



## A Sign Post to a series of publications revealing the existence of multiple flawed contemporary paradigms based on light.

Private communication

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**Project:** at ResearchGate "*Karl Popper's type of falsification, through theoretical and experimental anomalies, of multiple contemporary paradigms based on light phenomena.*"

<https://www.researchgate.net/project/Karl-Poppers-type-of-falsification-through-theoretical-and-experimental-anomalies-of-multiple-contemporary-paradigms-based-on-light-phenomena>

**Book:** Etienne Brauns, "*A shattered Equivalence Principle in Physics and a future History of multiple Paradigm Big Bangs in "exact" science ?*"

(reference D1; downloadable at [www.absolute-relativity.be](http://www.absolute-relativity.be) ; see the references to the publications D1-D11 and their download links at the end of this private communication)

### **Video presentation in a series of two videos Part 1 and Part 2:**

- the video Part 1 shows the Karl Popper type of falsification, through the proof of the existence of massive theoretical anomalies and inconsistencies, by reasoning on the basis of photons, in the views of contemporary science on light.

**Video Part 1:** [http://www.absolute-relativity.be/video/Part1\\_Anomalies\\_Theortcl\\_E\\_Brauns.mp4](http://www.absolute-relativity.be/video/Part1_Anomalies_Theortcl_E_Brauns.mp4)

or: <https://drive.google.com/open?id=1OOnAZGt4eWFM1pd5dVThVHe7pc6DRHSg>

- the video Part 2 shows the Karl Popper type of falsification, through the proof by a straightforward laser experiment, of the existence of a massive experimental anomaly regarding the views of contemporary science on light.

**Video Part 2:** [http://www.absolute-relativity.be/video/Part2\\_Anomalies\\_Exprmtl\\_E\\_Brauns.mp4](http://www.absolute-relativity.be/video/Part2_Anomalies_Exprmtl_E_Brauns.mp4)

or: <https://drive.google.com/open?id=1d0b6owXTTCGi2UKHBQYs63Z0Cz6Kai0Bv>

**Keywords:** Anomaly detection, Experimental anomaly, Experimental falsification, Experimental verification, Albert Einstein, Arthur Eddington, Euler method, Equivalence principle, Falsification, Falsification principle, Gravity, Graphical representation, Graphical model, Edwin Hubble, Hubble expansion, Thomas S. Kuhn, History of science, Paul Langevin, Laser, Laser pulse, Laser pulse trajectory, Laser experiment, Light ray, Ray of light, Phenomena of light, Light bending, Light bending during solar eclipse, Light clock, Lorentz contraction, Lorentz transformation, Ernst Mach, Michelson and Morley, Michelson and Morley's experiment, Michelson and Morley null result, Mercury perihelion, Mercury perihelion precession anomaly, Model, Virtual model, Mathematical model, N-body planetary system, Flawed paradigm, Flawed contemporary paradigm, Photon phenomena, Photon trajectory, Popper Karl, Flawed postulate, Relativity, Special relativity, Relativity of simultaneity, Reference frame, Real and virtual space, Real location, Perfect rest, Real and mathematical space, Minkowski space, Einstein's thought experiment, Mach's thought experiment, Experiment of Torricelli, Real velocity in real space, Theodolite, Time travel, Philosophy of time travel, Twin paradox, Wobbling sun

**Abbreviations:** CS (contemporary science), CPBD (Contemporary Paradigms Believer and Defender), RS (Real Space), RV (Real Velocity), RVMD (Real Velocity Measuring Device), MWF (My Website Figure; reference index also to dynamic Figures through an internet web link since it is not possible to directly implement dynamic/animated time stamp type of Figures in a Word or PDF format based static publication/document)

**Figures** in this private communication are referred to as e.g. MWF2 (see *Abbreviations*). By clicking the link in Table 1 the dynamic figures will automatically open in your web browser.

MWF#	Link
MWF1	<a href="http://www.absolute-relativity.be/figures/Figure01.gif">www.absolute-relativity.be/figures/Figure01.gif</a>
MWF2	<a href="http://www.absolute-relativity.be/images2/G6_Animation.gif">www.absolute-relativity.be/images2/G6_Animation.gif</a>
MWF9	<a href="http://www.absolute-relativity.be/figures/Figure09_Animation.gif">www.absolute-relativity.be/figures/Figure09_Animation.gif</a>
MWF11	<a href="http://www.absolute-relativity.be/figures/Figure11.jpg">www.absolute-relativity.be/figures/Figure11.jpg</a>
MWF24	<a href="http://www.absolute-relativity.be/figures/Figure24_Animation.gif">www.absolute-relativity.be/figures/Figure24_Animation.gif</a>
MWF27	<a href="http://www.absolute-relativity.be/figures/Figure27_Animation.gif">www.absolute-relativity.be/figures/Figure27_Animation.gif</a>
MWF30	<a href="http://www.absolute-relativity.be/figures/Figure30_Animation.gif">www.absolute-relativity.be/figures/Figure30_Animation.gif</a>
MWF31	<a href="http://www.absolute-relativity.be/figures/Figure31_Animation.gif">www.absolute-relativity.be/figures/Figure31_Animation.gif</a>

