Response to Prof.Turyshev's 12/22/09 mail

9 mensajes

Juan Joaquín Schulz Poquet <jjschulzpoquet@gmail.com> 4 de enero de 2010 19:53
Para: "Marr, James C" <james.c.marr@jpl.nasa.gov>, Michael.Shao@jpl.nasa.gov, Slava G Turyshev <slava.g.turyshev@jpl.nasa.gov>, Stephen C Unwin <stephen.c.unwin@jpl.nasa.gov>
Cc: ferrarc@[redacted], fmirabel <[redacted]>, fundacionjuliopalacios@usa.net
Cco: [redacted]

Dear Slava,

Thank you again for your kind and very clear explanation.

In the main part of it you are emphasizing the importance of the Michelson-Morley experiment in the advent of Relativity, and I agree with you.

But my idea is that it was wrong. In my publication "An Astronomical Test..." I detail the reasons for this position, but it may briefly say that this experiment is likewise valid to prove an emissive or inertial theory of light propagation, which are in the opposit position to the relativity one; that the widely acceptance of Relativity from that null result was the deep-rooted idea of ether for light propagation, in the scientific community of those times.

Certainly, the isotropy of light propagation is also valid under an emissive conception, being this last one the natural explanation that Bradley found for the Stellar Aberration phenomenon when he discovered it. Aditionally, the gravitational deviations of light paths can be explained under this concept. So, in my opinion, nothing is added to prove Relativity with all these exhaustive cares taken in the performs of these experiments in order to prove the isotropy of light.

And curiously we already have a very simple one in the permanent good work that the Hubble Space Telescope yields to all us. If it wasn't the case, the images ofered by it would suffer perturbances due to the variations of the direction of its light beams in their paths between the mirrors and the objective lens. (Please find attached scanned sheets containing correspondence with Dr. L. A. Fisk - Associate Administrator for Space Science and Applications of NASA, kept in 1992, in ocasssion of the appearance of the spheric aberration in the HST, and related to the last concepts).

The sheets img007/12.jpg are the main part of the oficial forms I submitted to The 1993 Rolex Awards for Enterprise, and contain the project of a device based on a laser ray impacting a screen, inside a vacuum-tube. This device would be used to probe isotropy and it is much more simple that all others used with the Michelson-Morley arraignments.

And the innumerable (I can't know all of them) experiments performed to probe Relativity are most of them done to probe consequences of the application of its formulas -not the postulates, as dilation times, muons or gamma rays decay, etc., or changes in the fringe patterns, and several more done in laboratory, all of them invalid for the fact of the reemission of light passing through dielectric lens or mirrors, as Prof. J. G. Fox suggested in his paper Evidence Against Emission Theories, in 1965 (Am.J.Phys.33-1).

So, to probe the second postulate of Special Relativity through the Stellar Aberration clearly appears a very simple and sure way to probe Relativity in general , as I am proposing in my publication. And sure enough the data registered by ESA through the Hipparcos satellite can elucidate the question. Only we need is to choose adequatelly the celestial bodies to analize, and read its relative positions as they appear, without any relativistic correction, comparing them in a six months period at least. Of course, you will obtain more accurate registers through your SIM project.

If you, or others, would have already done the lectures of the registers, resulting no variance in the relative positions of the choosed (with quite different radial velocities R) celestial bodies, as predicted by the formula tgA' = v/c' (where c' = c+R), please let me know , or bettter said, let the world know , because it would be an irrefutable proof that speed of light cannot be increased or decreased by any factor, and, therefore, that it is a universal constant, as assumed by the Second Postulate of STR.

Dear Slava, please don't take this letter irreverent, only take it becoming from a genuine and obstinate seeker of truth that, since he studied Relativity at the university several decades ago, didn't find a conclusive proof for the mentioned second postulate.

Thanking again your patience and open mind, and wishing the best for this year,

I remain yours sincerely

Juan J. Schulz Poquet

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12 archivos adjuntos

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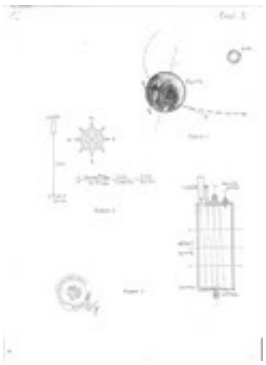

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Mail Delivery System <MAILER-DAEMON@gananoque.terra.com> 4 de enero de 2010 19:54
Para: jjschulzpoquet@gmail.com

This is the mail system at host gananoque.terra.com.

