

Electromagnetic lightspeed and kinematic lightspeed: Analysis of the real Einstein

Roger J. Anderton

R.J.Anderton@btinternet.com

The Maxwell electromagnetic theory does not in fact give lightspeed constancy. What has happened is that two different speeds have been falsely made equal.

This article is based on analysis of the paper “The Real Einstein” by Roberto A. Monti and Geradina A. Cesarano Monti . [1]

The article by Montis basically takes the interpretation that SR (Special Relativity) assumes lightspeed constancy. As pointed out in my article “Summary of the Problem with Special Relativity” [11] another version of SR is that lightspeed constancy is a stipulation. (lightspeed to be taken ideally as light in vacuum free of influence of fields on it.)

Taking Montis position that lightspeed constancy is an assumption for the time being, I will proceed with their analysis that reveals the Michelson- Morley experiment (MMX) does not give the result of lightspeed constancy--

(1) Einstein’s SR (Special Relativity) theory wrong

Modern physics has been built in large part upon Einstein’s prejudices, and hence many mistakes have been introduced by Einstein. How Einstein was able to make these mistakes, the Montis point out is because:

“Einstein was a mediocre student, with the only possibility, once graduated, of becoming an employee of the Patent Office in Bern.” [1]

This is to account for why Einstein was not working from proper information.

The myth that the mainstream likes to present is that Einstein an outsider to physics was able to come along and cause a revolution in physics overturning old ideas. The counter to that argument is that – Einstein was working from faulty information because he was an outsider.

The faulty information that Einstein was working from was what he knew about the Michelson-Morley experiment.

The Montis say:

“Einstein came to know Michelson's experiment in his student years, having read Lorentz's book of 1895.”

And report Einstein saying in 1922: “ Soon I[Einstein] came to the conclusion that our idea about the motion of the Earth with respect to the Ether is incorrect, if we admit the Michelson null result as a fact.”

The Montis point out that Einstein believed the result of this experiment was null, but it was not null, and reason he did not know this is, was because:

“As a German student he [Einstein] had, clearly, no occasion to read the original paper (in English) of Michelson and Morley: otherwise he should have known that the experimental result was beneath expectations, but not null.” [1]

The result was:

“ The relative velocity of the Earth and the Ether is probably less than one sixth of the Earth orbital velocity (5 km/s) and certainly less than one fourth (7.5km/s)...the experiment shall be repeated. “[4]

So according to Montis- Einstein was forming his theory on a result that was false; the way they say it:

“Einstein came too soon to a wrong idea as a consequence of wrong information.” [1]

And why he did not have proper information was because at the time he was not a proper scientist with access to the correct information, instead he was a lowly patent clerk, as Montis say:

“Moreover, as an employee of the Patent office in Bern, he had no opportunity to have direct knowledge of Experimental Physics, especially Electromagnetic Metrology: he was simply not acquainted with such things as references and bibliography.” [1]

This also provides us for a reason why he gave no references in his famous 1905 paper on SR (Special Relativity), as Montis say:

“For this reason, in his Special Relativity paper, he did not mention Michelson's name: he was simply admitting the Michelson null result as a fact. For the same reason, he did not know Michelson's paper of 1904: Relative motion of Earth and Ether [5], which explains the principle of the Michelson-Sagnac Effect: the principle of the Optical Gyroscope [6 -7] .

So – Einstein did not admit in his famous paper of SR that he was working from the Michelson-Morley experiment (MMX), but it turns out he was and his understanding of that experiment was wrong, hence the theory he constructed from that experiment was wrong also. What the mainstream physics community tries to do is bodge everything around Einstein's mistakes and create more mess. This mess extends to Relativity texts falsely stating the Michelson-Morley experiment had null result; these texts are reporting Einstein's mistaken beliefs and not reporting what the Michelson-Morley experiment actually showed.

(2) What the Michelson-Morley experiment (MMX) really showed

According to Roberto Monti [8]:

“In 1856 Weber and Kohlrausch made the first measurement of the ratio of electromagnetic and electrostatic units of charge, called the "velocity v " .

“In 1857 Weber and Kirchoff obtained the equation of telegraphy, describing the propagation of electromagnetic signals along wires, with "velocity v " .

