Re: Circular motion in SR

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- *From*: PD <TheDraperFamily@xxxxxxxxx>
- *Date*: Tue, 25 Mar 2008 06:13:33 −0700 (PDT)

On Mar 25, 12:20 am, rbwinn <rbwi...@xxxxxxxx> wrote:

> On Mar 24, 11:42ýam, PD <TheDraperFam...@xxxxxxxxx> wrote:
>
> > On Mar 24, 1:09ýpm, rbwinn <rbwi...@xxxxxxxx> wrote:
> >
> > > ýIf time is measured according to
> > > transitions of cesium isotope molecules, then local physical
> > > processes
> > > remain the same. ý ýIt seems to me that you have to decide
> > > which you
> > > are going to want to do.
> >
> > Exactly. The decision has been made by consensus, as all standards are
> > done.
>
> Oh, I didn't know it was by concensus. You mean the way people once
> thought the sun revolved around the earth. Well, if it is by
> concensus, then we have to abide by it.

A standard is arrived at differently than a physical law, you'll note.
Or perhaps you didn't note.

> Still, a few questions tend
> to come to mind. Your definition of time is an arbitrary value of
> transitions of a cesium isotope molecule at specific conditions of
> altitude, temperature, and pressure. Change the altitude,
> temperature, or pressure, and the cesium isotope molecule changes its
> rate of transitions anyway.

I don't know where you got that idea.

> So with regard to these experiments run
> by scientists, do they adjust their results according to the altitude,
> temperature, and pressure that exist where the experiment is run?

No, nor do they have to. All of this information is openly available
on the web, because the standards organization is a public group.
Please refrain from guessing and do some homework instead.

> To
> be honest, the more I think about scientists, the more I am
> disinclined to believe tham.

Then don't try to be one, by posting on a scientific newsgroup with
your notions of scientific ideas.

I
believe
that
there
may
be
other
factors
which
also
affect
local
physical
processes.
ýWhat
I
cannot
understand
is
the
position
of
scientists.
ýScientific
time

is
the
only
measurement
of
time
allowed.
ýOK,
so
what
about
your
twin
theory?
ýHow
do
they
ever
get
back
together
according
to
scientific
time?
If
they
do,
then
obviously,
there
is
some
measurement
of
time
that
includes
the
separation
of
the
twins
and
their
reuniting,
which
could
be
calculated
in

either
frame
of
reference.

No, sir.
There is
only
frame−dependent
time. There
is no single
time
measurement
that both
both twins
would agree
on. (You
also
mention
"either
frame of
reference"
as though
there were
two. There
are not
two. There
are at least
three.

Right. ýIf you can't answer something, try to make it more
complicated. ýReally there are at least 7,238. ýYou say there is only
frame−dependent time, but anyone can determine for themselves that the
same event can be observed from two different frames of reference and
used to measure time in both frames of reference, just as the Galilean
transformation equations show.

> OK, so do the Lorentz transformations. The problem is that the
> Galilean transformations predict that the time elapsed will be the
> same for all frames. The Lorentz transformations say that the time
> elapsed will be different for all frames. The Lorentz transformations
> agree with measurement and the Galilean ones don't, with the exception
> being low−speed cases where the measurement sensitivity isn't high
> enough to detect the incorrectness of the Galilean ones.

> > Well, n' in my equations as calculated from Galilean transformation
> > equation distances shows that for every frame of reference, there will
> > be a different rate of transitions of cesium isotope molecules. ýSo
> > the elapsed time as measured by cesium clocks in all frames will be
> > different.

> > > Well, interestingly enough, by your method, the physical phenomenon will take the same number of oscillations of the radiation from the transition of the cesium isotope, but it will take a different number of seconds, because for you the number of seconds per oscillations of the radiation from the transition of the cesium isotope has to depend on the speed of the reference frame compared to the sun.

> > No, not speed, velocity. And it does not have to be the sun. I just used the sun as an example of a common measurement of time.

My comment stands, regardless of which distant standard is used.

> t'=t
> means that S is a preferred frame of reference because S' is moving relative to S. But if you measure the speed of light in S' with a clock in S', the speed of light is c because a photon is traveling at c in S' as measured by a clock in S'. As measured by t'=t, it would

not be traveling at c.

> But it's not even as clean as that, because a laboratory that is *accelerating* will have its speed relative to the sun changing continually, and so by your prescription, the number of seconds per cesium isotope transition radiation oscillation will also change continually, and you'd have to track that change continually to even measure how many seconds a chemical reaction takes or how long it takes for a sample of americium to decay to half−activity or how long it takes for hair to turn grey.

