

Comparison of Inertial Frame of Reference in 5D L^3T^2 vs. 4D L^3T^1 Envelopes Misconception between $E=mc^2$ and $E=hf$

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Abstract

Recently,¹²³⁴⁵ it has been worked out that the circle number connects space and time : space-time is 5 dimensional, i.e. comprises three space and two time dimensions : L^3 and T^2 . And experiment was suggested and confirmed the predicted phenomenon that $\pi = \text{Unit of time} / \text{Unit of length}$. (Speed of light is given by rotation of earth). Here a short geometrical comparison of a Inertial Frame of Reference in 5D L^3T^2 vs. 4D L^3T^1 is given. It is found that $E=mc^2$ and $e=hf$ can be derived geometrically from 5D Space-time, but are incompatible. It is shown geometrically, why quantum theory and general relativity are incompatible and how this can be remedied.

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¹ Pohl M.U.E (2022): Search for the World Formula, Scientific God Journal Vol 13 No1, <https://scigod.com/index.php/sgj/article/view/781>

² Pohl M.U.E (2019): Unified Principles of Nature, Scientific God Journal Vol 10 No3, <https://scigod.com/index.php/sgj/article/view/669>

³ Pohl M.U.E. (2023); Origin of Speed of Light http://www.villa2060.org/images/papers/origin_of_speed_of_light.pdf

⁴ Pohl M.U.E. (2023): Why the 5th Dimensional Space-Time is also a Proof of Good, http://www.villa2060.org/images/papers/Why_the_fifth_dimensional_space-time_is_also_a_proof_of_God.pdf

⁵ Pohl M.U.E. (2023): Causality and arrow of time in 5-dimensional Space-Time, http://www.villa2060.org/images/papers/Causality_and_Arrow_of_time_in_5D_Space-time.pdf

About the history of inventing the “inertial system of reference” in en.wikipedia is found the information “Ludwig Lange (born 21 June 1863 in Gießen; died 12 July 1936 in Weinsberg) was a German physicist. Lange is known for inventing terms like inertial frame of reference and inertial time (1885), which were used by him instead of Newton's "absolute space and time". This was very important for the development of relativistic mechanics after 1900. DiSalle describes Lange's definition in this way:

‘An inertial system is a coordinate system with respect to which three free particles, projected from a single point and moving in non-coplanar directions, move in straight lines and travel mutually-proportional distances. The law of inertia then states that relative to any inertial system, any fourth free particle will move uniformly.’ ⁶

Today, relativistic physics, above all Einstein's theories, as explained in "Causality and arrow of time in 5-dimensional Space-Time",⁷ is based on the false assumption that a three-dimensional space is given by three coordinates in space and one coordinate in time. This is a false analysis of reality.

A useful inertial system at rest in physics to model reality is only given by an observer conceived at the same point, who remains in absolute calm. In order to connect time and space, however, this observer is also thought of as a rigid point that has an axis of rotation and this axis of rotation defines a standstill, i.e. just as the coordinate of origin of space defines a "zero point" the coordinate of origin of time must also define a “zero point”. (this btw. rules out all singularities like Black holes and big bang).

In other words, a four-dimensional inertial frame of reference implies the premise that an observer could look at the universe from the "outside", i.e. travel parallel (unaccelerated) next to a photon to observe it. However, this is not possible without the observer representing a new, second inertial system at the same time, which is a contradiction of the idea of a inertial rest frame. In physics, an inertial system as a reference point at rest must be defined by five points, or 5 zero vectors or 5 dimensions:

A "point" that is absolutely at rest is given by

1. Dimension of space $x=0$ (L_1) – corresponding to physical ‘Quality’ length [m]
2. Dimension of space $y=0$ (L_2) – corresponding to physical ‘Quality’ surface [m²]
3. Dimension of space $z=0$ (L_3) – corresponding to physical ‘Quality’ Volume [m³]
4. Time dimension axis of rotation = 0 (T_1) – corresponding to physical ‘Quality steady motion [m/s]
5. Time dimension rotation speed = 0 (T_2) – corresponding to physical ‘Quality accelerated motion [m/s²]

⁶ [https://en.wikipedia.org/wiki/Ludwig_Lange_\(physicist\)](https://en.wikipedia.org/wiki/Ludwig_Lange_(physicist))

⁷ Pohl, M.U.E.: Causality and arrow of time in 5-dimensional Space-Time, 2023

http://www.villa2060.org/images/papers/Causality_and_Arrow_of_time_in_5D_Spacetime.pdf

Contrary to Einstein's postulate of a constant speed of light, we postulated that there is only one universal constant of nature, and this represents the number "1" or a circle, i.e. the circle number π , so that

$$" \pi " = \frac{\text{Circumference of a circle}}{\text{Diameter of a circle}} = \frac{\text{unit of time}}{\text{unit of length}} \tag{1}$$

It is presented here a geometrical comparison for 5D Time-Space to be physical reality, because our "Thinking", the mind of the observer, the human brain structure uses the 5D Frame to located the human body in 3D Space.