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## **1. Introduction**

This private communication is intended as a "Sign Post" directing the reader along the contents of several of my private publications which reveal the existence of multiple flawed contemporary paradigms based on light/photons, including the corrected views and moreover the resulting important applications. Key in this all is a straightforward laser experiment of which the result clearly demonstrates the existence of a massive anomaly, thereby totally falsifying those multiple CS paradigms based on light/photons. *This publication incorporates an urgent call to an university or a research centre regarding an independent re-performing of a specific, but really straightforward, laser experiment, as explained further in this text.*

Publications in chronological order:

- I) a patent text on the concept of a RVMD (Real Velocity Measuring Device) (2006)
- II) a website [www.absolute-relativity.be](http://www.absolute-relativity.be) (2010-)
- III) YouTube videos (2010-)
- IV) a book "A shattered Equivalence Principle in Physics and a future History of multiple Paradigm Big Bangs in "exact" science ?" (2013-) (reference D1)
- V) a project at ResearchGate "Karl Popper's type of falsification, through theoretical and experimental anomalies, of multiple contemporary paradigms based on light phenomena." (2017-) which includes a series (references D2-D11) of 10 specific (short) publications/communications, extracted from the book.
- VI) a video presentation as a series of two videos Part 1 and Part 2
  - Part 1:** [http://www.absolute-relativity.be/video/Part1\\_Anomalies\\_Theortcl\\_E\\_Brauns.mp4](http://www.absolute-relativity.be/video/Part1_Anomalies_Theortcl_E_Brauns.mp4)  
or: <https://drive.google.com/open?id=1OOnAZGt4eWFM1pd5dVThVHe7pc6DRHSg>
  - Part 2:** [http://www.absolute-relativity.be/video/Part2\\_Anomalies\\_Exprmtl\\_E\\_Brauns.mp4](http://www.absolute-relativity.be/video/Part2_Anomalies_Exprmtl_E_Brauns.mp4)  
or: <https://drive.google.com/open?id=1d0b6owXTCGi2UKHBQYs63Z0Cz6Kai0Bv>

## 2. Goal of these publications

The main goal of the publications, listed in the introduction, is an urgent call to an university or a research centre regarding an independent re-performing of a specific, but really straightforward, laser experiment. Such a laser experiment was performed multiple time showing the same result over and over (MWF2 as one example) in a consistent and reproducible way. The result of the laser experiment represents a massive experimental anomaly, thus a massive Karl Popper's type of falsification of multiple CS paradigms based on light/photons. As Einstein also stated (thus conform to Popper's falsification principle) "*No amount of experimentation can ever prove me right; a single experiment can prove me wrong*". In Popper's view (multiple) verifications are very weak when compared with the ultimate strength of one single falsification. The confirmation of that experimental result thus will support the claim that multiple CS paradigms based on light/photons are totally flawed and need to be reconsidered/abandoned. The so-called multiple "verification" experiments "proving" such paradigms then indeed need to be re-investigated to determine the cause of their flawed conclusions. The history of science is spilling over with flawed scientific "paradigms" which became obsolete, as was clearly demonstrated by Thomas Kuhn in his research.

The reading of those publications thus should stimulate a support and a recommendation from the readers, regarding the main goal as described above, within their scientific environment. With respect to paradigm shifts in the history of science, Thomas Kuhn points to the importance of young researchers since they are still more open to think out of the box. Max Planck e.g. reported on a situation of denial when he was a young researcher (Planck M., Scientific Biography and Other Papers. Greenwood Press, Westport / Conn., 1949) about his findings related to entropy: "*The effect of my dissertation on the physics of those days was nil. None of my professors at the university had any understanding of its contents, as I learned for a fact in my conversations with them. They doubtless permitted it to pass as a doctoral dissertation only because they knew me by my other activities in the physical laboratory and in the mathematical seminar. But I found no interest, let alone approval, even among the very physicists who were closely concerned with the topic. Helmholtz probably did not read my paper at all. Kirchoff expressly disapproved of its contents, with the comment that entropy, whose magnitude could be measured by a reversible process only, and therefore was definable, must not be applied to irreversible processes. I did not succeed in reaching Clausius. He did not answer my letters, and I did not find him at home when I tried to see him in person in Bonn. I carried on a correspondence with Carl Neumann, of Leipzig, but it remained totally fruitless. .... It is one of the most painful experiences of my entire scientific life that I have but seldom - in fact, I might say, never - succeeded in gaining universal recognition for a new result, the truth of which I could demonstrate by a conclusive, albeit only theoretical proof. That is what happened this time too. All my sound arguments fell on deaf ears. It was simply impossible to be heard against the authority of men like Ostwald, Helm and Mach. ...In my opinion a new scientific truth does not triumph by convincing its opponents **and making them see the light**, but rather because its opponents eventually pass away, and a new generation grows up with it that is familiar with it.*". (Note: the reader can also have a look at section 13 in D1 regarding the tenacity of CPBDs).

The indicated publications D1-D11 discuss multiple CS paradigms. For example:

- the world famous Michelson\_Morley null result paradigm is shown to be flawed
- the Eddington light bending paradigm as the "very first proof" of Einstein's relativity

theory is exposed since indeed that "proof" is considered nowadays to be inclusive and thus not any longer a proof

- the second "proof" of Einstein's relativity theory, linked to the Mercury precession "anomaly", can also be questioned from basic reasons (an exact N-body model simply does not exist) but moreover also from the fact that the significant wobbling effect of the sun (a wobbling of the sun in real space over a distance larger than its own diameter) was seemingly not/never included in the analysis...

