

# Re: I Owe Einstein an Apology. Sorry Albert!

**Source:** <http://sci.tech-archive.net/Archive/sci.physics.relativity/2004-12/3699.html>

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**From:** The Ghost In The Machine (*ewill\_at\_sirius.athghost7038suus.net*)

**Date:** 12/09/04

Date: Thu, 09 Dec 2004 06:01:15 GMT

In sci.physics.relativity, kenseto

<kenseto@erinet.com>

wrote

on Wed, 08 Dec 2004 16:53:31 GMT

<fkGtd.33033\$CG4.7746@fe2.columbus.rr.com>:

>

> *"The Ghost In The Machine"* <ewill@sirius.athghost7038suus.net> wrote in  
> message news:vsgj82-22h.ln1@sirius.athghost7038suus.net...

>> In sci.physics.relativity, kenseto

>> <kenseto@erinet.com>

>> wrote

>> on Wed, 08 Dec 2004 13:54:42 GMT

>> <CIDtd.56801\$MG3.51146@fe2.columbus.rr.com>:

>>>

>>> *"The Ghost In The Machine"* <ewill@sirius.athghost7038suus.net> wrote in  
>>> message news:gncfi82-g48.ln1@sirius.athghost7038suus.net...

>>>> In sci.physics.relativity, JP

>>>> <jp@nospam.com>

>>>> wrote

>>>> on Sun, 05 Dec 2004 18:15:11 +0000

>>>> <pan.2004.12.05.18.15.09.916871@nospam.com>:

>>>>> On Sun, 05 Dec 2004 18:01:19 +0000, *The Ghost In The Machine* wrote:

>>>>>

>>>>>> In sci.physics.relativity, Henri Wilson

>>>>>> <H@.>

>>>>>> wrote

>>>>>> on Sun, 05 Dec 2004 03:13:07 GMT

>>>>>> <e2v4r0h49fjfb0fa1u0li7h2nn706j798f@4ax.com>:

>>>>>>> On Sat, 04 Dec 2004 23:40:06 GMT, *"Bill Hobba"*

> <bhobba@rubbish.net.au>

>>>>> wrote:

>>>>>>>

>>>>>>>>

>>>>>>>>> *"Henri Wilson"* <H@.> wrote in message

>>>>>>>>

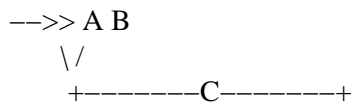
>>>>>>>> [crunch]

>>>>>>>>

>>>>>>>>>> Henri – comprehension is vital. You have shown none. My meaning

> *is*  
 >> > *obvious*  
 >> >> >>> *to anyone with a brain ie was the purpose of the other syncing*  
 > *methods*  
 >> > *also*  
 >> >> >>> *to obviate the need for an aether?*  
 >> >> >>>  
 >> >> >>> *But in your SRian stupidity, you are completely missing the point*  
 > *that*  
 >> >> >>> *E-synching is ABSOLUTE synching. That is becasue light speed is*  
 > *source*  
 >> >> >>> *dependent.*  
 >> >> >>>  
 >> >> >> *Somebody really should tell the decaying pi-mesons that. Apparently*  
 >> >> >> *they've not yet got the message.*  
 >> >> >>>  
 >> >> >> [http://prola.aps.org/abstract/PR/v135/i4B/pB1071\\_1](http://prola.aps.org/abstract/PR/v135/i4B/pB1071_1)  
 >> >> >>>  
 >> >> >> [*crunch*]  
 >> >> >>  
 >> >> > *I'd love to see the full text of that article.*  
 >> >> >>  
 >> >> >>  
 >> >> *I wouldn't mind too much myself -- but I'm cheap. :-)*  
 >> >> *The general idea, however, looks straightforward enough, and*  
 >> >> *only one clock would be required -- the one doing the*  
 >> >> *actual lightspeed measurement.*  
 >> >> >>  
 >> > *You can't measure OWLS with just one clock. You can measure TWLS with*  
 > *just*  
 >> > *one clcok.*  
 >>>  
 >> *The OWLS in this case is from a moving source (the decaying mesons).*  
 >> *The c'=c+v theory predicts a massively different result. Gamma*  
 >> *rays from the moving mesons can simply be thrown through a straightline*  
 >> *pipe and two detectors (one at each end) and the time difference*  
 >> *measured.*  
 >  
 > *How do you get the time difference without two clocks??*

A "speed trap" should work.



A and B are stationary with respect to the lab. The light source generates photons which go through A, then through B. Assuming A and B are equidistant from C, there shouldn't be much of a problem.

This is a TWLS measurement, but with an odd twist, as the light paths are A-C and A-C-B-C instead of the more conventional A and A-B-A.

- >
- >> *A clock is in the middle of the two detectors.*
- >>
- >> *Looks fairly straightforward to me.*
- >
- > *How is that one clock in the middle will determine the time for light to traverse 1/2 the distance of the pipe??*

It doesn't. The clock doesn't get to complete the measurement until light traverses 1 1/2 the distance.

- >>
- >> *299792458/9192631770 = 3.26 cm, so it wouldn't have to be that long.*
- >> *(The numerator is lightspeed in m/s. The denominator is the number of transitions of a Cs133 atom per second in an atomic clock.)*
- >
- > *So you are assuming light speed to determine light speed??*

No, although if one's not careful one might do so. The above numbers are from the currently accepted definitions, but I for one would prefer using an older definition which has since been dropped, the Kr-36 standard. (Apparently one of the reasons it was dropped was that the new standard, despite the implicit assumption of total isotropy and SR, is more accurate. The Kr-36 introduced too much error.)

Not that it matters; all measurements so far have been consistent with SR. (I don't know about GR, mostly because I'm not as familiar with it. I await Unc Al's Eotvos with puzzlement but also with interest.)

The above is simply an estimate of the error. An atomic clock has a "tick" of 1/9192631770 of a second. In that tick, light moves about 3.26 cm. Therefore, the error in the measurement is about half that, on average -- 1.63 cm. However, the error could be as much as a full tick; the light pulse might go through detector A at +1.99 ticks and go through detector B at +3.01 ticks -- an error of 0.98 ticks since the measured time would be 2 ticks instead of just 1.02.

If one wants to prove that light coming from a source moving 0.2c is moving at speed c and not speed 1.2c, the error in speed measurement need merely be less than about 0.1 c. Since speed is distance / time, and time is integral, we need merely determine the minimum distance such that

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$$\text{distance} / (\text{time} - 1/(9192631770)) < 1.1c.$$

Since distance = time \* 299792458 (for non-moving sources -- and for moving ones, as it turns out), we get

$$\begin{aligned} c * \text{time} / (\text{time} - 1/9192631770) &< 11/10 c \\ (\text{time} - 1/9192631770) / (c * \text{time}) &> 10/(11*c) \\ (\text{time} - 1/9192631770) / \text{time} &> 10/11 \\ 11 * (\text{time} - 1/9192631770) &> 10 * \text{time} \\ \text{time} - 11/9192631770 &> 0 \end{aligned}$$

or about 35.9 cm. For even better accuracy, double the length, of course.

>  
> *Ken Seto*  
>  
>  
>

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#191, ewill13@earthlink.net  
It's still legal to go .sigless.