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Relativistic Acceleration Described by Newtonian Mechanics
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There are several important conceptual misunderstandings and contradictions with experimental dat in this manuscript. I will highlight its major problem: it contradicts the universal constancy of the velocity of light in vacuum (experimentally proven by Mickelson & Morley and by many experiments afterwards). There are many other contradictions with well known and validated experimental tests. The author introduced ill defined concepts and notions. However, I will not go through the full set of examples put forward by the author.

The author's approach is to redefine the time-like coordinate "ct" of inertial frames in Special Relativity Theory (SRT) by a space-like coordinate $w = ct$ (with rectangular coordinates $[x,y,z]$ unchanged). Notice that the author is assuming that c is the constant velocity of light in vacuum (a universal constant). The metric element of the authors' *ad hoc* spacetime would be Euclidean (as opposed to pseudo-Euclidean element

$$ds^2 = dw^2 + dx^2 + dy^2 + dz^2$$

The same effect is obtained by the transformation $ct \to w = i\,ct$, with $i^2 = -1$ the imaginary unit. The intention of early XX century researchers in using this imaginary coordinate was to disguise the difference between pseudo-Euclidean and Euclidean spaces (Lorentz transformations become pure rotations). However, it creates a host of conceptual problems (as we see in this manuscript).

The author assumes that "earth moves along the w axis", then considers a rocket under constant acceleration a departing from the origin in the direction of the z-axis. The author mentions that the trajectory of the rocket in the [z,W] plane is "circular motion", *ie* a segment of circle with radius R centered in a point marked by M in figure 1. This is completely mistaken. Since the author assumed no mass loss and the rocket follows Newtonian projectile dynamics, so that $z(t) = a\,t^2/2$, but $t = w/c$, then the trajectory in the [z,w] plain is an arc of a parabola

$$w = \sqrt{\frac{2\,z}{a}}\,c$$

This arc can be locally approximated to a sequence of circle arc segments with a given mobile curvature ratio, but not to a single circle segment.

However, the main problem with this manuscript is that the author assumption of an Euclidean distance measure is in contradiction with the fact (Mickelson-Morley experiments) that light velocity in vacuum is independent of the motion and the reference frames of the emitter and observer. Consider (following the author's conventions) a second rocket departing also from the origin, but at constant velocity ($v = v_0,\ a = 0$) in the same direction along the z axis, so that $z(t) = v_0\,t$. Its trajectory in the $[z,w]$ plane would be the straight line

$$w = \frac{c}{v_0}\,z$$

However, since $a > 0$ the accelerated rocket speeds faster than the non-accelerated one, therefore for a fixed time Δt, (which implies fixed $\Delta w = c\ \Delta t$) the accelerated rocket will reach a larger displacement along the z axis, or if z_1, z_2 are (respectively) the position of the non-accelerated and accelerated rockets at Δt, we have necessarily $z_1 < z_2$. Then eliminating c from the trajectory equations above yields

$$c = \sqrt{\frac{a}{2z_2}}\,\Delta t = \frac{v_0}{z_1}\,\Delta t$$

which is clearly contradictory with the universal constancy of c (experimentally determined by Mickelson-Morley), since in general a is different from v_0, its value would depend on the motion of the rockets. This problem does not arise in SRT in a pseudo-Euclidean framework with the metric element

$$ds^2 = -c^2 dt^2 + dx^2 + dy^2 + dz^2$$

in which light rays are null intervals satisfying $ds^2 = 0$, so that $c^2 = (\Delta x^2+\Delta y^2+\Delta z^2)/\Delta t^2$, with [$\Delta x$, Δy, Δz] are the displacement of the light ray in the time lapse Δt. Lorentz transformations are the linear transformations that keep this quotient invariant under coordinate transformations for the pseudo-Euclidean metric (Minkowski metric). Using the author's framework it is impossible to keep c as a universal constant.

Finally, the author introduces a number of *sui generis* concepts, such as the "total space of existence" which seems to depend on the observers, but does not explain if without explaining how such space can be detected or how it varies in coordinate transformations.