At first however and moreover: multiple massive anomalies/inconsistencies regarding the theoretical CS light/photon modeling approach will be presented to the reader thereby already clearly pointing to the severely flawed character of multiple CS paradigms based on light/photons. Then the result of a straightforward laser experiment proves the flawed character of the CS approach on light/photons. The discussions within all of the publications are based on photons, clearly revealing those massive theoretical and experimental inconsistencies/anomalies in the CS approach.

### **3. Suggested sequence of the reading of these publications**

The chronology of the different publication formats is indicated in the introduction. Such could be a valid basis for a reader as an order of sequence to read/view those publications. Perhaps other approaches could be preferred by a reader but here one specific sequence of reading is suggested, being based on the series of short private publications within the ResearchGate project "*Karl Popper's type of falsification, through theoretical and experimental anomalies, of multiple contemporary paradigms based on light phenomena.*" The publications linked to that project were indeed all extracted from the book (D1) "*A shattered Equivalence Principle in Physics and a future History of multiple Paradigm Big Bangs in "exact" science ?*". These publications are indexed as D2, D3, ....., D11 (see the list of references; "D" refers to "downloadable" since those publications can be downloaded from the website and at ResearchGate through the internet links in the references). It is thus suggested to read D1 after having read all or most of the publications D2, D3, ....., D11 according to the following steps (/sequence).

#### **Step 1. Revealing the massive theoretical anomalies/inconsistencies existing in the CS description of light phenomena (reference D2)**

It is advised to read D2 first since it discusses, as a starter, specific massive anomalies/inconsistencies within CS regarding the description of light phenomena in RS. The severe anomalies can be easily demonstrated when reasoning on the basis of photons. The reader can find in D2\_2.1, D2\_2.2 and D2\_2.3 three classic CS examples being linked to the CS based graphical representations of the trajectory of a laser pulse (thus also a photon). CPBDs of course consider those three representations as fully correct. CPBDs also accept specific thought experiments (as e.g. those introduced by Einstein). CPBDs thus also should accept the introduction, within D2\_3.1, of a thought experiment based on the very same model approach as defended by the CPBDs in D2 (D2\_2.1, D2\_2.2 and D2\_2.3). The CPBDs will then be confronted with the results as demonstrated in the graphical representations in MWF24 and MWF27 which clearly confront the CPBDs with an insurmountable massive inconsistency/anomaly in the CS theoretical representation of light/photon phenomena. D2\_3.2 also demonstrates a second massive inconsistency/paradox. The contents of D2 thus

definitely should initiate serious doubts in the reader's mind regarding the classic CS representations as demonstrated in D2\_2.1, D2\_2.2 and D2\_2.3. Those doubts about such CS approach will only grow stronger when going through step 2.

**Step 2. A straightforward laser experiment proving a massive anomaly in the CS theory on light phenomena (reference D3)**

After having read D2 in detail, the reader is definitely expected to start questioning and re-considering CS graphical representation principles regarding light/photon phenomena. The reader thus will start to doubt e.g. the simplistic CS "ray of light" model approach and judge it to be flawed. The reader should however realize that such simplistic "ray of light" model is nevertheless still strongly defended by CPBDs and CS since that model was e.g. used by Michelson and Morley in their world famous paper, representing their so-called "null-result" experiment: [www.absolute-relativity.be/pdf/MichelsonAndMorleyPaper1887.pdf](http://www.absolute-relativity.be/pdf/MichelsonAndMorleyPaper1887.pdf)

The graphical representation by Michelson and Morley in their paper (see their original Figures 1 and 2 in their paper) is indeed still accepted and defended by CPBDs and CS as being totally correct (see again in that respect D2\_2.1, D2\_2.2 and D2\_2.3 and the three classic CS examples). In this step 2, the reader will learn about an experimental falsification of the CS graphical representation principles. The falsification can be done through a straightforward laser experiment, as discussed in D3\_3. A series of identical laser experiments were performed to control the consistency/reproducibility of the experimental result: multiple experiments indeed showed over and over the same result (as represented in MWF2 for one of those experiments). The result shown in MWF2 of course demonstrates a massive anomaly regarding the CS paradigms, based on light/photons. It thus represents a very strong Popper type of falsification of the validity of the CS light modeling approach, such as used by e.g. Michelson and Morley, but also in multiple other CS paradigms based on light. The reader will indeed experience that falsification of other CS paradigms based on light/photons when reading further, by following the next steps.

**Step 3. A destructive critique on the Michelson and Morley experimental "null-result" CS paradigm, revealing its flaws (reference D4)**

