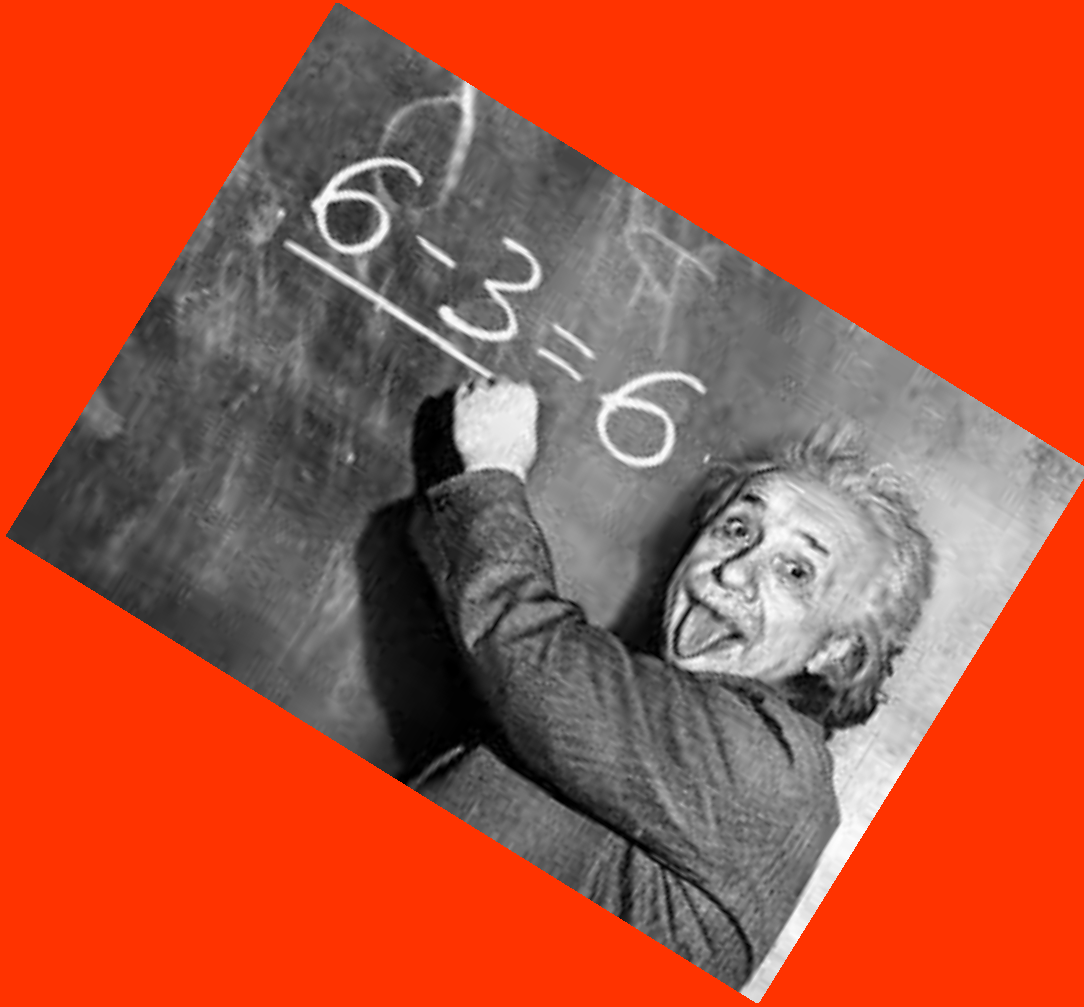


FALSIFICATION



of Einstein

Theories of Relativity



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Falsification of Einstein Theories of Relativity

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Abstract

The Einstein Postulates of Special Relativity (SR), namely the invariance of the speed of light c relative to the observer, the symmetry of relative velocities, and the Galilean Principle independent of velocity and gravitational potential are falsified. The replacement is Law 1: There exists an absolute universal velocity reference (Cosmic Velocity Reference, CVR) and Law 2: The speed of light c is invariant and isotropic only relative to absolute universal space CVR. Experimental evidence like Smoot's anisotropy of the cosmic microwave radiation background CMB and the one-way measurements of the speed of light are given. From the new Laws it follows (in vector notation) $\mathbf{c}_{rel} = \mathbf{c} - \mathbf{v}_{CVR}$ This results in the elimination from physics the Minkovski four-vector spacetime symmetry, time dilation, length contraction, velocity and acceleration symmetrical Lorentz transformation, Einstein vector addition, covariance, invisible and unphysical net of monolithic worldlines, and other weird mathematical constructs without physical meaning resulting from Special Relativity SR and General Relativity GR. The mass increase of particles with speed by the so-called Lorentz Factor $\gamma = (1 - v^2/c^2)^{-1/2}$ is so often cited by Relativists as empirical proof of SR. γ was fraudulently smuggled into SR without mathematical proof applying it to relative

velocities which gives wrong results. We show that the Lorentz Factor is a simple part of the system of classical dynamic equations. But it is only valid with absolute cosmic velocity v_{CVR} . The increases of mass, momentum, and energy with an object's velocity are correct but not part of or caused by SR. This is true also for the change of clock rate as a function of velocity and Newtonian gravity potential.

Key words:

Einstein, Theory of Special Relativity, Theory of General Relativity, Spacetime, Cosmic Velocity Reference, Universal Reference Frame, Galilean Relativity, one-way Speed of Light measurement, two-way Speed of light measurement, Lorentz Factor, Lorentz transformation, relative velocity, stellar aberration, Minkovski four-vector symmetry, Einstein Field Equations, Einstein vector addition, covariance, invariance, velocity asymmetry.

One sentence abstract:

Einstein postulates for theories of Special and General Relativity are falsified and replaced by classical equations with evidence of new asymmetric laws of Cosmic Velocity Reference.

