

Relativistic Ether and Heisenberg's uncertainty principle

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Abstract

It is easy to show that Einstein's example of train and lightning is not the explanation of the postulate $c = \text{const}$ because it leads to the elementary, formally logical contradiction. It is difficult to explain this experimental fact. The only real explanation is – in accordance with the principle of least action – the c^2 -inertia with Heisenberg's uncertainty principle. So photon emission and propagation are one event and photon propagation and reception are another. And that explains also the twin paradox, for example, making it meaningless. EPR-paradox too. And so on.

“It is ironic that Einstein's most creative work, the general theory of relativity, should boil down to conceptualizing space as a medium when his original premise (in special relativity) was that no such medium existed... Relativity actually says nothing about the existence or nonexistence of matter pervading the universe, only that any such matter must have relativistic symmetry... The modern concept of the vacuum of space, confirmed every day by experiment, is **RELATIVISTIC ETHER**. But we do not call it this because it is taboo”

Robert B. Laughlin

**A DIFFERENT UNIVERSE:
Reinventing Physics from the Bottom Down**

It is also ironic that Einstein refused to accept Heisenberg's uncertainty principle because it brings chance into physics, and “*God does not play dice*”, is his famous saying in the dispute with Niels Bohr. However, Einstein's postulate $c = \text{const}$ from 1905, which was later the basis for the general relativity theory too, can be explained only by Heisenberg's uncertainty. Otherwise, the elementary contradiction was obtained: that a photon always came to the receiver at the same speed $c = \text{const}$, no matter how the emitter was moving in relation to that receiver. Although, namely, a photon was emitted with a certain frequency of its own atom, of its coordinate system, it no longer has certain energy, because it has lost its support, i.e the measure of both the time and the length of that system: it travels by the c^2 -inertia^[1] of the entire cosmos, only to show how much energy $\Delta E = h\nu = c^2\Delta m$ it brought in the receiving coordinate system, now adapting to units of time and length that system. Only $c^2 = \text{const}$ explains the constant light speed. No Einstein's thunder on the embankment with the train, but Heisenberg's uncertainty, specifically for speed and place. Namely, the receiving coordinate system is again quite definite, so the uncertainty for the place is $\Delta x = 0$, no matter whether it is an atom or just a Compton electron to which the photon again of a certain impulse $p = mc$ transmits a part of its impulse

$\Delta p = c\Delta m + m\Delta c$, and thus energy. Since Δm is an insufficient micro quantity, it remains that the uncertainty Δc covers all possible macroscopic differences

in velocities of emitter coordinate systems and the certain receiver: **accordingly to the principle of least action**^[2] by integral c^2 -inertia. In the final realization it is $c^2 = h\nu/\Delta m$. This is also the only way to ensure symmetry, to make the irony greater, the symmetry due to which Einstein postulated $c = \text{const}$: it does not matter whether a person holds a magnet in his/her hand and moves it, and because of that a current is induced in a fixed conductor, or it moves the conductor in front of the fixed magnet—and for the same relative movement again the same current. This **homocentrism**, which tacitly favors the coordinate system where observer is—and which Einstein at the time when he invented his example of train and lightning could not see—leads to the so-called twin paradox:^[3] a brother, who has traveled for a short time at approximately the light speed, on his return to Earth sees that his brother has already become an old man. And this despite the fact that the traveler, in the contrary, was at rest in his coordinate system, and his brother Earthling, in relation to the traveler, left together with the Earth and returned, so the cosmonaut should actually find him—the younger one. And the calculation with Lorentz transformations in the example with three inertial coordinate systems^[4] really shows that the Earthling has aged in relation to the cosmonaut. Yet neither is the symmetry of the electro- and magneto-motive force from Einstein's example in the work from 1905 disturbed, nor is the solution of the paradox mysterious one. On the contrary, it is trivial: time flows fastest in the coordinate system which person (**homini**, homocentrism) chooses to be fixed, no matter how many inertial coordinate systems are arbitrarily moving mutual each other. Only symmetry has become more complex, cyclical. In the concrete example of three coordinate systems, it is **ABC**, or **BCA** or **CAB**—when the person who calculates chooses system **A** as fixed, so only in it all speeds are absolute, while in the other two they add together relativistically; and analogically when **B** or **C** is chosen as fixed. Thus, homocentrism.