The Michelson and Morley experiment is considered by CS as a world famous experiment and its outcome as an astonishing null-result. In Step 2 a reference was already made to that experiment (a download link of the Michelson and Morley paper was given there also). Therefore the reader is able to read the contents of the Michelson and Morley paper in detail, as well as the discussion within D4\_2.1. Then the reader will be introduced in D4\_2.2 to the flaws within the graphical representation (/model) that was used by Michelson and Morley. In D4\_2.3 it is indicated that it is essential for a correct modelling of the Michelson and Morley experiment to switch to photons and abandon the simplistic and incorrect "ray of light" approach. As a result, in D4\_2.4 a mathematical simulation is then presented to the reader which demonstrates that a very significant lateral shift effect (as observed by the moving observer) of the photons being reflected by the 45° slanted mirror in the Michelson and Morley set-up was not considered by CS up to now. On top of that, it is also indicated to the reader that the specific Michelson and Morley experimental set-up used multiple mirrors in order to reflect the light over a sufficiently large total distance in their set-up. Those multiple mirrors needed to be slanted at an angle and therefore could very plausibly have ruined the outcome of the experiment by amplifying the lateral shift effect of the photons (lateral shift effect as a result of the very high velocity of our planet in its orbit around the sun). It is also indicated that the so-called null-result was moreover not at all a 100% null-result since the

expected trend is indeed visible within the original Figure 6 in the Michelson and Morley paper but was considered too faint as a signal when compared to the expected signal magnitude. The plausible cause of that weak interference signal thus can be found in the:

- a) flawed graphical model based on the simplistic "ray of light" concept
- b) therefore overlooked significant lateral signal shift at the detector between both "ray of lights" as a result of our planet's very high orbit velocity around the sun
- c) plausible magnification effect from the multiple slanted mirrors (Figure 8.6 in D4).

The Michelson and Morley null-result paradigm is flawed and moreover totally countered by the experimental result from the much more straightforward laser experiment, as discussed in D3.

**Step 4. A destructive critique on Lorentz contraction CS paradigm revealing its flaws (reference D5)**

The Michelson and Morley experiment and its astonishing "null-result" was the basis for Lorentz to suggest his (*Lorentz*) contraction equation as the "only possible explanation" for that null-result. The Lorentz contraction equation is thus a virtual construct by the human mind to cope with an unexpected null-result from the Michelson and Morley experiment. The Michelson and Morley experimental null-result was however challenged in D4. It was indicated that the theoretical inconsistencies/anomalies discussed in D2 and the experimental massive anomaly discussed in D3 prove that the Michelson and Morley experiment must be flawed. (*Note: the laser experiment indicated in D3 is thus also a much more straightforward experiment when compared with the Michelson and Morley experiment and fully counters that null-result. Moreover that laser experiment is highly sensitive since a signal amplitude of the order of 1 mm is obtained for a distance of 10 m*).

In D5\_2.1 [D5\_equations(1-10)] the derivation of the Lorentz contraction equation is presented (on the basis of the Michelson and Morley graphical representation, within their original Figures 1 and 2 of the light phenomena). In D5\_2.2 the flaws regarding the Lorentz contraction paradigm are then explained. As a result from D4-D5 the reader thus is confronted with several flawed CS paradigms such as the flawed Michelson and Morley "null-result" paradigm as well as the flawed Lorentz contraction paradigm.

**Step 5. A destructive critique on the first proof of Einstein's relativity theory: Eddington's solar eclipse mission studying the bending of star light by the sun is considered nowadays as being inconclusive (reference D6)**

The results of the solar eclipse mission by Eddington was considered as the very first proof of Einstein's relativity theory and (both persons) became world famous overnight. The photographs taken from the stars in the periphery of the sun during the solar eclipse were claimed by Eddington as proving the bending of star light by the sun, according to the predictions by the relativity theory. However, as explained in D6\_2 nowadays that "proof" is considered as being inconclusive. Later solar eclipse missions with sophisticated telescopes, computer hardware and software did not result in conclusive results either. It is advised to the reader to read the full D6-Appendix I, also regarding the four approaches to calculate the bending of starlight by the sun (and certainly Einstein's peculiar integration approach in D6\_12.10.2.d) :

- D6\_12.10.2.a discusses the light bending on the basis of the CS equivalence principle

- and the reader is therefore advised to also read Appendix II
- D6\_12.10.2.b discusses the light bending "on the basis" of Newton's gravitation theory
  - D6\_12.10.2.c discusses the light bending as calculated through an Euler method, also "on the basis" of Newton's gravitation theory
  - D6\_12.10.2.d discusses the light bending as modeled by Einstein in his 1911 publication (it is also explained there that Einstein used a very peculiar integration approach since he integrated paradoxically a straight line model to calculate its bending... The full integration that Einstein must have done is implemented and shows his "linear" approach to calculate a "bending" ...)

**Step 6. A critique on the second proof of Einstein's relativity theory: the wobbling of the sun as a possible alternative explanation of the extremely small Mercury perihelion precession "anomaly" was never looked into and thus questions Einstein's Mercury based "proof" of his relativity theory. (reference D7)**