1. Introduction

We who sat in the first year physics lectures remember the astonishment and exclamations of disbelief of our classmates when Einstein's Special Theory of Relativity was introduced: Postulates of constancy of velocity of light c relative to the observer and the Galilean Principle independent of velocity. It first seemed easy to understand, but the weird consequences of time dilation, length contraction, velocity and acceleration transformation, and the twin paradox were hard to believe. Then followed the explanation by the lecturer that all these consequences are counterintuitive and "this is an example why physicists should not follow intuition"! However, SR and GR are not only counterintuitive but also illogical and false. Nature is intuitive! In the following I use "velocity" when I mean the vector and "speed" when I mean just the amount of the velocity vector.

2. New LAWS of Absoluteness

Law 1: There exists an absolute universal velocity reference $\mathbf{v}_{CVR} = 0$ (Cosmic Velocity Reference, CVR)

Law 2: Velocity of light c is constant, isotropic only relative to absolute CVR

3. Concerning Law 1: absolute Cosmic Velocity Reference CVR

Einstein denied the absolute universal velocity reference and falsely postulated $c=\text{const}$ relative to an observer. During his time existed no positive experiments proving the existence of the CVR. This misled him to postulate a falsehood without any positive experimental proof. But since the middle of the last century more and

more experimentalists proved the existence of a Cosmic Velocity Reference CVR. Most important of all is Smoot's discovery of the anisotropy of the Cosmic Microwave Background Radiation (CMB) verified by the ESA Planck satellite. All experiments positively proved the solar system travels with a speed of

$$v_{CVR} = 371\,000 \pm 1\,000 \text{ m/s} \quad \text{relative}$$

to the CVR (Miller, de Witte, Marinov, Smoot, Cahill, and others). We propose to call Law 1 Smoot's Law.

Our rotational speed in the Galaxis is 230 km/s in the opposite direction. The center of mass of our Galaxis moves at a speed of approximately 600 km/s relative to CVR in the direction towards the Virgo galaxy cluster. The difference is 370 km/s - the sun's travel speed through space relative to CVR. Since earth's trajectory velocity vector is oriented perpendicularly to the ecliptic the amount of earth's v_{CVR} is also about 370 km/s. Only the direction is slightly different.

It is important to understand the difference between a position reference and a velocity reference. An absolute position reference for the Universe in the sense of a Center of Mass (CoM) is impossible to locate. A long term position reference could be our Galaxis center. But for all practical purposes the solar Barycentric Reference Frame (BCRF) and the Geocentric Reference Frame (GCRF) are used. We can imagine v_{CVR} to be the sun's velocity vector in reference to absolute space.

However, this new law of CVR does not yet solve the enigma of the Ontology of Space. It just says we are travelling through space at velocity v_{CVR} . We do not use the 19th century notion of aether which led to misconceptions of a material "wind" or medium. But the notion of a Cosmic Velocity Reference (CVR) has been discussed since the 16th century by Cartese, Kepler, Galilei, Leibniz, Newton and many other researchers. Until Einstein declared an absolute reference "ueberflussig".

Since then young physics students cannot pass an exam without repeating Einstein's dictate that all reference systems are in motion against each other with none being preferred, universal, and motionless. This is incredible today since we know the truth. But only a few physicists dare to correct the textbooks by saying "SR is easy to understand but hard to believe". The mainstream physics community has not yet noted that an absolute velocity reference CVR falsifies the Einstein theories of relativity, both Special Relativity SR and General Relativity GR as will be shown in Ch.4.

It is remarkable that the velocity vector \mathbf{v}_{CVR} relative to CVR is oriented normally to the ecliptic and parallel to the spin axis of most planets. This leads to the question whether other neighboring stars' planetary trajectory planes (ecliptics) are also oriented perpendicularly to their proper velocity relative to the CVR and what force is causing this.

Cosmic Velocity Reference is just the notion of an absolute rest frame with zero absolute velocity. Einstein in his original paper (1905) also calls it a rest frame, but he immediately explains it can also be in motion, which is contradictional and illogical. The CVR cannot move. Every object's motion is defined relative to CVR. Einstein's notion of an infinite number of reference frames makes no physical sense. Only the geocentric reference system (GCRF) for low earth orbital trajectory computation and the barycentric reference system (BCRF) of the solar system for interplanetary flight computation make physical sense and are actually used. Lorentz Relativity (1904) stresses a universal reference frame for isotropic velocity of light and insofar was a good step towards the truth. SR did away with this absolute reference frame and declared all frames equal.

Another proof for the physical falsehood of Einstein relativity is the impossibility of considering more than two Einsteinian reference systems in relative motion to each

other. Already three lead to symmetry incompatibility, which all sworn relativists should check for themselves. This is why Einstein in his notorious “Gedanken” (thought) experiments never uses more than 2 reference systems.

4. Concerning Law 2: Constancy of speed of light c

Einstein SR and GR are cited in world literature more than ten million times and are frozen in all textbooks since 100 years. It is impossible to give references for all the repetitions. Thousands of serious refutations are also too numerous to review them here (Lenard, Planck, Dingle, Kantor, Yves, Phipps, Levi, and others). But it is instructive to shortly follow the scientific trail before Einstein’s first publication on Relativity in 1905. Maxwell, Heaviside, and Lorentz started the problem with mathematically correct constructs such as covariance and the Lorentz transformations. But these constructs make no physical sense. They led to the Minkovski four-vector timespace symmetry. Einstein eagerly used this timespace aka spacetime symmetry. He forced his postulate of constant c relative to the observer (meaning the radiation receiver or sink) on the physics community. He did this because he loved the beauty of symmetry. It motivated him to postulate incorrectly and without any positive proof a constant speed c of light relative to a moving observer. He even topped this in declaring complete symmetry between emitter and observer, which leads to all the known paradoxes.

However, the speed c of light in vacuum space was a known proven constant that could be computed from permittivity and permeability of space as first shown by Kohlrausch and Weber in 1856. The constant value of c can be calculated to better than six decimals with today’s measurements. But Einstein’s relative light speed is

c_{rel} and not constant relative to source or sink as proven by many experiments. Only $c = c_{CVR}$ is a Universal Constant! Instead of c_{CVR} we use in the following always c .

