was detailed a problem, that is my solution.

"Detailed" by whom? By this Prof. Sawyer?

Did you ever check the solution with someone knowledgeable?

>>>Either you do not understand the problem or you don't take it
>>>seriously, let me explain.
>>>
>>>>From the standpoint of mathematics a displacement like
>>>
>>> ds^2 = g_uv dx^u dx^v
>>>
>>>does NOT diffentiate between relative and absolute motion,
>>>and neither do mathematicians, it's a an equation without
>>>regard to the nature of the relativity imposed on FoR's.
>>
>>You do not make any sense. The equation above has nothing to
*>>do with motions! It only defines the *geometry* of a space*
>>− i.e. it tells you how lengths and angles are defined!
>
>
> In geometry, ds^2 is regarded as a displacement in the
> context of spacetime.

Yes. So what? That still has nothing to do with motion.

>>>In fact relative motion is a subset (or group) of all
>>>possible motions in all "proper" CS's. I take the ds^2
>>>above to be the generic representitive set defining all
>>>possible displacements, including absolute and relative
>>>displacements.
>>
>>Care to explain what exactly the difference is? What do you
*>>*mean* when you say "absolute displacement"?*
>
>
> Generally speaking, any CS that permits dx_i dx^i =/=0
> allows "absolute displacement", and that is NOT a
> permissable CS where relativity is imposed.

I notice that you did not answer my question what you mean
by "absolute displacement".

BTW, *why* is a CS in which dx_i dx^i =/= 0 not permissable?

>>>In physics the u,v are conventionally set to integer
>>>values 0,1,2,3, where "0" is messaged to being the
>>>dimension of time.
>>>
>>>The ISU has agreed L=ct,
>>
>>ISU? From the context, perhaps International System Unit?

>
>
> Yup, I work strictly in ISU guidelines.
> ...

Nice. Then why did you bring up inches in another post?

>>>Problem...
>>>
*>>>define the *relative* displacement subset of*
>>>
>>> ds^2 = g_uv dx^u dx^v.
>>>
>>>within the above conditions expressed generally
>>>covariantly, and prove.
>>>
>>>Solution U_i =0 defines the theory of relativity,
>>>in all FoR's.
>
>
*>>>Proof, Invariant Mass = (rest mass)*gamma.*
>>> experimentally verified by nuclear tests.
>>
>>1) Invariant mass = rest mass, exactly. (rest
*>>mass)*gamma = *relativistic* mass, not invariant mass!*
>
>
> Simply put, your suggestion that rest mass, applicable
> in one CS is invariant for all CS's is wrong.

<http://www.physics.adelaide.edu.au/~dkoks/Faq/Relativity/SR/mass.html>
Quote:
"The invariant mass is therefore often called the "rest mass"."

>>2) That has nothing at all to do with U_i = 0 defining the theory
>>of relativity.
>
>
> It certainly does! All momentum covariant tensors like p_i
> vanish

What are "momentum covariant tensors"? I know only the momentum four−vector.

> and P_0 is rest mass/energy.

It is energy (or, more precisely, E/c), *not* rest mass.

> The relativity condition
>
> U_i =0
>

> is extremely powerful.

For which object is this equation supposed to hold?

> Try it, tell me where it fails.

It fails as soon as I consider the four−velocity of an object moving
with respect to me.

[snip]

[snip]

>>>The Lorentz boost is meaningless in GR.
>>
>>Please support that assertion.
>
>
> Well, if you end up with a partial like &t'/&x
> dependant upon a finite spacetime displacement you've
> imported a translation into the transformation.

Well, since for a Lorentz boost, &t'/&x does *not* depend
on a "finite spacetime displacement" (as I said repeatedly,
it is simply −beta gamma), I do not see why you
think a Lorentz boost is a translation.

> In simple tensor analysis transformations are meaningful
> only at a point.

That would be news to me. Where did you get this from?

What about the *example* for a coordinate transformation (for the
Schwarzschild solution) which I mentioned in another post?

> More advanced treatments that include
> nonsymmetrical g_uv require a finite in accord with the
> ISU.

What on earth has this to do with the ISU?

[snip]

> Because Time is independent of length, &T'/&x =0 just
> as &T/&x =0, I work within ISU standards.

Time in coordinate system S' is *not* independent of length in
coordinate system S!

Hey, that's equally wrong as claiming that the coordinate y' in a
coordinate system S' which is obtained from rotating system S around

the z axis is independent of the coordinate x!

>>Oh, BTW: if I am a kook, how did I manage to obtain a PhD in physics?
>>Working in Quantum Field Theory, where a good understanding of SR and
>>tensor analysis is required?
>
>
> Bjoern, even a superficial acquaintance to QFT requires
> some analysis of Shapiro's experiments, as it relates to
> length in fields.

You did not answer my question.

Bye,
Bjoern