More than a century ago the theoretical/calculated precession value (based on Newton's gravity laws) was considered to be "anomalous" with respect to the observed value of the perihelion precession of Mercury. There was a very small difference of only 43 arc seconds per 100 years between the observed/measured perihelion precession value (per 100 years only a minute 575 arc seconds =  $0.159^\circ$ ) and the theoretically calculated value (per 100 years 532 arc seconds =  $0.147^\circ$ ). Einstein suggested in 1915 that this "anomaly" was also a test case for his relativity theory. Einstein derived later an equation from his relativity theory, predicting exactly the value of the "missing" 43 arc seconds, thus in an incredible precise way. In D7 however a critique on the Mercury "anomaly" paradigm is given. At first it should be stressed that in contemporary science there is simply no exact solution (model) for Newton's gravitational configuration of a N-body system ( $N > 2$ ; thus also not for the system of the 8 planets and the sun). A model calculation evidently should be able to save the real phenomena occurring in real space. Therefore the question can definitely be raised what the meaning is of the "calculated" value of 532 arc seconds per 100 years (being calculated at that time without computers being available) regarding its degree of "saving the real precession phenomenon in real space of the perihelion of Mercury". If the latter calculated value in fact thus originates from a theoretical/mathematical non-exact solution (model calculation producing a non-exact model value) and if there isn't any reference value from an exact solution: how can one consider an "anomaly" to exist between the observed value and a "calculated value"? Secondly and even more important it seems that the calculated value was generated (moreover at that time since Einstein already used that value) by model calculations in which the sun was considered to be that massive that the assumption was made that the sun can be considered to be in a fixed position in the model. In the literature therefore even only an oblateness of the sun is mentioned as being studied in the past in eventually trying to explain the Mercury "anomaly". It thus seems that contemporary science did not consider much more than an oblateness of the sun with respect to a possible additional role of the sun in the perihelion precession of Mercury. As a result, a study was undertaken to investigate the validity of the simple CS assumption of a fixed position of our sun in the configuration in real space of the 8 planets and the sun. An Euler based method was therefore applied to model the orbits of the planets in the solar planetary system without the assumption of a fixed sun. These model/simulation results reveal that our sun cannot be considered as to be located in a rigid position, as assumed wrongly in the (contemporary) calculations with respect to the precession of the Mercury perihelion. A contemporary approach in placing the sun in a rigid position in the origin of the model reference frame is then flawed. When implementing in the

Newton's gravity based mathematical model the sun to participate in the global movement of the celestial bodies a significant wobbling effect of the sun in real space reveals. The expected wobbling effect of the sun is larger than the sun's diameter according to the preliminary model results (thus of course much more important than a marginal oblateness of the sun). It is thus suggested that specialized centre's should re-calculate in much more detail in a three-dimensional model on more powerful computers the expected significant wobbling effect and to investigate the possibility of a sun's wobbling as a plausible real cause of the so-called perihelion precession "anomaly" of Mercury. The extensive discussion and calculations can be found in D7\_AppendixI, as a somewhat shortened version of D1\_12.9.

**Step 7. A destructive critique on the CS graphical representation of a light clock as being totally flawed; a corrected view is thus presented (reference D8)**

In D8 the CS light clock paradigm and Paul Langevin's twin paradox are discussed. In D8 the core information from D1 was implemented in order to demonstrate that the CS light clock paradigm is totally flawed. In D8\_2.1 the CS light clock paradigm views are demonstrated by three examples as published at the internet (D8\_FigureA, D8\_FigureB and D8\_FigureC, including the internet links). In D8\_2.2 the flaws within the CS light clock paradigm is explained. Since the very same reference frames approach is applied as used by Michelson and Morley, a CPBD cannot refuse/counter/question the implementation of two reference frames and two observers (Obs1 at rest and Obs2 moving) and the corresponding discussion of the CS model inconsistencies, thus CS paradigm flaws. The flawed CS view and the corrected view are demonstrated in MWF30. Also the fundamental error being made by CS is pointed to, by my claim: "***In the contemporary mathematical reference frames it is even impossible to graphically represent correctly a photon's past location in RS in a reference frame, linked to an observer such as Obs2 moving in RS***". Such is visualized in MWF11. As a result of the flawed CS light clock paradigm, the CS relativity paradigm which considers it to be theoretically perfectly possible to travel into the future merely degenerates into a fiction, only existing in the human mind but without any link to the reality outside that human mind. Paul Langevin was to the point when introducing his twin paradox, challenging the Lorentz contraction and thus also Einstein's relativity theory in that respect. It also becomes very clear that for the modeling of the trajectories of photons in the virtual (mathematical reference frames based) spaces created by the human mind a totally different approach regarding the saving of photon phenomena needs to be developed (of which the onset is given in MWF11). It can also be clearly explained why the velocity of light is indeed a constant in whatever reference frame but then on a totally different basis when compared to the wrong basis which Einstein/Lorentz/CS use(d) for the CS postulate on the "constancy of the velocity of light". Up to now it seems that CS and CPBDs have not been aware of their totally flawed use of virtual/mathematical/graphical representations (in whatever form known in CS) of  $(x,y,z,(t))$  reference frames in the case of the modelling of light/photon phenomena occurring in RS. Such CS models should save the real photon phenomena but after having gone through the steps 1-7 the reader now realizes that CS is unable to save such photon phenomena in any of the CS reference frames being used up to now. As a result: CS and CPBDs should urgently re-perform independently the straightforward laser experiment and, after indeed obtaining their own confirmation of the result as shown in MWF2, they will be obliged to accept that claim (above in bold in the text of this step 7). A complete new modelling approach should be implemented regarding the representation of photon trajectories in reference frames linked to observers moving in RS. The actual CS type of virtual Lorentz transformation approach, based on a simple Pythagorean right angle triangle theorem, is irrelevant/flawed in trying to save the real phenomena of the trajectory of a photon in RS.