Einstein's mistake is deeply rooted in the scientific literature. Landau&Lifshiz does not even care to mention experiments to measure c . In order to show how the problem started by Einstein widened, it is interesting to cite the famous Berkley Course of Physics, which was copied by hundreds of textbooks worldwide. After an introduction in Volume I (Mechanics) saying the falsehood that all experiments have resulted in the same value for the speed of light and in no trace of an "ether" velocity, it continues:

c is invariant among inertial frames,

The absolute velocity of a frame of reference has no meaning. Only relative velocities can be experimentally determined.

In the following paragraph on SR the usual smuggling of the Lorentz factor into the SR is taught using the false relative velocities in the formula. No mention of the dozens of positive experiments evidencing that $c=c_{rel}$ is anisotropic in all reference systems except in CVR. It is remarkable that the first edition in the 1970ies still said that the constancy of the speed of light has caused all this complicated formalism of relativity. Today Einstein's mistake is declared a fact!

4.1 Measuring the absolute speed of light c

Einstein's thought of a naive method to measure the constant c that is the 2-way speed test. He never performed the test himself or knew of any positive empirical evidence by other experimentalists. He just imagined it and found it sufficient.

Imagine a clock, source, and sink on one side and a mirror on the other side at a distance L . A light pulse starts at the source and travels towards the mirror.

$$t_1 = \frac{L}{c_{Einstein}} \quad (4.1.1)$$

is the travel time of the light pulse from source to mirror. After reflection it takes time t_2 to the sink

$$t_2 = \frac{L}{c_{Einstein}} \quad (4.1.2)$$

The time sum is $t_1 + t_2 = t = \frac{2L}{c_{Einstein}}$ (4.1.3)

And therefor $c_{Einstein} = \frac{2L}{t}$. (4.1.4)

Where is the problem? Einstein thought source and sink (emitter and observer) at rest in the laboratory system and forgot a possible motion of the laboratory. He was happy that source and sink are stationary to each other and therefor based his false postulate of c being constant whatever the motion of source and sink relative to an absolute cosmic velocity reference CVR.

In this case of 2-way velocity measurement we have the simple situation of source and sink resting in the laboratory. But we know today that the laboratory is moving in relation to the Cosmic Velocity Reference CVR with a velocity. This velocity, we called it v_{CVR} , can be evaluated using the correct equations for the same experiment. Instead of Eq. 4.1.1. we have flight time from source to mirror

$$t_1 = \frac{L}{c - v_{CVR}} \quad (4.1.5)$$

And from the mirror back to the sink

$$t_2 = \frac{L}{c + v_{CVR}} \quad (4.1.6)$$

In order to find the maximum in the time varying test setup in the lab (earth) this test has to be repeated multiple times with varying direction of c.

Here c stands for c_{CVR} the Universal Light Speed Constant relative to CVR, which is different from the $c_{Einstein}$ measured with the Einstein method. If we add the two times for the ways forth and back we get

$$t = t_1 + t_2 = \frac{L}{c-v_{CVR}} + \frac{L}{c+v_{CVR}} = \frac{2L}{c} \frac{1}{1-\frac{v_{CVR}^2}{c^2}} \quad (4.17)$$

And with $\beta = \frac{v_{CVR}}{c}$ $t = \frac{2L}{c} \frac{1}{1-\beta^2}$ (4.1.8)

We get the final result $c = \frac{2L}{t} \frac{1}{1-\beta^2}$ (4.1.9)

This is a c-measurement based on the hitherto knowable v_{CVR}

We note that in Eq. 4.1.4. the term $\frac{2L}{t}$ is the Einstein speed $c_{Einstein}$

So that the real universal speed of light or Cosmic Light Velocity is

$$c = c_{Einstein} \frac{1}{1-\beta^2} \quad (4.1.10)$$

(With $v_{CVR} = 371E3$ m/s and $c=3E8$ m/s $\beta^2 = 1.531462663E-6$ And $\frac{1}{1-\beta^2}$
 $= 1.00000153146501$ (4.1.11)

This will result in a second order value for c in the following way:

It is our understanding that the present definition of the speed of light by the CIPM has been based on the 1972 measurements by NIST using a two way interferometric method and is $c_{Einstein} = 299\,792\,458$ m/s. If this is true then the CIPM should reconsider to base the new Meter (2018) definition instead on the earth lab value ($c_{Einstein}$) rather on the real universal value of

$$c = 299\,792\,458 * 1.00000153146501 = c_{CVR} \quad (4.1.12)$$

$$c = 299\,792\,917 \text{ m/s (Cosmic Light Velocity)} \quad (4.1.13)$$

which is 459 m/s faster than $c_{Einstein}$

This is the true isotropic Cosmic Velocity of Light c based on the present knowledge of our velocity $v_{CVR} = 371\,000$ m/s. A change of ± 1000 m/s will require an adjustment of c by ± 2.6 m/s. It is therefore recommended to order better v_{CVR} measurements before a final decision. It is feasible to measure v_{CVR} in the future to ± 100 m/s and c to $\pm .5$ m/s. Keep in mind that the best present measurement of c on earth has systematic variations of at least ± 10 m/s because of variations of longitude and earth position with time.

