

Re: Are *observed* SR effects real?

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Source: <http://sci.tech-archive.net/Archive/sci.physics.relativity/2008-07/msg02439.html>

- *From:* mluttgens@xxxxxxxxxx
 - *Date:* Thu, 24 Jul 2008 06:22:25 -0700 (PDT)
-

On Jul 24, 2:36 pm, PD <TheDraperFam...@xxxxxxxxxx> wrote:

On Jul 24, 6:19 am, mluttg...@xxxxxxxxxx wrote:

On Jul 23, 6:31 pm, PD <TheDraperFam...@xxxxxxxxxx> wrote:

On Jul 23, 11:08 am, mluttg...@xxxxxxxxxx wrote:

On Jul 23, 5:06 pm, PD
<TheDraperFam...@xxxxxxxxxx> wrote:

On Jul 23, 8:48 am,
mluttg...@xxxxxxxxxx
wrote:

On Jul 23,
1:36 pm,
PD
<TheDraperFam...@xxxxxxxxxx>
wrote:

On
Jul
23,

Re: Are *observed* SR effects real?

6:19 am,
mluttg...@xxxxxxxxxxx
wrote:

You
have
been
contradicting
yourself!
You
agreed
that
the
domain
of
applicability
of
SR
is
limited
to
'inertial'
frames.

Please
pay
attention
to
what
I
actually
said.
What
I
said
is
that
there
are
many
frames
that
are
not
absolutely
inertial,
but

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in
which
the
non-inertial
effects
are
much
smaller
than
the
effect
being
measured
and
are
therefore
negligible
(where
"negligible"
literally
means
"can
be
neglected").

Iow, you
agree with
what I wote:

"Claiming
that nothing
changes
physically
when the
Earth
moves
wrt the
plane is
wrong,
because the
Earth is
gravitationally
linked with
the Sun
(neglecting
the Galaxy,
and even

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the whole
Universe),
and you
should
know that
SR cannot
be applied
in
gravitational
fields."

No, I don't agree with it.
Please read what I wrote
about the
equivalence principle, which
is one of the underlying
bases of GR..

<

I wrote: "you should know that SR cannot be
applied
in gravitational fields", and suddenly, you
jump
to GR! Does that imply that SR also applies
(nothing
coming from SRists can surprise me, even
bad faith)!

Please pay attention. I told you where to re-read. Since you
are
incapable of doing that, I will repeat myself.

One of the backbone principles of GR is that any sufficiently
small
laboratory in free-fall (that is, IN A GRAVITATIONAL
FIELD) is
indistinguishable from an inertial frame of reference. So, yes,
special relativity can be applied even where there is a
gravitational
field as long as the tidal effects due to gravity are much
smaller
than the other effects (including ones predicted by special
relativity) being measured. Furthermore, you made the
earlier

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incorrect statement that special relativity cannot be used
where there
is acceleration. That is also incorrect.

Where did I claim that SR can't be used where frames are
accelerating?

My point is that SRists too often forget physical reality:

Here are a few examples:

- The Earth is rushing toward cosmic muons (Paul B. Andersen)
This is physically nonsensical, because the Earth is
gravitationally linked to the Sun, etc...

You misunderstand apparently. The suggestion is not that the Earth is
rushing toward cosmic ray muons and leaving the Sun behind. The
suggestion is that the Earth *and* the Sun *and* the galaxy the Sun is
gravitationally linked to is rushing toward the muon. There is nothing
wrong with that statement.

You forget the rest of the universe!
Only a child can get such ideas.
Perhaps should SR be called a
"Pathological science: a psychological process
in which a scientist, originally conforming to the
scientific method, unconsciously veers from that
method, and begins a pathological process of
wishful data interpretation."
(from http://en.wikipedia.org/wiki/Pathological_science)
Or rather, in SRists case,
"a pathological process of wishful extension of SR
domain of applicability".

As a reminder of this, observationally *and
physically* other galaxies are in general receding from our own (see
Hubble and what he's most famous for). Now, in what sense can you pick
out whether it is the others that are receding from ours or ours that
is receding from the others, and more importantly, is there any

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physical distinction that is important?

Are you sure they are receding from each other?
The Universe could be stable.

- One cannot tell from 600 mph relative motion between the Earth and a plane, whether it is the plane that's moving or the Earth that's moving (PD)
The Earth is rotating, for instance at 600 mph at some latitude. At such latitude, a plane whose ground speed is zero has an 'air' speed of 600 mph, as any pilot would confirm.

Well, actually no. If the air is still with respect to the ground, the air and ground speed would be both 600 mph. But the speed of the plane with respect to a line through the centers of the Sun and the Earth could well be zero.

What are the chances?

- It is not possible to know if a train is moving, without 'looking' outside the train.
This is false, as a train follows the curvature of the Earth, and is consequently subject to an acceleration $a = v^2/R$, where R is the Earth radius. When v is small, 'a' can be neglected, and SR approximately applied.
But when v is a not negligible fraction of c , like is many SR thought experiments, 'a' becomes enormous.
For instance, with $v = 0.1 c$, 'a' is about $1.5 \cdot 10^{10} \text{ cm/s}^2$!
Using such big velocities in a SR thought experiment is physically nonsensical.

And no such huge speed was implied. As I already mentioned to you, H&K performed their experiments at speeds much, much lower than even $0.00001c$.

H&K was not a thought experiment.

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PD

– Etc, etc, etc ...

Marcel Luttgens

Let's settle this first before continuing