“In 1864 Maxwell was able to deduce from his equations the existence of electromagnetic waves in the ether with velocity of propagation : $v = (\epsilon_0 \mu_0)^{-1/2}$.

[n.b. hereafter “ v ” shall be re-labelled as c_0 .]

“Maxwell compared the values of the velocity v [to be re-labelled c_0] with those available of the kinematic velocity of light and, since they involved methodologically distinct measurements, he felt confident, on the basis of the substantial agreement of their order of magnitude, to advance his "electromagnetic theory of light" .

“Consequently, since 1864 the existence of two distinct physical quantities :

$$c_0 = (\epsilon_0 \mu_0)^{-1/2} \text{ and } c_M = 2 L / \Delta T ,$$

which we call respectively : Electromagnetic (c_0) and : kinematic (c_M) speed of light, was clear .

"At the beginning of the century (1900) it seemed improbable that one should find them (c_0 and c_M) identical...Michelson stated this clearly : ...a difference might almost certainly be predicted" .

“Unfortunately Michelson had already made two mistakes.

“In 1887, trying to test the orbital velocity of the Earth relative to the ether :

1) He was not able to write down the correct relation between the two quantities c_0 and c_M , which is :

$$c_M = c_0 (1 - \beta^2) / (1 - \beta^2 \sin^2 \theta)^{1/2} ;$$

$$\beta = v / c_0 \text{ which means that : } c_M = f(c_0, v, \theta) .$$

2) He was not able to understand that Roemer's and Bradley's methods and the measurement of c_0 (that is : the electromagnetic measurement of the speed of light) could allow to test the orbital velocity of the Earth :

$$v = c_0 \Delta T / 2 T_0 ; \quad v = \alpha c_0$$

(α = aberration angle) .

["v" now being used as orbital velocity of earth.]

Today the measurement of the anisotropy of background radiation has completely solved the problem of the Earth's , the Solar system's and also the Galaxy's velocity through the ether[*], these being 390 and 600 km/s respectively ." [8]

--I pickup [*]- I object to the word "ether" what is meant is that velocity relative to something.

From sources on the internet [8] we have explanation of these two speeds as follows:

"Earth is moving at a speed of $(390 \pm 60) \text{ km s}^{-1}$, in a direction towards the constellation Leo, relative to a frame in which the 3 K radiation is isotropic." [9]

and

"In order to account for the Earth's motion with respect to the 3 K radiation, the Galaxy must be travelling at about 600 km s^{-1} ." [9]

So what we are dealing with is a frame relative to which the 3K radiation background of the universe is isotropic. Monti has decided to interpret this as the "ether". If we look at the history of the idea "ether" we find that various attempts have been made to assign "ether" to something physical; what Monti presents us – is his version of what he thinks the "ether" should be.

My position is to still uphold the Principle of Relativity; but requiring that it be returned to what Galileo meant, freeing it from the mistakes Einstein made. (see more details my article "Summary of Problem with Special Relativity". [11]

The use of "ether" is often used by people who disbelieve the Principle of Relativity. So I will now defend for the moment the Principle of Relativity-

In the case of relative and absolute; motion is still relative to this 3K radiation frame not absolute. One of the problems that physicists have got stuck on is the idea that there must be a single frame at rest, and all other frames moving with respect to this

frame are not at rest. But by Relativity Principle – we have relative rest frames – i.e. lots of reference frames and not a single rest frame. Thus an absolute rest frame in the sense of being the only frame at rest does not exist. Ambiguity is sometimes introduced by having the term “absolute rest” mean other things, but in the sense of meaning there is only one frame of rest it is invalid, and there is instead lots of relative rest frames so that the Principle of Relativity applies. (This is gone into in more detail in my article: “Summary of the Problem with Special Relativity.” [11] Suffice for now it is to say that Relativity Principle still applies despite this 3K frame.)

Continuing with Monti [8]:

“Michelson and Morley made only one series of observations in 1887, and never repeated the ether drift experiment at any other time, notwithstanding many printed statements to the contrary .

“Morley and Miller pointed out that the result of the Michelson-Morley experiment did not have the anticipated magnitude, but the indicated effect was not zero .

“Unfortunately Albert Einstein, an employee of the patent office in Bern, came to know the result of Michelson's experiment only through Lorentz's book of 1895 and maintained that the experimental result of the Michelson-Morley experiment was exactly zero .