4.2. Measuring the laboratory velocity v_{CVR} relative to CVR

Most physicists have doubted that our (earth's) velocity in relation to CVR will ever be measurable by a laboratory experiment on earth. Here we describe a not too difficult setup (as used by de Witte, Cahill, and others): A source and clock at one side and a sink and second clock at distance L at the other side. Distance L can be line of sight or straight fiber optic cable of precisely known length. The EM pulse is sent by the source and travels to the sink one-way. The best location for such experiment is near the equator since a N-S orientation of L is approximately perpendicular to the ecliptic

$$\text{The measured time is } t_0 = \frac{L}{c+v_{CVR}} \quad (4.2.1)$$

Now we turn the experimental laboratory setup by 180 degrees in order to change the direction of v_{CR} and perform the same measurement.

$$\text{This time we get } t_{180} = \frac{L}{c - v_{CVR}} \quad (4.2.2)$$

$$\text{The ratio of both times is } t_o / t_{180} = \delta = \frac{c + v_{CVR}}{c - v_{CVR}} \quad (4.2.3)$$

$$\text{And the result is } v_{CVR} = c \left(\frac{\delta - 1}{\delta + 1} \right) \quad (4.2.4)$$

$$\text{Introducing the usual } \beta \text{ factor } \beta = \frac{v_{CVR}}{c} = \beta_{CVR} \quad (4.2.5)$$

$$\beta = \frac{\delta - 1}{\delta + 1} \quad (4.2.6)$$

Here we get a first order value of v_{CVR}

This experiment with present day atomic clocks of 1 ns repeatability will result approximately in $\beta = 1.23\text{E-}3$ respectively $v_{CVR} = 371 \text{ km/s}$

The procedure has to be repeated at all intermediate angles to find out the full vector v_{CVR} , which is our absolute velocity vector with direction with respect to the fixed stars. During one year the earth travels around the sun and our axis 23 degree inclination will sweep all angles necessary to measure the amount of v_{CVR} to tentatively better than $\pm 100 \text{ m/s}$ and the direction to ± 1 degree. Since the angle is nearly zero to the ecliptic the motion around the sun is only of small influence on the amount. With this improved result for v_{CVR} we can repeat the test for c in order to iteratively improve the precision of both values.

It is the proof that v_{CVR} and therefore β can be measured in the earth based laboratory. Imagine v_{CVR} best as the velocity vector of the center of the sun where our Barycentric Reference System has its dimensional origin. This in turn leads to the calculation of the Lorentz factor $\gamma = \gamma_{CVR}$, and mass, momentum, and kinetic energy as a function of velocity relative to CVR for horizontal test setups. The one-

way speed of light experiment can as well be performed with microwave equipment since c is equal for all electromagnetic waves.

At this point we make a conjecture concerning the famous Null result of the Michelson-Morley interferometer experiment for measuring v_{CVR} . It is a two way test with second order result (β^2). The earth velocity cannot be measured this way because 2. order means total vector amount. This amount changes only minimally because v_{CVR} is oriented at a right angle to the ecliptic and the latter amount is at least 12 times the earth trajectory speed. All proposals to explain MM negative results by never experimentally proven Fitzgerald-Lorentz contraction of interferometer arms are futile (Levy).

As a conclusion to paragraph 4.2 we can say: The Einstein c is neither constant nor isotropic. There is no Einstein relativity. With the falsification of the light speed postulate of Einstein relativity the whole building of Special Relativity SR is crumbling and can be considered superfluous and inappropriate. SR application leads to false results.

4.3 Velocities of light relative source and sink

Again, since repetition is the best teacher: Einstein wrote 1905: “The relative velocity of light between any two moving objects is always the constant c .” This postulate is false. It is not even true without relative motion of source and sink. In order to make this appear true he introduced a new vector addition law deviating from the classical vector analysis law. This is even worse. Whenever a scientist is demanding a change of the rules of algebra or vector analysis to fit his ideas or postulates, then an extremely high empirical hurdle is expected by the scientific

community. This control was absent at the beginning of the 20th century for unknown reasons!

Only invariance, classical Galilean Relativity, and common vector analysis laws are applicable: c stands for velocity of light relative to CVR, i.e. c_{CVR} , and \mathbf{v}_{CVR} stands for object's velocity vector component parallel to the \mathbf{c} vector.

All one-way measurements result in a relative light speed

$$c_{rel.source} = c - v_{CVR} - v_{sink} \text{ for } v_{CVR} \text{ and } v_{sink} \text{ parallel } c \quad (4.3.1)$$

$$c_{rel.source} = c + v_{CVR} + v_{sink} \text{ for } v_{CVR} \text{ and } v_{sink} \text{ antiparallel } c \quad (4.2.2)$$

$$\underline{\text{relative to the source with}} \quad 0 < c_{rel.source} < 2c \quad (4.3.3)$$

All one-way measurements result in a relative light speed

$$c_{rel.sink} = c - v_{CVR} - v_{sink} \text{ for } v_{CVR} \text{ and } v_{sink} \text{ parallel } c \quad (4.3.4)$$

$$c_{rel.sink} = c + v_{CVR} + v_{sink} \text{ for } v_{CVR} \text{ and } v_{sink} \text{ antiparallel } c \quad (4.3.5)$$

$$\underline{\text{relative to the sink}} \text{ with } 0 < c_{rel.sink} < 2c \quad (4.3.6)$$

This can be simplified to:

The one-way speed of light relative to source or sink is always

$$c_{rel} = c - v_{CVR} - v \text{ for } v_{CVR} \text{ and } v \text{ parallel } c \quad (4.3.7)$$

$$\text{And} \quad c_{rel} = c + v_{CVR} + v \text{ for } v_{CVR} \text{ and } v \text{ antiparallel } c \quad (4.4.8)$$

$$\text{Or, in vector notation:} \quad \mathbf{c}_{rel} = \mathbf{c} - \mathbf{v}_{CVR} - \mathbf{v} \quad (4.3.9)$$

Here the velocity vector \mathbf{v} is our usual relative source or sink velocity moving in the same laboratory reference frame.

The absolute isotropic velocity of light is always the constant c and never c_{rel} . It is significant to note: The false Einsteinian postulate $c_{rel} = c$ contains the additional condition that it is valid between inertial, acceleration free reference frames. However such acceleration free frames do not exist in Nature. The new and correct law
$$c_{rel} = c - v_{CVR} - v$$
 allows source and/or sink to be accelerating as usual and normal in all physical applications. We therefor refrain from the use of the notation “inertial” in this context. In this case an additional velocity vector $\int \mathbf{a} dt$ has to be added to Eq. 4.3.9. For example if light starts at the source and travels towards the sink, then the sink can gain an additional velocity $\int \mathbf{a} dt$ until light arrival at sink.

