Re: Actual data for Sagnac?

Source: http://sci.tech−archive.net/Archive/sci.physics.relativity/2008−07/msg01010.html

- *From*: "Androcles" <Headmaster@xxxxxxxxxxxxxxxx>
- *Date*: Sat, 12 Jul 2008 18:12:34 +0100

"The Ghost In The Machine" <ewill@xxxxxxxxxxxxxxxxxxxxxxx> wrote in message news:511nk5−mol.ln1@xxxxxxxxxxxxxxxxxxxxxxxxxx
| In sci.physics.relativity, Jerry
| <Cephalobus_alienus@xxxxxxxxxxx>
| wrote
| on Fri, 11 Jul 2008 05:11:08 −0700 (PDT)
| <32dba2f9−b42b−4c89−92c5−9a911cafed3f@xxxxxxxxxxxxxxxxxxxxxxxxxxx>:
| > On Jul 11, 5:39 am, The Ghost In The Machine
| > <ew...@xxxxxxxxxxxxxxxxxxxxxx> wrote:
| >> This is probably a dumb question, but where is there
| >> some actual experimental data for Sagnac, not merely a
| >> treatise of how SR explains it (as opposed to, say,
| >> H. Wilson)?
| >>
| >> Bear in mind I do not have subscriptions to IEEE or
| >> Applied Physics or such. Google also points me at
| >> a fair number of commercial devices.
| >
| > It has been decades since the Sagnac effect has been the subject
| > of experimental TEST.
|
| So it's old data. :−) I don't mind.
|
| > Nowadays, the reality of the Sagnac effect
| > and the exact correspondence of its magnitude with theoretical
| > expectations is a matter of routine engineering. The last paper
| > I am aware of testing the Sagnac effect per se was Ives, 1938.
| > Here are links to earlier papers:
| > Sagnac, 1913
| > http://gallica.bnf.fr/ark:/12148/bpt6k31103/f708.table
|
| Not sure what this is precisely, but it doesn't have obvious data.
| It appears to be a French server that insists on serving
| up 1−page PDFs of scanned articles. Page 711 appears to have something
| regarding aliphatic hydrocarbon vapor pressures or something.
| Page 708 does mention Sagnac.
|
| > http://gallica.bnf.fr/ark:/12148/bpt6k31103/f1410.table

|
| Page 1410, same article, another mention.
|
| > Michelson and Gale, 1925
| > http://adsabs.harvard.edu/abs/1925ApJ....61..140M
|
| That link appears mangled. The server reports that the PDF images are
| not available, though it did report that the title is
|
| The Effect of the Earth's Rotation on the Velocity of Light, II,
| by A. A. Michelson and Henry G. Gale.
|
| published 1925. So maybe the link wasn't mangled after all; the
| tail matches the "Bibliographic code". Weird.
|
| >
| > Likewise, special and general relativistic effects, in addition
| > to the Sagnac effect, are routine, practical engineering concerns
| > in such technologies as the high precision dissemination of time:
| > http://tycho.usno.navy.mil/ptti/ptti2002/paper20.pdf
|
| This has some graphs and a table of relativistic effects.
| The gravitational constant of Earth is interesting; it
| reports 398600.44 km^3/s^2 −− rather obscure, though Wiki
| suggests it is the product of the universal constant G and
| the Earth's mass. There are other constants that are even
| more obscure.
|
| For GPS, the net secular effect is reported to be
| 38.6 microseconds per day, which is what I remember.
| (The effect is split into "secular time dilation" and
| "secular redshift"; the sum of the two is reported as
| "net secular effect".)
|
| ISS, by contrast, *loses* 24.7 microseconds per day.

ISS loses 9000 microseconds per year by contrast?
You should turn the brightness up, and if that doesn't
work try the horizontal and vertical hold.

Interesting that in 3008 the ISS will have lost 9 seconds...

Fucking crazy...

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