**Step 8. The concept of a real velocity measuring device (RVMD) is presented (reference D9)**

In D9 the principle of a RVMD in RS is explained, which enables the measurement of the full RV vector of a material object travelling in RS. Mach's relativity paradigm claiming "*that there is no method available to measure the velocity of a material object Obj1 travelling in space, without having a reference material object Obj2 to measure the, then relative to Obj2, velocity of Obj*" is thus flawed. The suggested RVMD is indeed able to even measure e.g. a space ship's full RV vector in RS in the closed confinement of the interior of the space ship, thus totally without the need of any Obj2 "reference", outside the space ship. To understand the RVMD principle it is necessary that the reader has followed the preceding steps in order to understand the flaws within the CS paradigms such as the Michelson and Morley so-called null-result, the Lorentz contraction and the light clock. The reader then can read the remarks within D9\_2.1 regarding RS and RV as an introduction to D9\_2.2, which explains the feasibility of a RVMD. Specific figures such as MWF1, MWF9 and MWF10 are implemented in D9 to demonstrate the principles involved. The RVMD patent text related figures are also included in D9. In D9 also a discussion is implemented about the meaning of RS and the peculiar comments by Lorentz on space in the Michelson and Morley publication. Lorentz also referred to the Torricelli experiment in the Michelson and Morley publication and therefore the excellent example of the Torricelli experiment is discussed again in D2\_2.3 in order to demonstrate the real meaning of RS. Also the Hubble expansion is discussed in order to counter an eventual critique from a CPBD. In D9\_2.4 a number of technical suggestions are discussed regarding the build of a RVMD. The RVDM is a major application resulting from the views in D1-D11.

(Note: even regarding the LIGO experiment a question, linked to the Hubble space expansion effect, is raised in D9\_2.5\_Appendix).

**Step 9. A destructive critique on Einstein's "relativity of simultaneity" thought experiment revealing the flaws in that thought experiment (reference D10)**

In D10 the core information about Einstein's flawed relativity of simultaneity thought experiment paradigm was specifically extracted from D1\_12.6. In Einstein's first publication on his special relativity theory, he used a thought experiment involving a train (track/railway embankment), an Observer1 "at rest" along the railway embankment and an Observer2 travelling in a compartment of the train (D9\_2.1). Observer1 is located along the train track (railway embankment) in location\_M which is precisely the midpoint M between a location\_A on the train track to the left of Observer1 and a location\_B on the train track to the right of Observer1. The train and Observer2 are travelling at a constant velocity in the direction of location\_B. Precisely at the time instance that Observer2 passes Observer1 at the location\_M, a lightning strike A occurs in location\_A. Precisely at the same time instance another lightning strike B occurs in location\_B. Einstein then reasons in his thought experiment that Observer1 must observe the lightning strike A and the lightning strike B at the same time instance in the midpoint location\_M. However, Einstein claims that Observer2 observes the lightning strike B earlier than the lightning strike A. He claims such from "*Observer2 moves towards the lightning strike B and observes the lightning strike B earlier than the lightning strike A*". He then states that Observer2 must conclude that the two lightning strikes were not simultaneous while Observer1 concludes that the two lightning strikes were simultaneous. He calls such the "*relativity of simultaneity*" for both observers. According to Einstein, moving observers will experience the relativity of simultaneity for

events happening simultaneous. In CS, Einstein's thought experiment is still considered as a proof of that "*relativity of simultaneity*". However, in D10\_2.2, D10\_2.3 and D10\_2.4 it is demonstrated that his thought experiment is flawed and that his relativity of simultaneity claim is wrong. In Einstein's thought experiment there is no analysis of the difference in the location and time instances of the photons meeting the moving Observer2. In D10\_2.3 a first arbitrary example is introduced and calculated, demonstrating the flaws in Einstein's thought experiment. Those flaws are also clearly revealed in D10\_2.4 and MWF31 as a second arbitrary, trivial and straightforward example of such an elementary analysis. The observer moving in RS is shown to be perfectly able to back-calculate the simultaneity of the photon events. Such is made possible from the RVMD data. Einstein's "*relativity of simultaneity*" claim is thus flawed and thus not a supporting "proof of special relativity".

### **Step 10. Applications (reference D11)**

The views discussed in the publications D1-D10 can also lead to important applications on our planet and in space travel. In D9 the concept of a RVMD was already explained. Such a RVMD can be implemented in a space vehicle and measures its high velocity when travelling at high velocity in RS. Therefore space agencies should obviously be interested in such a concept ... In D11 two additional applications are discussed. Evidently, the manufacturers of high accuracy theodolites should also be interested. But it seems to take a lot of time before those organizations are grasping the real meaning of the presented information. As one can read in D1\_13: the tenacity of the CPBDs in such organizations not to (dare to, want to, be interested to, take an effort to, ...) think out of the box is extremely high. Up to now none of the CPBDs linked to such organizations and being contacted seem to have experienced the needed Gestalt Switch or did not want to do so for one or another reason (see the Max Planck experience). Only a hiding in silence by those was a general response. In D11\_4.1 the importance of the views discussed in D1-D10 is explained for high accuracy theodolite measurements. An error of over 20 arc seconds is possible while theodolite builders claim a resolution of 1 arcsec for their high accuracy theodolites: the error effect is then already a order of magnitude (a decade) higher without being taken into account and thus not implemented in the calculations (software). Since the measurement error principles are fully analogous for subsistence hunting, rifle scope based targeting, the reader can find information in D11\_4.2 on the significant targeting errors involved when not correcting for the important photon trajectory effect. In short for a subsistence hunting rifle scope: since the photons depart from the target at a time instance  $t_1$  and only arrive at a time instance  $t_2 > t_1$  at the scope the observed image in the scope is thus linked to the "old"  $t_1$  related location of the target in RS while the target (as a result of the very high speed of our planet in RS) has moved to a "new"  $t_2$  related location in RS. The subsistence hunter thus aims at the "old" location image of the target while in reality the target has shifted in RS. The mismatch effect can be up to 10 cm for a distance of 500 m which is substantial. This may look incredible at a first glance and even considered as nonsense by CPBDs but then the straightforward laser experiment as discussed in D3 (MWF2!) proves that the mismatch effect is very real. It is thus in fact the CPBDs who are still believing, already for a very long period of time now, their incredible views regarding their description of light/photons, as demonstrated by CPBDs in their totally flawed examples presented in D2\_2.1, D2\_2.2 and D2\_2.3.