The absolute velocity of light c between source and sink is constant and not a function of source or sink velocity. In other words: c does not care about source or sink velocity. But the relative light velocity c_{rel} is never constant. c_{rel} or $c_{Einstein}$ is a function of c , v_{CVR} , v , \mathbf{a} .

CERN has done an experiment showing that the relative speed of light between an emitter (source) and a photon can be quite small ($c_{rel.source} = .01 c$). An atom moving at high velocity towards a laboratory fixed sink (receiver) recently proved this. But the report ironically says it was a SR proof. This is because the author confounds velocities relative to source and sink. The emission of a photon from an atom (source) at high speed parallel to that atom’s motion leads to a photon speed relative to the source (Eq,4.3.4)
$$c_{rel.source} = c - v_{source} .$$

Note that here
$$v_{source} = v_{Atom} +- v_{CVR} .$$

The Photon’s velocity relative to CVR is always equal to c . The photon’s velocity relative to the sink in the lab is $c_{rel.sink} = c - v_{CVR}$ To be precise, source and lab

velocities are to be determined relative to CVR. This example solves the puzzle of relative speed c_{rel} to source and sink discussed so many million times. With light or EM waves one has to always specify whether one means c relative to source, or c relative to sink, or c relative to CVR! The difference between these three relative velocities is all important but often neglected, which leads to confusion and severe mistakes. Our analysis of the scientific literature claiming so-called SR evidence found out that correcting this mix-up in all cases produces negative proof of SR.

A second very interesting experiment is the measurement of neutrino velocity (OPERA/CERN). Here these scientists measured the one-way speed of CERN sourced neutrini relative to the OPERA sink. This sink is moving at velocity $v_{CVR} = 371\ 000\ \text{m/s}$ relative to CVR. Therefor this experiment measures the neutrino velocity $c_{rel.sink} = c + v_{CVR}$. Here we assume that the absolute speed of neutrini relative to CVR is equal to c . A diurnal periodic variation of $\pm 10\ \text{nsec}$ should be measurable, because our velocity vector v_{CVR} is not completely antiparallel to the North-South direction of the line Geneva-Grand Sasso (Italy).

A third example is the observation as proof of relative velocities greater than c . Measurement of the speed of particle jets emanating along the axis of neutron stars and central objects of galaxies result in speeds relative to the stars of more than $.5c$. On the other side the jet flows in opposite direction with speed of $-.6c$. The speed difference between these two particle jets is greater than c . This fact is still being disputed by well indoctrinated relativists.

Much more empirical evidence for the falsity of Einstein's light speed invariance postulate and the existence of a Cosmic Velocity Reference CVR can be found in

the literature. But unfortunately none in peer reviewed journals because such evidence is institutionally suppressed.

In 2005 Y.Saito published a paper in the AAPPS Bulletin with a modern repetition of the Roemer light speed measurement. This is a genuine one-way test involving the period of the Jupiter moon Io when earth (sink) moves to and from Jupiter. Since the earth velocity vector is perpendicular to our velocity vector relative to CVR the results are easy to grasp. From Jupiter Saito measured $c_{rel} = c - v_{earth}$ and to Jupiter $c_{rel} = c + v_{earth}$ with $v_{earth} = 30\,000$ m/s.

This important test also falsifies the invariance of the relative speed of light. Will organizations like the European Southern Observatory (ESO) finally recognize the urgency to officially prove this fact? If they do not there will be the suspicion that the Billions of Euros in taxpayers' money they spend is partially used to keep the scientific truth hidden under the table for unknown reasons.

5. The consequences of the two new Laws are:

- No mathematically symmetrical covariant Lorentz transformation
- No Maxwell-Einstein covariant form of EM field equations
- No Minkovski four-vector spacetime
- No invisible, unmeasurable net of monolithic worldlines
- No elimination of a common “now” separating past from future
- No elimination of time as an independent variable
- No time dilation
- No symmetrical “appearance” instead of asymmetrical reality
- No Fitzgerald-Lorentz length contraction

- No velocity and acceleration transformation
- No infinite number of “inertial reference frames”
- No Einstein vector addition
- No Thomas precession
- No frame dragging
- No Einstein Field Equations and metrics based thereon
- No Riemannian curved space
- No gravity caused by curved spacetime
- No “fabric of spacetime” defining the cosmos
- No denying the description of Nature as manifested in experiments
- Clock rate decrease with increasing velocity not consequence of SR
- Clock rate decrease with increasing gravity potential not from SR
- Stellar aberration not a consequence of SR
- Lorentz Factor γ not a consequence of SR
- Mercury perihelion precession not a consequence of SR
- Deflection of light by gravity field not a consequence of GR
- Frequency shift of EM waves in gravity field not consequence from GR

What a relief to simplify physics so much! But will physics ever recover from so many mistakes?

The planetary perihelion precession is not a consequence of SR but rather of the velocity c of gravity as shown by Gerber for Mercury in the 19th century and/or a consequence of the quadrupole moments of the sun.

The mass increase with speed by the so-called Lorentz Factor $\gamma = (1 - v^2 / c^2)^{-1/2}$ is not a consequence of relativity as claimed by Einstein in 1905. Conrad Lorentz introduced γ in his symmetric coordinate transformation in

order to make them “fit” with the inverse transformation. The mistake is the assumption of the velocity v being the relative velocity between any reference frames. This is wrong.. The factor Y , however, is correct if used in the form

$$Y = (1 - v_{CVR}^2 / c^2)^{-1/2}$$

For Lorentz’s defense it has to be stressed that in 1904 he tried to use an absolute zero velocity reference frame, the aether. But Einstein in 1905, using the whole mathematical construct of Lorentz transformations, declared this “ueberfluessig”. Instead he postulated relative velocity between source and sink could be symmetrically used. This unfortunate idea confused physics for more than 100 years.