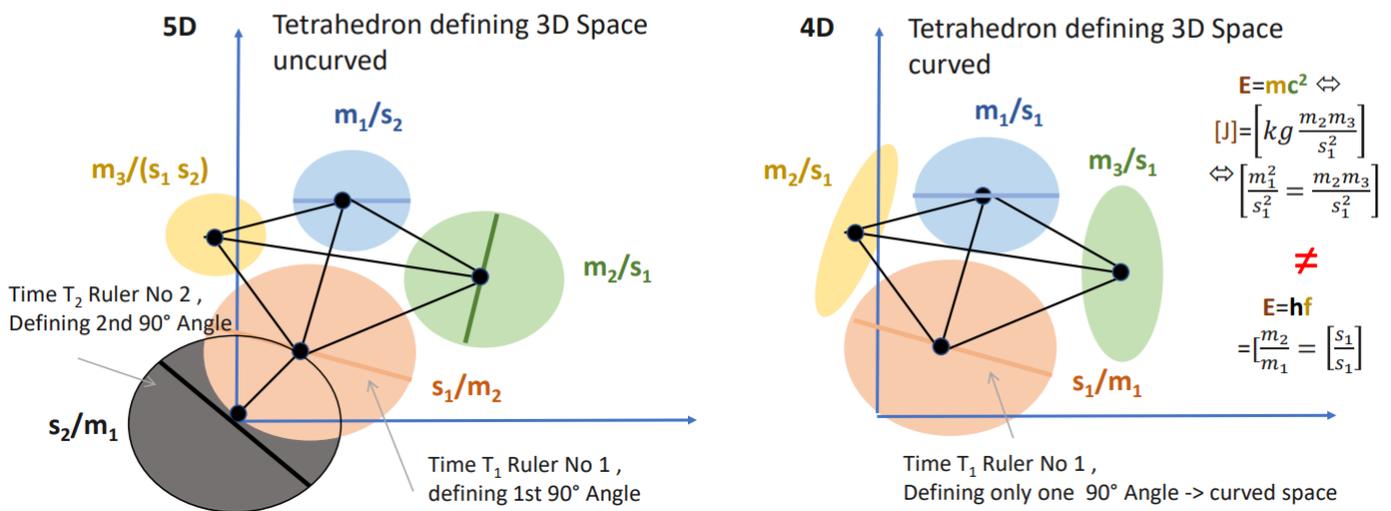
Physicists around 1900 overlooked the fact that a rotation axis must be assigned to the observer point in the stationary coordinate system in order to be able to set the velocity of the rest system to zero. In this respect, the second "time dimension" was simply "overlooked by mistake. This led to the birth of the misconception between quantum theory and the general theory of relativity, which is to be outlined here on a presentation board:

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Inertial Frame of Reference in 5D L³T² vs 4D L³T¹

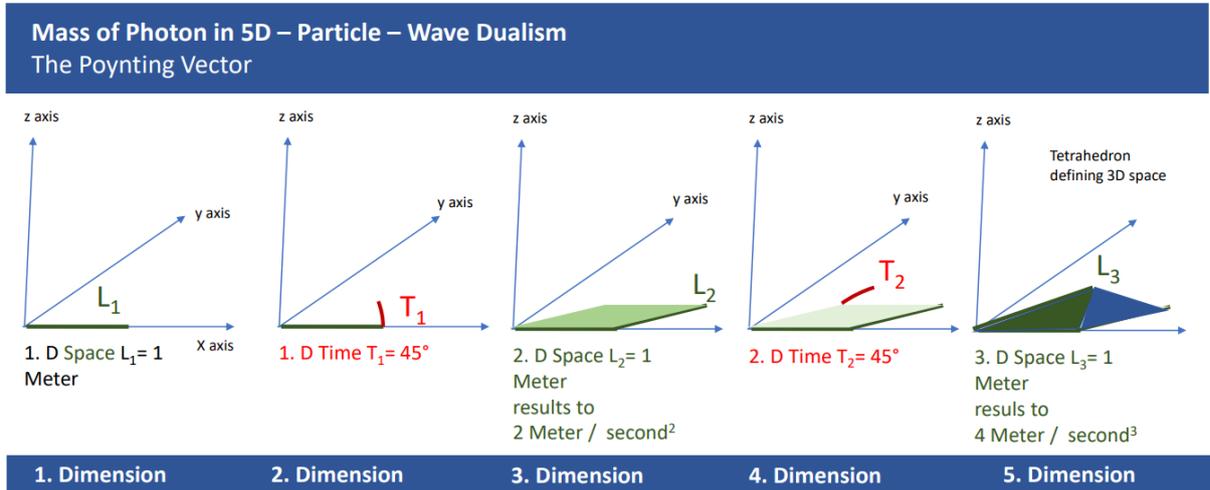
$$\pi = \frac{\text{unit of time}}{\text{unit of length}} = \frac{s}{m}$$

While in 5D two 90° angle (axis of observer) is defined for measurement (axis of rotation and speed of rotation), in 4D spacetime 90° only one 90° angle is defined and the other one must be represented as „Mass“ (Gravitation). Therefore 4D spactime is curved



Since the wave-particle duality can now be better understood, it follows that $E=hf$, i.e. the fundamental property of photons, is correct, but only in the case either the energy = 0, or the frequency = 0 or the Planck constant = 0. Here, the disregard of the second dimension of time causes an inverse proportionality between general relativity (mass) and quantum theory. It is easier to understand when looking closely at the properties of photons in 5 dimensions:

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The Poynting Vector is given in unit $[kg/s^3]$. Resolving that „kg“ (mass) as the ruler for space representing the missing 2nd dimension of time, which Einstein set constant with $c = m/s$, which says (meter · second₁ = second₂), lead to the transformation for 5D spacetime of this vector given in $[kg/s^3] \Leftrightarrow [m/s^3]$ (Particle-Wave-Dualism). (Depending on Values for T_1 ($0^\circ \dots 90^\circ$) and T_2 ($0^\circ \dots 90^\circ$) the „density“ of space based on the ruler „1 Meter“ which is $1 [m^3]$ with $T_1 = 90^\circ$ and $T_2 = 90^\circ$ transforms to $0 \dots 1 [m^3]$)

Conclusion:

With this finding, the planetary trajectories of solar system can be calculated with using the equations for electrodynamics ($c^2 \mu_0 \epsilon_0 = 1$) after including this correction.