## **4. Conclusion**

When having read all of the information in D2-D11 the reader can also have a look at the broader contents of the extended publication D1 (over 400 pages), which is the source of D2-

D11. In D1 the sections 7-12 deal with the contents of D2-D11. In D1, the sections 3-6 were originally intended to first give a reader an idea about the aspects of the erratic pathway of the scientific developments and the evolution of scientific paradigms, during the history of science. The sections 3-6 in D1 should stimulate a reader, who is not familiar at all with the bumpy evolution (and often the decay) of many "paradigms" in the history of science, to perceive the CS paradigms on a critical basis and to dare to challenge specific CS paradigm views linked to the description of light/photon phenomena. Thus to dare thinking out of the CPBDs boxes, even in this time era.

## **References to the Downloadable Publications D1-D11**

The index "D#" is used since those publications are all downloadable

**D1)** Etienne Brauns, *A shattered Equivalence Principle in Physics and a future History of multiple Paradigm Big Bangs in "exact" science ?*

This extended (notary registered) publication (book) can be downloaded at <http://www.absolute-relativity.be>

**D2)** Etienne Brauns, *On multiple anomalies and inconsistencies regarding the description of light phenomena in contemporary science*

Website : [http://www.absolute-relativity.be/pdf/MultipleAnomalies\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/MultipleAnomalies_EBrauns.pdf) (version including the Annex)

GoogleDrive: <https://drive.google.com/open?id=1dTWbiDxzmVnGUoCUwAdFziS1i7AHY5Bd>

Researchgate:

[https://www.researchgate.net/publication/312190993\\_On\\_multiple\\_anomalies\\_and\\_inconsistencies\\_regarding\\_the\\_description\\_of\\_light\\_phenomena\\_in\\_contemporary\\_science](https://www.researchgate.net/publication/312190993_On_multiple_anomalies_and_inconsistencies_regarding_the_description_of_light_phenomena_in_contemporary_science)

[https://www.researchgate.net/publication/312591154\\_Annex\\_1\\_to\\_On\\_multiple\\_anomalies\\_and\\_inconsistencies\\_regarding\\_the\\_description\\_of\\_light\\_phenomena\\_in\\_contemporary\\_science](https://www.researchgate.net/publication/312591154_Annex_1_to_On_multiple_anomalies_and_inconsistencies_regarding_the_description_of_light_phenomena_in_contemporary_science)

**D3)** Etienne Brauns, *On a massive anomaly through a straightforward laser experiment falsifying the equivalence principle for light.*

Website : [http://www.absolute-relativity.be/pdf/ExperAnomLaser\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/ExperAnomLaser_EBrauns.pdf)

GoogleDrive: [https://drive.google.com/open?id=1Bpetv\\_AVwD9GKHsDHRNXFGhwYXrL8CST](https://drive.google.com/open?id=1Bpetv_AVwD9GKHsDHRNXFGhwYXrL8CST)

Researchgate :

[https://www.researchgate.net/publication/313030370\\_On\\_a\\_massive\\_anomaly\\_through\\_a\\_straightforward\\_laser\\_experiment\\_falsifying\\_the\\_equivalence\\_principle\\_for\\_light](https://www.researchgate.net/publication/313030370_On_a_massive_anomaly_through_a_straightforward_laser_experiment_falsifying_the_equivalence_principle_for_light)

**D4)** Etienne Brauns, *On the flawed Michelson and Morley experiment null-result paradigm*

Website : [http://www.absolute-relativity.be/pdf/MichelsonMorley\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/MichelsonMorley_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1ufWJMEpVfVbVPXMzHjxuMcrd4U6tzRM>

Researchgate :

[https://www.researchgate.net/publication/318969438\\_On\\_the\\_flawed\\_Michelson\\_and\\_Morley\\_experiment\\_null-result\\_paradigm](https://www.researchgate.net/publication/318969438_On_the_flawed_Michelson_and_Morley_experiment_null-result_paradigm)

**D5)** Etienne Brauns, *On a flawed Lorentz contraction paradigm caused by an erroneous Michelson-Morley model and null-result.*

Website: [http://www.absolute-relativity.be/pdf/Lorentz\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/Lorentz_EBrauns.pdf)

GoogleDrive: [https://drive.google.com/open?id=1pOFu4k30LRTt51F14dod\\_InKM8BUJYOP](https://drive.google.com/open?id=1pOFu4k30LRTt51F14dod_InKM8BUJYOP)

Researchgate :

