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Kritische Stimmen zur Relativitätstheorie

Enquiry, in Keeping with the Freedom of Information Act, Relating to the OPERA Experiment

From: **Jocelyne Lopez**
To: **Prof. Hermann Nicolai - hermann.nicolai @aei.mpg.de**
Subject: **Enquiry, in Keeping with the Freedom of Information Act, Relating to the OPERA Experiment**
Sent: **March 24, 2017**

For Prof. Hermann Nicolai, Executive Director at the Albert Einstein Institute, Potsdam-Golm / Max-Planck Institute for Gravitational Physics

Dear Professor Nicolai

One of the official duties of the Albert Einstein Institute is to provide generally understandable explanations on Einstein's theories of relativity for the interested public ("Einstein Online").

Against this background I ask you, in the context of the Freedom of Information Act, to kindly answer the following questions intended to clarify contradictions that exist, in my view, in the interpretation of the results of the OPERA – CERN Experiment as presented in the media. This experiment has, namely, confirmed Einstein's special theory of relativity of 1905.

In 1905, Albert Einstein postulated that a uniform ray of light could always only be measured as having an absolutely constant relative velocity of c on a straight path, and this independent of the velocity of the emitter, and as seen by random observers (the measuring clocks). This velocity c represents an absolute upper limit for the propagation of light. Nothing in the universe moves faster than light.

On the other hand, already in 1913 the experimental physicist Georges Sagnac proved that this postulate of Einstein's did not apply generally, and that the speed of light measured in rotating systems has a variable velocity of c ± v, depending on the velocity of random observers. The experimental findings of Georges Sagnac have also been internationally recognized for decades and are confirmed billions of times every day through their standard use in GPS technology, in which sub-light and faster-than-light speeds are taken account of billions of times a day. Doctrine has it, indeed, that the Sagnac effect can be seen as a *"correction of the relativistic effects"*, which is understandable. One can, logically enough, only correct something that is wrong.

The OPERA Experiment was not carried out on a uniform, straight path, but on a rotating, spherical area, namely on the surface of the earth.

This said in advance, I would ask you to kindly answer the following 4 questions.

Question 1

Does the Albert Einstein Institute take the view that the special theory of relativity (that sees measurements on uniform, straight paths as a prerequisite) was methodologically applicable in the case of the OPERA Experiment (which undertook the measurements in rotating systems)?

Question 2

In the context of an enquiry in keeping with the Freedom of Information Act, the German federal authority PTB has confirmed that the proven findings of Georges Sagnac of a variable speed of light of c ± v were taken into account for the synchronization of the satellite clocks used in the OPERA Experiment.

Does the Albert Einstein Institute take the view, despite use of the findings of Georges Sagnac of a variable speed of light of c ± v, that Einstein's postulate of an absolutely constant speed of light of c=const and an upper limit on speed were confirmed by the OPERA Experiment?

Question 3

In an article on 26.09.2011 in "Tagesspiegel", *"Neutrino-Experiment - So schnell lässt sich Einstein nicht widerlegen" [Neutrino Experiment - Einstein Can't be Refuted That Quickly]*, Prof. Karsten Danzmann, Director at the Albert Einstein Institute, was vehemently adamant that a mistake must have been made in the OPERA-Experiment in each of the first two measurements of faster-than-light speed: http://www.tagesspiegel.de/wissen/neutrino-experiment-so-schnell-laesst-sich-einstein-nicht-widerlegen/4661400.html

> [...] *Karsten Danzmann of the Albert-Einstein Institute in Hanover is also fairly certain that this must be due to an error. At any rate, he regards neutrinos that are faster than light as being extremely unlikely: "Put another way, I think it would be more likely for the Pope to become the German Chancellor."* [...]

Why does the Albert Einstein Institute take the view that the measurements of faster-than-light speeds must inevitably be due to a measurement error, when more than 100 years ago faster-than-light speeds were proven experimentally by Georges Sagnac and an internationally recognized component of physical reality is depicted by GPS technology?

Question 4

Einstein's postulate of the independence of the speed of light from the velocity of random observers, as taken from his special theory of relativity of 1905, presupposes a straight-lined, constant motion between the observers and the ray of light.

Which experiments have investigated and experimentally confirmed this postulate of the observer-independent speed of light in straight-lined, uniform motion (inertial system)?

I thank you in advance for answering my questions within 1 month, as prescribed in the Freedom of Information Act, and remain

yours sincerely,

Jocelyne Lopez