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Effect of Wavelength Dilation in Time. - About Time and Wavelength Dilation

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Abstract

Wavelength dilation due to relativistic effects results in error in the reading of clock time. It is the phase shift in frequency and corresponding enlargement in wavelength of oscillation; which occurs in any clock, between its relative locations, due to the relativistic effects or difference in gravitational potential, results error in the reading of clock time, wrongfully presented as time dilation.

1. Introduction

The equation of time dilation $t' = t\sqrt{(1-v^2/c^2)}$ where t' is dilated time, t proper time, v relativistic speed, and c speed of light in free space, is wrong.

This is a conjectural equation based on the classical Doppler formula. The counter example such as the experimental results made herein disprove the conjectural equation of the time dilation as such; disprove time dilation as a whole.

Relativity adopts Minkowski spacetime that combines three-dimensional Euclidean space and fourth dimensional time into a fourth-dimensional manifold, wherein time is robbed of its independence, rather considered 'natural'. Relativity also conveys that the proper time is dependent on relativistic effects and expressed as $t<t'$, where t' is dilated time. This expression contradicts the expression $t=t'$ as in classical mechanics, where time is imaginary absolute.

2. A scientific misconception in time dilation

Real events invoke time. The error in the equation $t' = t\sqrt{(1-v^2/c^2)}$ is that the relativistic effects, such as speed or gravity of the real events, can never interact with the proper time (t) which is referred in the fourth dimension. This means, the real part of the equation $\{1/\sqrt{(1-v^2/c^2)}\}$ cannot

affect, nor interact with the proper time (t) to get it enlarged and to get time dilation (t') as in the equation. The observations made on the effect of dark energy do not show anti-gravity, caused by dark energy, affects time in any manner, except causing enlargement in the wavelength due to expansion of space. It is naturally unauthorized and disprovable to enlarge the scale of proper time, instead of distortion in the wavelength of clock oscillation.

The distortions of wavelengths exactly correspond to time distortions; through the relationship is $\lambda \propto T$, where λ denotes wavelength and T denotes period of oscillation of the wave. So that the relativistic effects, such as speed or gravitational potential difference, affects the clock mechanism and causes phase shift in the frequency and corresponding enlargement in the wavelength of the clock oscillation, and correspondingly results error in the reading of the clock time through the relationship $\lambda \propto T$, but wrongfully perceived as time dilation.

The real events within space can never reach the fourth direction of time t, either through interaction or, by influence of the relativistic effects, such as speed or gravity. The events within space will not have natural reach to the direction of proper time t, so that eventual influences can never affect the proper time than its ideal succession, to get dilated time t'. The reading of time in a clock mechanism should always follow the order of the proper time; otherwise distortions would cause wrong reading in the clock mechanism. The dimension of time is considered unreal rather, conceptual.

It would be wrong to try modifying proper time as in the conjectural equation of time dilation. Relativistic effects can never interact with proper time to get time dilation'. In addition to this, the idea of time dilation disobeys the prevailing scientific definition of time involving existence and events. Proper time should never be robbed of its independence and not held as 'natural' even in a four-dimensional continuum of space-time. There is no time dilation anywhere, rather the wavelength dilation of the clock oscillation resulting in error in the reading of the clock time. Distortions of wavelengths exactly correspond to time distortions; as in the

mathematical relationship $\lambda \propto T$, where λ denotes wavelength and T denotes period of oscillation of the wave.

3. General Foundations:

(i) Time is called T, the period of oscillation, so that $T = 2\pi/\omega$. The reciprocal of the period, or the frequency f, in oscillations per second, is given by $f = 1/T = \omega/2\pi$.

(ii) Doppler Redshift is the change in frequency of a wave in relation to an observer who is moving relative to the wave source.

(iii) Time distortion always originates from wavelength distortion but the time dilation of special relativity is not understood from wavelength distortion and so it does not follow the general rules.

(iv) Special relativity does not escape the fundamental equivalence between wavelengths and time, which is much more general than special relativity.

(v) Distortions of wavelengths exactly correspond to time distortions $\lambda \propto T$.

(vi) Time is the indefinite continued progress of existence and events in the past, present, and future regarded as a whole, succeeding in irreversible and uniformed succession, referred to in the fourth dimension above three spatial dimensions. Therefore, time is not what special relativity presents as in time dilation and there is no time in time dilation.

(vii) Time is an imperceptible fourth dimensional concept so protected from relativistic effects like speed or gravity, nor subject to real interference or influence or interaction with the cosmic events. The events rather invoke time.

(viii) The term cosmic time signifies a relationship between the time since the Big Bang and the events within the Universe. The distortion in proper time always originates from wavelength distortion, including in special relativity, and therefore proper time subject to synchronization with ideal time in near approximation, as done with the atomic clocks.

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4. Experimental results:

Experiments made in electronic laboratories on piezoelectric crystal oscillators show that the wave corresponds to time shift due to relativistic effects.

We get the wavelength λ of a wave is directly proportional to the

time period T of the wave, that is $\lambda \propto T$ is derived from the wave equation $f = 1/T = c/\lambda$, where c is constant in free space.

Whereas, the time interval T(deg) for 1° of phase is inversely proportional to the frequency (f). We get a wave corresponding to the time shift.

For example, 1° phase shift on a 5 MHz wave corresponds to a time shift of 555 picoseconds (ps). The proof is:

We know, 1° phase shift = T/360.
As T=1/f,
1° phase shift = T/360 = (1/f)/360.
For a wave of frequency f = 5 MHz, we get the phase shift (in degree°)
= (1/5000000)/360
= (5.55x1010)
= 555 ps.

Therefore, for 1° phase shift for a wave having wavelength λ = 59.95m, and frequency f = 5 MHz, the time shift (time delay) Δt = 555 ps (approx).

Moreover, for 360° phase shift or, 1 complete cycle for a wave having frequency 1Hz (of a 9192631770 Hz wave); the time shift (time delay)
Δt = 0.000000108782775707766 6 ms (approx).

Time shift of the caesium-133 atomic clock in the GPS satellite in space:

For 1455.50003025° phase shift (or, 4.043055639583333 cycles) of a 9192631770 Hz wave; time shifts (time delays)
Δt = 0.000004398148148148148 ms (approx) or, 38 microsecond time is taken per day.

5. Conclusion:

The wavelength dilation of the clock oscillation due to relativistic effects, or gravitational potential difference on the clock mechanism results in corresponding error in the reading of time in the clock, wrongfully presented as time dilation. Time dilation is rather wavelength dilation.

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