

Have we Misinterpreted Special Relativity?

by John Malcolm Newell

160 Rundle Mall

Adelaide SA 5000

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Abstract

Einstein's 1905 formulation of special relativity may in actuality describe a complex relationship between the proper time of the observer and the proper time of an object with relative velocity. If $y = (1 - x^2)^{0.5}$ is a complex number even when $x < 1$ does it not follow that $t' = t(1 - v^2 / c^2)^{0.5}$ is a relationship between t' and t the nature of which requires us, in the name of diligence, to examine the possibility that no energy is contained by quanta during their transmission because the proper time interval for a quanta, between its emission and its absorption, may be zero.

If the equation $t' = t(1 - v^2 / c^2)^{0.5}$ is a complex number, where t is the proper time of the observer and t' is the observed time for an object with relative velocity v / c to the observer, then it is possible that we have misinterpreted Einstein's original formulation of special relativity which may in fact describe a complex relationship between the proper time of an observer and the proper time experienced by quanta because their context is infinitely time dilated.

Maybe we should look again at our interpretation of fields, photons and the action of forces considering the possibility that no energy exists between emission and absorption because the proper time interval of their transmission is zero at the velocity of light. Something which has no duration in time from its own perspective cannot independently exist. It is proposed that quanta are a direct connection between separate masses, discreet kinetic energy transfers between atoms directly transmitting energy and momentum.

It is also proposed that force may be continuously transmitted by the attraction

and repulsion between all charges with no energy existing outside of the interacting masses. It may be possible to understand photons simply as quanta exchanged and it may be necessary to consider continuous force interaction between charges as direct force interaction not mediated by quanta. Such force interactions could then account for inertia, gravity and electrical action.

The rate of proper time for any coherent mass is fixed by the rates of chemical and inertial change for that mass. Change in the acceleration of a charge or mass and the influence of that change upon all other charges then constitute universal events. Conservation tells us these relations are absolute, a mathematical connection exists between inertia and electromagnetic action. Care must be taken interpreting these relations because the change in proper time of the charge or mass acting may not be proportional the change in the proper time of the charge or mass acted upon due to pre existing acceleration or gravitational fields.

An immediate objection will be made that the electromagnetic influence of charges within neutral atoms is neutral over large separations but that assessment should not rely upon assumptions or geometric simplifications. The assumptions requiring re-assessment include; the assumption that all non gravitational interaction is mediated by quanta and the assumption that gravity has a separate mechanism of action to electromagnetic force.

Our assumption of interactive isolation from the remote universe due to distance may also be incorrect if relativity indicates that objective separation varies with relative velocity. Should this be the case then a method of propulsion such as that proposed by Roger Shawyer of SPR Pty Ltd may well be possible because the difference in reflection delay at the two ends of its frustum would have an immediate inertial influence on the remote universe, concurrent due to the complex nature of relative time.

References:

Albert Einstein, 'Zur Elektrodynamik bewegter Körper' 1905.

Albert Einstein, 'Relativity: The Special and General Theory' 1916, Appendix 5 added 1954.

'Feynman's Lectures on Physics' II 1963.

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