The gamma factor is useful to partially calculate local clock rates, mass, momentum, and kinetic energy. Increase of the mass of an object in motion as a function of v_{rel} is falsely used by Relativists as a theoretical and empirical proof of ST and GR. But plugging any v into the equation for Y delivers the wrong result. Only the complete vector sum v_{CVR} is applicable as shown in 4.3. We show in paragraph 8 that Y is a part of the classical dynamic equations and not a consequence of SR.

We do not really know yet the ontology of time. But we are measuring time by defining the Second from c as well as the Meter. Empirically we know that in addition to $Y = Y(v_{CVR})$ the function $-\frac{GM}{rc^2}$ is to be added in order to get the total clock rate change. It is significant to remember that clock rates are firstly a function of absolute velocity relative to CVR and secondly a function of distance r from the center of a Newtonian gravity field. The claim of relativists of this being a proof for SR and GR is false. The Newtonian potential is also responsible for the gravitational frequency shift of light; not GR.

A complete new derivation of this factor as a function of v_{CVR} and the Newtonian gravity potential will be shown under paragraph 8.

6. Concerning Einstein's second Postulate of the Galilean Principle at high speed.

The Galilean Principle states that no physical law changes as a function of the laboratory's speed. This does not hold for clock rates. We know for example in GPS navigation systems that the clock rate increases with speed relative to the CVR, and decreases with increasing gravity potential. Relativists call this improperly "time dilation". But it is not a change in the flow of time. Time is an independent variable of Nature. Rather, it is the clock rate that changes. This is because all clocks are systems of oscillating masses whose frequency decrease when masses increase. Whether this is also true for biological aging is more of a philosophical or medical question. The much discussed twin-paradox is based thereon. Calculating all corrections of clock rate with respect to CVR instead an earth station will greatly decrease the need of clock rate adjustment of GPS, GALILEI, and similar navigation space systems. We show in paragraph 8 that the applicable Lorentz factor is not a consequence of SR.

In 1904 von Soldner assigned mass to light and thus could calculate a deflection in a Newtonian potential gravitational field. Einstein later smuggled the Newtonian potential into his GR via the Equivalence Principle. But a kinematic acceleration does not bend a light ray as does a gravity potential. Here his notorious thought experiment with the "elevator" is wrong. The light ray seems bent in the

elevator because the elevator accelerates. But in absolute space the ray remains straight. It is bent only in a gravity field.

His fascination with his teacher's Minkovski mathematical four-space symmetry seduced Einstein to claim that all sorts of small effects in physics have their roots in SR. Just to mention one: Stellar Aberration (SA). Bradley had measured and explained it perfectly in the 19th century. But Einstein said it is a consequence of the star light ray being a timespace four-vector. So it is a four-vector group defined by the Lorentz transformation following only one parameter, namely the emitter-receiver relative velocity. However, since this source-sink velocity is vastly different for the stars, the aberration should also be different from star to star. But Bradley's experiment showed the same SA angle of 20 arc sec for all stars. This falsifies the claim that a stellar light ray can be described as a SR four-vector. Besides, how can the Doppler Effect and Stellar Aberration from the same star be parts of a Minkovski four-vector? At least the clever mathematicians should protest, because this is one of the many examples where physicists use not well understood mathematical constructs in order to prove their case or foster insecurity with the reader. By the way, in the middle of the last century Einstein himself changed the aberration deciding velocity to earth's. This contradicts SR and so refutes it.

There is another interesting aspect of stellar aberration. As discussed above the Bradley SA results from the annual motion (30 km/sec) of earth around the sun in the ecliptic (20 arc sec). It is measured best for stars located in directions perpendicular to the ecliptic. But I conjecture a much larger aberration could be measured for stars located parallel to the ecliptic because of v_{CVR} (371 km/sec). These stars should show an aberration in the range of 4 to 5 arc min. But its value is constant, i.e. not varying direction with earth's motion. This SA test could be an independent empirical proof for the Cosmic Velocity Reference, and perhaps even

more precise than the one-way measurement of the speed of light in terms of amount and direction of v_{CVR} . Who will be the first to achieve this goal? Every astronomer has access to the necessary tools. By the way: It is commendable that many universities have recently moved teaching and research on Einstein Relativity and here especially GR from physics to mathematics departments.

In order to save Einstein (and Maxwell, Lorentz, Gerber, Lenard, and others): The replacement of the Newtonian Immediate Action At A Distance (IAAAD) for gravity with the gravity's speed of light (and all other EM waves) has been experimentally verified in the meantime. Gravity travels with speed c , after all.

7. Concerning Einstein General Relativity Theory GR (1915):

With the falsification of SR by proving that relative light speed is c the relative light speed GR is false as well. GR is just a Riemannian curved timespace extension of SR (1915). GR is a purely mathematical construct without any physical meaning or content.

His concoction from Civita's tensor calculus and Riemannian geometry is just a system of differential equations; the Einstein Field Equations (EFE). As pure mathematics the EFE are not falsifiable or refutable, if the mathematics are correctly applied. Some authors doubt even this because of the pseudo-tensors mixed with tensors (Levy-Civita, Weyl, and Crothers).

The foundation of GR is the relativity of SR. SR is falsified in 4.2 which falsifies GR as well. The recent observation of a high mass triple star system including a neutron star and a pulsar also refutes the strong equivalence principle. Another measurement up to a distance of $z = 2.0$ proved space is not Riemannian curved but Euclidian flat. The Chimera of gravity curving space to become a four-

vector spacetime continuum, and curved space causing gravity, is dead. Here I return to Euclidean Geometry. The Cosmos has three dimensions with six directions (++++) in space and one dimension with one direction in time (+). Today this is an irrefutable fact.

Refutable are the metrics of various followers of the Einstein doctrine (EFE) that all fail to solve real physics. A limitless number of metrics are up for grabs and can be invented. The trick is to introduce as many variable parameters as necessary to reach a desired goal; it is the Ptolemaic method. Not a single metric in the EFE was able to prove a physical observation or experiment. The jury on black holes is still out. It is astonishing that government organizations pay billions of dollars to prove nothing (e.g. Gravity Probe B). On the other hand it seems impossible to get a 10 million dollar grant to design and perform a verifiable experiment repeating the measurement of the one-way speed of EM waves. All those experiments hitherto have been performed by researchers with their private funding. The angst of officials to learn the truth seems overwhelming.