Well, no. You just use a clock in the laboratory

Whose rate is *also* different compared to the rotation of the sun.

> to do that because
> scientists say it has been determined by experiment that light travels at a rate of c relative to a clock in the laboratory.

That's correct. But the rate of the clock is different than that of the rotation of the sun, depending on the velocity of that clock relative to the sun.

> We just use the equation t'=t to keep distances straight. A distance in S' is the same as a distance in S.
> We can calculate the time of a clock in the laboratory from the information in the Galilean transformation equations.

Why calculate it when you have a local clock with which to *measure* it? If you *calculate* it using the Galilean transforms, you find the rate of the local clock doesn't agree, the rate of oscillations of the transition of cesium isotopes doesn't agree, the rate of radioactive decay doesn't agree, the rate of bacterial growth doesn't agree, the rate of hair going gray doesn't agree. If you use the local clock, these disagreements all disappear. The only thing that is different is that the local clock doesn't agree with the sun's rotations when it has a velocity relative to the sun.

> ýThe Lorentz equations agree with my equations to several decimal places until very high velocities close to the speed of light

are reached, whereas, the Galilean transformation equations using
absolute time only agree to a couple of decimal places at 30 miles per
second, the velocity of the planet Mercury.

ýSo, as the Galilean transformation equations show, there is not a different number of separatings and reunitings in one frame of reference as compared to the other.

OK

And the twin does not leave and return in

one
frame
of
reference
and
then
wait
until
he
finishes
returning
in
the
other.

OK

If
time
is
measured
by
separatings
and
reunitings
in
each
frame
of
reference,

But it's not.

OK, so you refuse to consider the separating and reuniting of the twins. ýThat does not mean it does not happen.

ýIt's measured according to the number of seconds

elapsed, and the number of seconds elapsed is determined by a standard second that is defined in terms of local physical standard, and against which it is verified that all physical processes behave the same in every inertial reference frame. (That is, trees grow in the same way, thorium samples decay in the same way, bacteria multiply at the same rate, hair grays at the same rate, etc.) And by those standards, the interval of time between the separating and reuniting of the twins is

> *different*
> between the
> two twins.

> Well, if we are not allowed
> to count time any other way,
> I guess a lot
> of people are going to be
> criminals by your standard.
> ýThere are still
> people who count days by
> the rising and setting of the
> sun.

> > Which is of course a problem for space
> > shuttle astronauts who see
> > sunrises every 90 minutes, or for that matter
> > intercontinental air
> > travelers. You do what you want and what
> > works for welding. However,
> > to use it as a universal standard leaves
> > something to be desired.

> > > Well, it could still be used as a standard.

> > Sure it could. Doesn't seem particularly useful though.

> Well, it does to me if I do not have to imagine a distance contraction
> the way scientists require.

Why is that a problem?

> ýThe people traveling in
> space shuttles and airplanes would have to do more
> mathematics than
> people on the ground, which might seem unfair to them.

then
t'=t,
just
as
the
Galilean
transformation
equations
show.
ýThe
difference
in
clock
rates
will
not
affect
how
many
times
the
twin
leaves
and
returns.
ýBut
you
would
have
to
decide
which
clock
has
the
more
meaningful
time
in
describing
what
took
place.

No, you
don't. You
don't have
to say,
"Well, we

have to
choose one
to
be more
correct and
the other
less
correct."
Likewise,
when I tell
you
that your
speed right
now is
either zero
or 850 mph,
depending
on
whether you
are looking
at a frame
tied to the
earth or one
that isn't
rotating
with the
earth, there
is no need
to say one is
more
"right"
than the
other. Your
speed is
simply a
frame−dependent
quantity, as
is
your kinetic
energy, as is
your
momentum,
and is a
whole host
of other
completely
useful and
completely
frame−dependent
physical
quantities.

> I did not say one was more
> correct than the other, I said
> one was more
> meaningful than the other.
> ýIf you want to measure
> everything by
> transitions of a cesium atom,
> it seems to me that you are
> free to do
> it. ýJust don't try to tell me
> that you are more intelligent
> than
> everyone else because that
> is what you decided to do.

> It is not a matter of intelligence. It is a matter
> of what provides
> the broadest consistent applicability. That is
> the purpose of
> measurement standards and physical theory.

> Well, OK, but the problem you seem to have is a distance
> contraction. ý

> Why is that a problem?