[https://www.researchgate.net/publication/319128677\\_On\\_a\\_flawed\\_Lorentz\\_contraction\\_paradigm\\_caused\\_by\\_an\\_erroneous\\_Michelson-Morley\\_model\\_and\\_null-result](https://www.researchgate.net/publication/319128677_On_a_flawed_Lorentz_contraction_paradigm_caused_by_an_erroneous_Michelson-Morley_model_and_null-result)

**D6)** Etienne Brauns, *On the inconclusiveness of the results from the Eddington 1919 solar eclipse mission to measure the bending of light.*

Website: [http://www.absolute-relativity.be/pdf/Eddington\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/Eddington_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1H9Egu0fUrZeJGzJlqQsE99zrFX-aaPft>

Researchgate :

[https://www.researchgate.net/publication/319262673\\_On\\_the\\_inconclusiveness\\_of\\_the\\_results\\_from\\_the\\_Eddington\\_1919\\_solar\\_eclipse\\_mission\\_to\\_measure\\_the\\_bending\\_of\\_light](https://www.researchgate.net/publication/319262673_On_the_inconclusiveness_of_the_results_from_the_Eddington_1919_solar_eclipse_mission_to_measure_the_bending_of_light)

**D7)** Etienne Brauns, *The Mercury perihelion precession: a critique on the anomaly and a plausible additional effect of the sun.*

Website: [http://www.absolute-relativity.be/pdf/Mercury\\_Anomaly\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/Mercury_Anomaly_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1I0-6fUuHFoVS41kaW7UXAs5xFZrknc6t>

Researchgate :

[https://www.researchgate.net/publication/319395513\\_The\\_Mercury\\_perihelion\\_precession\\_a\\_critique\\_on\\_the\\_anomaly\\_and\\_a\\_plausible\\_additional\\_effect\\_of\\_the\\_sun](https://www.researchgate.net/publication/319395513_The_Mercury_perihelion_precession_a_critique_on_the_anomaly_and_a_plausible_additional_effect_of_the_sun)

**D8)** Etienne Brauns, *On the totally flawed contemporary light clock paradigm and on Paul Langevin's twin paradox being to the point.*

Website: [http://www.absolute-relativity.be/pdf/LightClock\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/LightClock_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1-EkK98IEY0-QrHX1KQdkrqFQftz0E9kK>

Researchgate :

[https://www.researchgate.net/publication/320187876\\_On\\_the\\_totally\\_flawed\\_contemporary\\_light\\_clock\\_paradigm\\_and\\_on\\_Paul\\_Langevin%27s\\_twin\\_paradox\\_being\\_to\\_the\\_point](https://www.researchgate.net/publication/320187876_On_the_totally_flawed_contemporary_light_clock_paradigm_and_on_Paul_Langevin%27s_twin_paradox_being_to_the_point)

**D9)** Etienne Brauns, *On a device, measuring in real space the real velocity of an object and on Mach's flawed relativity thought experiment.*

Website: [http://www.absolute-relativity.be/pdf/RealVelocityDevice\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/RealVelocityDevice_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1Ccz0p7JCR5Hyv14pcrIhWjr2dj5dQTI6>

Researchgate :

[https://www.researchgate.net/publication/320417484\\_On\\_a\\_device\\_measuring\\_in\\_real\\_space\\_the\\_real\\_velocity\\_of\\_an\\_object\\_and\\_on\\_Mach's\\_flawed\\_relativity\\_thought\\_experiment](https://www.researchgate.net/publication/320417484_On_a_device_measuring_in_real_space_the_real_velocity_of_an_object_and_on_Mach's_flawed_relativity_thought_experiment)

**D10)** Etienne Brauns, *On Einstein's relativity of simultaneity thought experiment as a flawed contemporary paradigm.*

Website: [http://www.absolute-relativity.be/pdf/RelativSimult\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/RelativSimult_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1NV3BMvCA1goLWIFEIZcEkGxvHOc1EM-k>

Researchgate :

[https://www.researchgate.net/publication/320740411\\_On\\_Einstein%27s\\_relativity\\_of\\_simultaneity\\_thought\\_experiment\\_as\\_a\\_flawed\\_contemporary\\_paradigm](https://www.researchgate.net/publication/320740411_On_Einstein%27s_relativity_of_simultaneity_thought_experiment_as_a_flawed_contemporary_paradigm)

**D11)** Etienne Brauns, *On a significant systematic measurement error during photon based theodolite observations and also during hunting rifle scope based targeting.*

Website: [http://www.absolute-relativity.be/pdf/Theodolite\\_Scope\\_SystError\\_EBrauns.pdf](http://www.absolute-relativity.be/pdf/Theodolite_Scope_SystError_EBrauns.pdf)

GoogleDrive: <https://drive.google.com/open?id=1vNqjeIwrZygy7TP3ERkF4G8x1-4-tuUI>

Researchgate:

[https://www.researchgate.net/publication/318684761\\_On\\_a\\_significant\\_systematic\\_measurement\\_error\\_during\\_photon\\_based\\_theodolite\\_observations\\_and\\_also\\_during\\_hunting\\_rifle\\_scope\\_based\\_targeting](https://www.researchgate.net/publication/318684761_On_a_significant_systematic_measurement_error_during_photon_based_theodolite_observations_and_also_during_hunting_rifle_scope_based_targeting)