It can be safely stated that none of the millions of so-called proofs of SR and GR is valid. Most are based on the non-existing “time dilation” and the “curved space” claim. The falsification of SR and GR will require future research on the still unsolved origin of time, space, mass, inertia, and gravity.

8. Derivation of the factor $f(v_{CVR}, r)$

Richard Feynman lectured SR elegantly: “Just remember the formula for the increase of mass with velocity $m = m_0(1 - v^2 / c^2)^{-1/2}$ because it is useful for calculations.” Did he perhaps have a hunch that all the rest of SR is superfluous or even wrong? Or did he know that the Lorentz factor γ used to calculate mass,

momentum, and energy at high speed is independent of SR? In any case it seems logical to distance ourselves from the name Lorentz factor because its origin is interwoven with the ugly and false Lorentz transformation which misled Einstein to his false postulate of \mathbf{c}_{rel} being equal to c .

I show in the following that $f(v_{CVR}, r)$ is a simple consequence of the system of equations of dynamics. The classical equations for energy E (8.1), velocity v (8.2), power $\frac{dE}{dt}$ (8.3), and force \mathbf{F} (8.4) are empirically proven.

$$\frac{dE}{dm} = c^2 \quad (8.1) \quad \text{S. Preston (1875), De Pretto, Poincare (1900), Hasloehr(1904)}$$

$$\mathbf{v} = \frac{dr}{dt} \quad (8.2) \quad \text{Velocity}$$

$$\frac{dE}{dt} = \mathbf{F} \mathbf{v} \quad (8.3) \quad \text{Power}$$

$$\mathbf{F} = \frac{dP}{dt} = \frac{d}{dt} (m \mathbf{v}) = \frac{dm}{dt} \mathbf{v} + \frac{dv}{dt} m + \frac{GM}{r^2} m \quad \text{Newton (8.4)}$$

With G Newtonian gravity constant and M the gravitating mass.

Eliminate E, \mathbf{F}, dt to obtain $m = m(v, r)$:

$$(8.1) = (8.4): \quad \frac{dE}{dt} \frac{1}{v} = \frac{dm}{dt} \mathbf{v} + \frac{dv}{dt} m - \frac{GM}{r^2} m \quad (8.5)$$

$$\frac{dE}{dt} = \frac{dm}{dt} v^2 + \frac{dv}{dt} m v - \frac{GM}{r^2} m \frac{dr}{dt} \quad (8.6)$$

$$\rightarrow \quad dE = dm v^2 + m v dv - \frac{GM}{r^2} m dr \quad (8.7)$$

$$(8.7) = (8.1): \quad dm c^2 = dm v^2 + m v dv - \frac{GM}{r^2} m dr \quad (8.8)$$

$$\rightarrow \quad dm = dm \frac{v^2}{c^2} + \frac{m v}{c^2} dv - \frac{1}{c^2} \frac{GM}{r^2} m dr \quad (8.9)$$

Substitute $\beta = \frac{v}{c}$ (8.10)

Differentiate: $d\beta = \frac{dv}{c}$ (8.11)

→ $dv = c d\beta$ (8.12)

(8.10, 8.11 ,8.12) in (8.9):

$$dm = dm \beta^2 + m \beta d\beta - \frac{1}{c^2} \frac{GM}{r^2} m dr \quad (8.13)$$

$$\rightarrow dm(1 - \beta^2) = m \beta d\beta - \frac{1}{c^2} \frac{GM}{r^2} m dr \quad (8.14)$$

$$\rightarrow \frac{dm}{m} = \frac{\beta}{1 - \beta^2} d\beta - \frac{1}{c^2} \frac{GM}{r^2} dr \quad (8.15)$$

Before integration we have to define $v = v_{CVR}$ and $\beta = \beta_{CVR}$

Integrate (8.15): $\int \frac{dm}{m} = \int_0^1 \frac{\beta}{1 - \beta^2} d\beta + \frac{1}{c^2} \int_{-\infty}^r \frac{GM}{r^2} dr$ (8.16)

$$\rightarrow \frac{m}{m_0} = \frac{1}{\sqrt{1 - \beta^2}} - \frac{1}{c^2} \frac{GM}{r} \quad (8.17)$$

This is the desired function $f = f(v_{CVR}, r)$ deduced from classical dynamics. (with constants c, G, M). This derivation shows clearly that the resulting effects like mass increase and clock rate decrease are not reciprocal and symmetrical like claimed by SR, but rather unilateral and asymmetrical to v_{CVR} and r.

The resulting mass at velocity v_{CVR} relative to CVR (Cosmic Velocity Reference):

$$m = m_0 \left(\frac{1}{\sqrt{1 - \beta^2}} - \frac{1}{c^2} \frac{GM}{r} \right) \quad (8.18)$$

The resulting momentum \mathbf{P} at β relative to CVR:

$$\mathbf{P} = m \mathbf{v} = m_0 \mathbf{v} \left(\frac{1}{\sqrt{1-\beta^2}} - \frac{1}{c^2} \frac{GM}{r} \right) \quad (8.19)$$

The resulting force \mathbf{F} at β relative to CVR:

$$\mathbf{F} = \frac{d\mathbf{P}}{dt} = m_0 \frac{1}{\sqrt{1-\beta^2}} \frac{d\mathbf{v}}{dt} \left(\frac{1}{\sqrt{1-\beta^2}} - \frac{1}{c^2} \frac{GM}{r} \right) \quad (8.20)$$

The resulting energy E at β relative to CVR:

$$E = \frac{m}{2} v^2 = \frac{1}{2} m_0 v^2 \left(\frac{1}{\sqrt{1-\beta^2}} - \frac{1}{c^2} \frac{GM}{r} \right) \quad (8.21)$$

The resulting time t at β relative to CVR:

The measure of the flow of time, the second, is presently defined as the duration of $N_{earth} = 9\,192\,631\,770$ periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the Cs-133 atom. By definition this is an earth laboratory Master Clock Second measured by the number of respective clock beats. An analogy is the Celsius temperature zero at the water freezing point.