“Consequently he devised a theory to explain this "null result" : the Theory of Relativity .

"...Let us establish...that the quantity : $c = 2 L / \Delta T$ is a universal constant : the velocity of light in vacuum" .

“He was not able to distinguish between c_M and c_0 . As a consequence the relation between these two physical quantities :

$$c_M = c_0(1 - \beta^2) / (1 - \beta^2 \sin^2 \theta)^{1/2} \text{ became } : c = c(1 - \beta^2) / (1 - \beta^2 \sin^2 \theta)^{1/2}.$$

A "paradox" which could be "true" only if : "In my Theory (of Relativity) the velocity of light plays physically the role of an infinite velocity...by definition...the time that light employs to go from a point A to a point B is equal to the time employed by light to go from B to A :

$$\Delta T_{AB} = L / (c - v) = \Delta T_{BA} = L / (c + v)$$

“With "the coming of Relativity" Michelson-Morley experiment assumes a new experimental significance : many different precision measurements - not possible at the time - are required to test the "stability" of Einstein's "universal constant" :

$C_M = 2L / \Delta T$ with a "single arm" . But with "two arms" it is possible to make a comparison between kinematic velocities in different directions, without making measurements of C_M .

“This is the "new" physical meaning of the Michelson-Morley experiment after 1905 : Michelson-Morley's apparatus had to work as an Optical Gyroscope.

“Today we know that an Optical Gyroscope is sensitive to 0.001 deg/h : but it is necessary to avoid the lock-in of the standing waves .”

Now to Einstein's mistake-

Einstein was working from the mistakes of others and adding his own mistakes.

Proceeding with the mistakes that Einstein was making with c_0 and C_M , Monti points out [8]:

“Analysis of the Michelson and Morley experiment immediately leads to the apparently paradoxical relation:

$$c = c (1 - v^2 / c^2)$$

- i.e. from Einstein's mistakes.

Monti [8] point out

“ As far as I know L. Essen is the only person who noticed this "paradox": "The value obtained in this way on classical theory is: $c (1 - v^2 / c^2)$. The assumption (of Einstein) therefore is that the velocity of light will be c instead of $c(1 - v^2 / c^2)$, It is only the second order term that it is assumed not to be present" .

Essen was a top experimental physicist and when he tried to point out to his colleagues the mistake they were making they did not want to listen. [10]

The way that Montis represent the equation $c = c (1 - v^2 / c^2)$ for what Einstein was dealing with (when he muddled C_0 and C_M) is of course not the way that Einstein would have represented things. In order to hide the nonsensical nature of $c = c (1 - v^2 / c^2)$ which could be valid only for $v = 0$ (for c non-zero) but which he wants v to be non-zero, Einstein had to introduce time dilation, length contraction, adjustment of measuring instruments and so forth.

My Conclusions

There are two versions of SR. The version of SR that takes lightspeed constancy as an assumption, fails because the MMX does not give lightspeed constancy. (and

subsequent experiments do not give lightspeed constancy as Montis point out in the rest of their papers).

The difficulty is that Einstein gave lightspeed constancy as a stipulation; he required that clocks and rulers in different inertial frames be adjusted so that lightspeed is constant.

These two versions of SR have led to confusion in the mainstream – one version which stipulates lightspeed constancy, and the other that assumes lightspeed constancy. The first is not a scientific theory and is invalid. While the second is a scientific theory and disproved by experiment.

Experiments do not give lightspeed as constant, but because of the first version of SR the experiments are adjusted to make it so.

Thus the failure of the second SR gets muddled by the falseness of the first SR.

The next issue is the misrepresenting of two different speeds as being equal, and the misrepresentation of experimental results: As pointed out by Roberto Monti he himself had been deceived by the MMX being represented in many texts as having a null result; which he found false when he checked. [12] Similarly others are being deceived about the result of the MMX. The MMX is being represented as null result based on the stipulation version of SR (which is not a scientific theory), and those following the scientific theory version of SR do not realise that the facts are being misrepresented to them. If the true facts are presented in the context of how the scientific theory version of SR would interpret MMX, then that theory is disproved.

References

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- [10] <http://www.btinternet.com/~time.lord/>
- [11] Summary of the Problem with Special Relativity, Roger Anderton
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