> Well, for instance, the difference in the radius of orbit as observed
> from Mercury. You scientists say you want the laws of physics to be
> the same in all frames of reference, and you sacrifice the laws of
> mathematics to do it.

There is no law of mathematics that says that it must be the same.
That is only true in Euclidean (flat) 3D geometry with an independent
time coordinate. However, the laws of mathematics say that a
Riemannian (curved) 4D spacetime geometry says that the radius will be
frame−dependent. So then, since the laws of mathematics support both,
depending on which geometry is invoked, the only question remaining is
which geometry happens to be the one that is active in this universe.
That is tested by experiment.

Now, you may *want* Euclidean mathematics to be the one that applies,

because that's the one you're used to, and you may *want* to not have to consider other mathematical geometries, but that isn't your option.

> I would rather have the laws of mathematics
> stay the same. However, reality may be on your side. If Christ fed the multitude with three loaves of bread and two fish, or whatever, what does that do to mathematics? Perhaps scientists are going to prove that religion is true.

Actually, they don't have to *prove* anything true. All they have to do is put up different models and see where they differ, and design experiments to inquire of nature which one is more correct.

> > That may not be too much of a difficulty for anything
> > you are measuring on earth, but my belief is that it really gives you
> > some wrong results when considering astronomical distances.
>
> No evidence of anything wrong. Everything works. It's wrong if it gives wrong predictions of what you should see. It doesn't. I don't see what's wrong with it.

> Well, I connot fathom a universe like the one scientists are describing.

And why do you think the universe should be intuitively easy?

> I think they are wrong about a lot of things with regard
> to astronomy. What I see is a conformity to European standards, regardless of evidence.

European standards?

> > ýJust my
> > opinion. ýI get more and more sceptical about what scientists say

> every time they come up with a new idea. ýThe latest ideas about what
> will happen to the universe that I saw published seemed totally
> idiotic to me.

> Well, that's your perogative, of course. But then again, the point is not to convince you of the sense of it.

> Well, as I say, I am very sceptical. I do not regard scientists as being very honest.

That's your perogative. I don't know why you would then join a discussion group about science to try to participate in science if you think that it is a dishonest exercise.

I'm not overly trusting of welders, by the way. Too many containment vessels and fuel rods at nuclear power plants have had bad welds covered up by contractors.

> > If you want to opt for something with less broad, consistent
> > applicability, and you like it because you came up with it, then by
> > all means do so. It will be no slight on your intelligence to do so.

> > Well, I just take scientific explanation of time for what I believe it
> > is. ý It may be useful to scientists, but it is not totally accurate,

> Sure it is. No evidence it isn't correct.

> Except for that distance contraction.

No, sir. There's no evidence that distance contraction is incorrect.

> and certainly is not a law that we all have to obey or else be punished.

> Punished? Who says that there's a punishment involved if you don't subscribe?
> It's simple, really. Scientists use standards that work most reliably and reproducibly. They use deduced natural laws that seem to have the broadest applicability with the most precision and which seem to have the highest success rate of predicting measurable phenomena.
> If you don't want to use those laws or those standards, and the ones you would rather use work just fine for you, then go right ahead. There are lots to choose from and you can make up your own. You can choose to do so just because you don't trust scientists, if you like. No harm in that.
> If you want to argue that others should adopt the same standards and laws that you use, THEN you have a bit more to demonstrate.

> Well, I have never seen any possibility that scientists would abandon anything they are doing at the present time.

But they do. All the time. The literature is littered with case after case of dead ends and abandoned theories. The popular literature that you pick up off the coffee table doesn't spend much time on that −− much to the frustration of scientists, mind you −− as they would rather focus on the gains than on the losses.

You obviously have not had close enough contact with science to get a feel for how it works.

> They are getting too
> much money for research using their present interpretation to ever change.

How much money do you think scientists get? What do you think their compensation is per hour? (I'd compare that with a welder's union rate any day.)

> It is like telling a Republican or Democrat that political parties are bad government and that the people should be allowed to govern themselves without being subject to party corruption. You might as well tell an Englishman that the Queen of England is not giving England good enough government. I do not foresee scientists

> doing anything except continuing on in their promotion of Einstein's theory because it gives them something that most people cannot understand which they can use to gain power.

What power could *possibly* come from promoting a theory that is wrong?

> > ýYou say that what I believe is too difficult for scientists to use.
>
> No, not too difficult. Just not as useful.

> Well, I would agree that it would not be as easy to promote. No one is going to give you any money for not having a distance contraction.

Why would that be?
.