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For further assistance, please send mail to postmaster.

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<SilvioBarone@terra.com.br>): host gananoque.terra.com[/public/trrlmtpd]
said: 552 4.2.2 Mailbox full (Caixa postal cheia / Bandeja de entrada
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Final-Recipient: rfc822; silviobarone#terra.com.br@MOC.TRANSPORT

Original-Recipient: rfc822;SilvioBarone@terra.com.br
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noname
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Slava G. Turyshev <turyshev@jpl.nasa.gov> 5 de enero de 2010 20:18
Para: Juan Joaquín Schulz Poquet <jjschulzpoquet@gmail.com>
Cc: "Marr, James C (7030)" <james.c.marr@jpl.nasa.gov>, "Shao, Michael (3020)" <michael.shao@jpl.nasa.gov>, "Turyshev, Slava G (3267)" <slava.g.turyshev@jpl.nasa.gov>, "Unwin, Stephen C (312D)" <stephen.c.unwin@jpl.nasa.gov>, "ferrar[redacted]" <ferrar[redacted]>, fmirabel[redacted], "fundacionjuliopalacios@usa.net" <fundacionjuliopalacios@usa.net>

Dear Juan:

Happy New Year! Thank you very much for sending me the documents from your personal archive in support for your idea. I truly admire your enthusiasm and persistence in following your goal – these are the qualities of a very good researcher.

The second postulate of special relativity (on the invariance of the speed of light) states: “As measured in any inertial frame of reference, light is always propagated in empty space with a definite velocity c that is independent of the state of motion of the emitting body.” This principle is in the foundation of most (if not all) of the modern precision measurements done with clocks, interferometers, etc. As far as I concern, this principle had been verified to a very high precision which is sufficient for SIM.

As you may know, the last quarter of the 20th century has changed the status of Einstein's general theory of relativity (which of course includes special relativity in the limit when gravity may be neglected) from a purely theoretical discipline to a practically important science. Today general relativity is the standard theory of gravity, especially where the needs of astronomy, astrophysics, cosmology and fundamental physics are concerned. As such, this theory is used for many practical purposes involving spacecraft navigation, geodesy and time transfer.

Present accuracy of astronomical observations already requires relativistic description of light propagation as well as the relativistically correct treatment of the dynamics of the extended celestial bodies. As a result, some of the leading static-field post-Newtonian perturbations in the dynamics of the planets, the Moon and artificial satellites have been included in the equations of motion, and in time and position transformation. It is also well understood that effects due to non-stationary behavior of the solar system gravitational field as well as its deviation from spherical symmetry should be also considered and implemented in the appropriate models.

Recent advances in the accuracy of astrometric observations have demonstrated importance of taking into account the relativistic effects introduced by the solar system's gravitational environment. It is known that the reduction of the Hipparcos data has necessitated the inclusion of stellar aberration up to the terms of the second order in v/c, and the general relativistic treatment of light bending due to the gravitational field of the Sun and Earth. Even higher modeling accuracy is anticipated for SIM.

SIM would have to rely on a general relativistic model for its observables. This model would have to account for a number of dynamical effects both external to the spacecraft (e.g., motion with respect to the solar system barycentric reference frame, effects of time-varying gravitational field in the solar system (due to planetary motion and rotation) on light propagation, various interplanetary media effects, etc.) and internal to the spacecraft (e.g., systematic effects introduced by the spacecraft itself). As you see, stellar aberration that you mentioned in your proposal is one of the most important relativistic effects that we would have to account in our model for SIM. Once we in orbit we should be able to test relativity using the data from different targets and different observational epochs.

Some of this work has already begun in the context of the development relativistic reference frames for the need of future high-precision observations. (Please see attached a paper whiten by a colleague of mine Prof. Dr. Sergei Klioner.) However, a lot more efforts are needed and your interest is additional motivation to complete such a work in the near future.

Hope this was a satisfactory answer to your letter. Once again, thank you very much for your interest in our mission. Best wishes to

you and your family for this New Year!

Sincerely,
Slava
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Slava G. Turyshev <turyshev@jpl.nasa.gov> 5 de enero de 2010 20:20
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