I introduce the term Cosmic Standard Time (CST) for a hypothetical Reference Master Clock at location $r = \infty$ (gravity free or at a libration point) and at velocity $v_{CVR} = 0$. This is in analogy to the temperature Kelvin Zero point. This Reference Master Clock has the lowest Cs-133 frequency count corresponding to a defined Second. Irrespectively, the flow of time remains always constant. There is no time dilation but only a lower number of clock beats per second when the velocity increases and the gravity potential decreases.

The Cosmic Standard Time second is

$$N_{CST} = N_{earth} \left(\frac{1}{\sqrt{1-\beta^2}} - \frac{1}{c^2} \frac{GM}{r_{earth}} \right)^{-1} \quad (8.22)$$

And with

$$G=6.67384E-11 \text{ m}^2\text{kg}^{-2}, \quad M= 5.972E24 \text{ kg}; \quad r_{earth} = 6377000 \text{ m}$$

$$N_{CST} = 9\,192\,624\,737 \quad (8.23) \quad (\text{Difference}$$

to $N_{earth} = 9\,192\,631\,770$ is minus 7 033 beats per second)

N_{CST} is the number of C-133 clock beats defining one Second at the hypothetical Cosmic Reference Velocity and Location. All other clocks anywhere can be synchronized multiplying N_{CST} with the CR factor (Cosmic Reference Factor)

$$CRF = \frac{1}{\sqrt{1-\beta^2}} - \frac{1}{c^2} \frac{GM}{r_{earth}} \quad (8.25)$$

$$\text{Therefore:} \quad N_{Mearth} = N_{CST} * CRF \quad (8.26)$$

$$N_{GPS} = N_{CST} * CRF \quad (8.27)$$

And so on for all desired velocity and radius combinations. Here velocity in β is the vector sum of \mathbf{v}_{CVR} plus the GPS trajectory velocity. This way the required number of clock beats can easily be adjusted in the respective clock beat counter in real time in order to guarantee clock synchronization for a deliberate quantity of Master and Slave clocks.

With the present knowledge of our absolute velocity relative to CVR of 371 000 m/s we live with $\beta^2 = 371000^2 / 299\,792\,917^2 = 1.5315E-6$ Here I neglected the diurnal change of the velocity due to the earth surface rotation velocity of 2 000 m/s or so. Also I neglected the earth's velocity around the sun

because it is nearly vertical to the velocity vector relative to CVR. Both parameters must be computed as a function of time.

The factor increasing our masses on earth because of v_{CR}, r, M, G is therefore $CRF = 1.000\,000\,765\,038$.

However, this value is also a function of time, since the earth moves around the sun and rotates daily about its axis. For more precise calculations an international convention has to be established firstly for the velocity vector v_{CVR} through the sun center pointing in the direction to the Virgo Cluster. Secondly the velocity vector through the earth center. Thirdly the velocity vector through the Master Clock location due to earth's rotation. The vector addition of these 3 velocities results in the momentary velocity vector of the Master Clock Station. This results in a precise calculation of the momentary value of CRF varying with time. For a navigation satellite a fourth velocity vector, the GPS the satellite vector is to be added in order to calculate the precise and clock rate change with Eq. 8.25. This procedure can reduce the GPS satellite clock rate adjustments during system operation considerably. For high speed particle experiments the lab velocity relative CVR can be neglected.

Let us repeat: The application of the CRF to calculate clock rate, mass, momentum, kinetic energy is false when using just an undefined relative velocity. All attempts of relativists to dictate relative symmetry with the excuse of "appearance" instead of facts are futile. An appearance may be good in courts or the circus but not in experimental physics. Not using the correct v_{CVR} is the cause of many false results and misconceptions in physics and cosmology.

9. Conclusions

I avoided calling the new laws “postulates” because they have been proven empirically during the last 50 years. Insofar Einstein was in a much more difficult position. Lack of positive experiments easily misled him to postulate erroneous laws based on negative experiments. However, as a physicist he knew or should have known that one negative result such as Michelson’s interferometer measurement is not a sufficient condition or even proof to postulate a law and dictate scientific fact without reserve. Today with all the empirical evidence it seem impossible that anybody can preach anymore SR and GR and all its idiosyncrasies in good faith. Without doubt Occam’s razor has been applied successfully by rendering physics believable. We recommend to measure v_{CVR} more precisely with the one-way method whenever better clocks become available, and update its value just like it is done from time to time with Newton’s gravity constant G. The result can be used by the International Weights and Measures Commission to redefine the system.

For the sake of future students and scientific truth we implore the physics community to recognize these refutations and start a thorough damage repair. I know that this needs lots of soul searching and changes in text books and attitudes. But the Ptolemean system had to be changed, too, against ecclesial doctrine. Unfortunately, the problem is of similar magnitude, since Einsteinian Theories have become like a religion for their believers. Students and researchers of physics, engineering, and even medicine have flunked their exams, lost their PhD grade, or even were denied professorships because they doubted Einstein Relativity Theories. Fortunately, none have been burnt like Giordano Bruno yet, as far as we know.

We publish this falsification of the Einstein Theories of Relativity on the occasion of the centennial of the General Theory of Relativity in GOOGLE’s site Academia.edu in January 2015. A publication in a peer reviewed physics journal we

deem improbable due to the disruptive laws and proofs and facts brought forward. A bibliography of hundreds of references would be required. But it is easier for the reader to use a search engine asking author and question of interest. We welcome comments with similar or additional ideas, theoretical and experimental. All appropriately argued opinions will be published in loose sequence. We are eager to collect more empirical results on CVR, c , c_{rel} , and ν_{CVR} our common travel through cosmic space and time (Flat and Euclidian).