Science really needs to be **reinvented from the bottom down**. First of all, science should be freed from that homocentrism, even if it was a cosmonaut in the universe—that is, it is no longer geocentrism—a cosmonaut who calculates Lorentz's transformations with a pencil in his hand or experimentally checks his conclusions. Since a human being cannot be deprived of its mass or the mass of

its measuring instruments, it can get rid of that homocentrism only if it binds coordinate systems equally to massless photons, so that Lorentz transformations applied to them will give indefinite expressions, $0/0$ or $0 \cdot \infty$. Anyway, because this exactly corresponds to the fact that a photon itself has neither a certain time nor any measure of length—which solves Einstein's “*ghostly action at a distance*”, the so-called EPR paradox,^{[5], [6]} “*one measurement and two results*”. This corresponds to the fact that until realization in a collision with a mass, photon is indeterminate, more or less virtual. It exists, but only as a possibility—until it produces mass, I hope, finally only through the collision of two laser beams without electrons as catalysts,^[7] or at least, here another example, just to carry out our calculation in quantum electrodynamics more precisely.^[8]

In theoretical considerations, coordinate systems should be equally bound also to massless photons, just this way RELATIVISTIC ETHER is the vacuum, not a taboo.^[9]

References

[1] Milan D. Nešić: *In Cosmology, $c^2 = \text{const}$ is the Measure of Inertia, not Mass*, <https://vixra.org/abs/1812.0230>

[2] “*All the infinite multitude of the so called elementary particles, charged or uncharged, with or without mass, energy relevant or virtual etc is only, but the only mode in which vacuum can exist.*” From the book **GRAVITY AND C²-INERTIA** by Milton Nesh, page 101, ISBN 978-86-900622-1-8, year 2020.

[3] Albert Einstein: *Die Relativitäts-Theorie*. Vortrag gehalten in der Sitzung der Zürcher Naturforschenden Gesellschaft um 16. Januar 1911. Vierteljahrsschrift der Naturforschenden Gesellschaft. Zürich. 1911.

“*When a living organism is sent for some time there and back at approximate speed of light, although for it passes only a moment, once back, it will find a new generation at the place of departure.*” — His words, and in the same year it was interpreted as the twin brothers.

[4] George Bernhardt: *Zum Zwillingsparadoxon in der Speziellen Relativitäts-theorie*, October 5, 2017,

[5] A. Einstein, B. Podolsky, N. Rosen: *Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?* PHYSICAL REVIEW, 47, May 15 (1935)

[6] Milan D. Nešić: *The Big Bang and Its Internal Logic: the Universe as Relative Zero*, <https://vixra.org/abs/1811.0497>

[7] In September 2010, for example, this experimental result was published in the journal PHYSICAL REVIEW LETTERS: I. Sokolov, N. Naumova, J. Nees, and G. Mourou: *Pair Creation in QED-Strong Pulsed Laser Fields Interacting with Electron Beams* — accompanied by the explanation of how thousands of mass particles can be made from a single electron with a laser. Certain calculations show that perhaps only twenty times the laser power density is needed, to be created thousands of pairs of particles with mass by the collision of two laser jets without any electrons as a catalyst.

[8] In his article *Space-Time Approach to Quantum Electrodynamics*, PHYSICAL REVIEW, 76, 1949, Richard Feynman mentions virtual quanta fifteen times, and virtual electrons, mesons, nucleons, particles or processes, emissions, transformations over twenty times ...

[9] From the above-mentioned book on page 60 you can read:

»There is no one mass M of the same origin for the entire Universe, there is no “Big Bang” as the beginning, and so the dark energy can be also explained.«

Yes, each mass m has its own horizon c_{\max} . No M , nobody's scientific God can be the beginning of the World. “Big Bang” is the illusion though objective. One is the cosmos, what can be seen in the night sky as the ancient Greeks called it, and the other is Universe.

*But we do not say it this because it is taboo. Yes, **Reinventing Physics from the Bottom Down** is necessary.*