

# SPECIAL RELATIVITY REPLACEMENT

Copyright - 28 February 2015 - by Glenn A. Baxter, P.E.

[www.k1man.com](http://www.k1man.com) [Institute@k1man.com](mailto:Institute@k1man.com) 207 242 2143

draft 150228 7:00 A.M., 9:05 150301 5:50P, 150316 8:20A c48

## ABSTRACT

This paper details a replacement for Dr. Einstein's theory of Special Relativity which, along with quantum theory, are pillars of 21<sup>st</sup> century physics. Special Relativity deals with light and other forms of radiation, such as radio, X, gamma, and delta radiation and the constant nature of the velocity of light as distinguished from the non constant nature of the relative velocity of light.

## ARGUMENT

### THE NON AETHER SELF PROPAGATION OF LIGHT IN A VOID RELATIVITY MODEL

The uniform velocity of a source in a void does not affect the velocity of light with respect to the LOCATION [1] of its source at the time of its emission.

Light always travels equal scalar distances,  $ct$ , in a void in every frame in the universe.

The velocity of light (not the relative velocity of light) in a void is always  $c$  in all directions with respect to the LOCATION [1] of each light source at the time of emission.

Any "aether", as a medium needed to conduct radiation such as light, cannot be detected.

Light and other radiation, including magnetic, electric, and gravitational fields, self propagate, with no need for a medium for such propagation or conduction.

Dr. Einstein incorrectly equated the velocity of light  $c$  with the relative velocity of light  $c'$ , directly followed by the incorrect derivation of all of his Special Relativity formulas, starting with time dilation and ending with  $E = mc^2$ . See [www.k1man.com/c1](http://www.k1man.com/c1)

There is a unique reference frame in the universe defined by all LOCATIONS of light at the time of emission, where all such LOCATIONS do not have any uniform velocity with respect to each other. [1]

[1] UNIQUE REST FRAME

A void does have a UNIQUE rest frame. Removing everything from a space would leave a "void" through which light is proposed here to travel from any source at velocity  $c$  relative to its starting scalar LOCATION. The location's velocity is effectively cancelled and therefore not involved further. If the first "bit" of light is emitted at time  $t = 0$ . The location in the void of the source at  $t = 0$  can be found at time  $t$  by going scalar distance  $ct$  in the opposite direction of the light bit at time  $t$ .

If the source at time  $t = 0$  happens to have a relative velocity  $v$  with respect to the destination or anywhere else, the velocity of light between the source LOCATION at time  $t = 0$  and destination or anywhere else will always be  $c$ . This is the constant nature of the speed of light. However, there will then be a red or blue shift observed at any destination, and there will also be a calculated relative speed of light ( $c'$ ) which is quite different from the actual speed of light ( $c$ ). The red or blue shifts observed at a destination have different observed frequencies and observed relative velocity such that wave length remains unchanged according to  $\lambda = \text{relative } c' / (\text{relative } f)$ .

## REGARDING RELATIVE VELOCITY

If the source and destination in the frame defined above do happen to have relative velocity  $v$ , either the source or the destination could be considered by definition as being "fixed," and this would introduce an ambiguity which is eliminated by defining the source as the one that is considered "fixed."

If the relative velocity between the source and the destination is closing, then going scalar distance  $ct$  in the reverse direction of the light motion at time  $t$  will properly get back to the source LOCATION. If the relative velocity between the source and the destination is separating, then going scalar distance  $ct + (2)v t$  in the reverse direction of the light motion at time  $t$  is needed to properly get back to the source LOCATION. We now construct a three dimensional coordinate system across the entire universe with this LOCATION at  $0, 0, 0$ .

The location of the source at time  $t = 0$  is now properly defined. Now, everything else in the void is relative to our defined LOCATION in the void at time  $t = 0$ .

## REST FRAME

Call this LOCATION L1. Another pulse of light from another source anywhere else in the universe at any velocity with respect to L1 would create LOCATION L2. LOCATION L2 would have no relative velocity with respect to LOCATION L1 and would fall on the above defined three dimensional coordinate system at definite coordinates which would never change. This is the unique rest frame of the universe, "nailed down" by the constant speed of light in a void.

## COORDINATE SYSTEM

An  $x, y, z$  coordinate grid can be attached to any fixed LOCATION in the unique frame. Rotate the grid around each  $x, y,$  and  $z$  line such that all centrifugal forces are zero in order to establish an absolute rotational frame. Now pick a scalar distance to a LOCATION along each  $x, y,$  and  $z$  line. Now the grid defined is absolute in the void which is everywhere in the universe.

### EXAMPLE

To help understand the unique frame concept that I have proposed, consider a “train station” in a deep space void with an open baggage cart (light source 1 in frame 1) going from left to right (North) at  $v_1$  toward an overpass at the right. There is also an open flat train car (light source 2 in frame 2) going North at  $v_2$  toward the overpass, and another open flat train car (light source 3 in frame 3) going South at  $v_3$  away from the overpass. At time = 0, all three sources are equal scalar distances  $ct$  from the overpass. The velocity of light (not relative velocity) between the three different sources and the overpass are all  $c$ .

At time  $0 + dt$ , source 1 has just become LOCATION 1 in the unique frame, source 2 has just become LOCATION 2 in the unique frame, and source 3 has just become LOCATION 3 in the unique frame. LOCATIONS 1, 2, and 3 are always the same scalar distance from the overpass and define the unique frame that I have proposed which is quite different from the original frame 1, frame 2, and frame 3 above.

The concept also holds without a “fixed” overpass, because all LOCATIONS defined by light pulsed at  $T = 0$  never have relative velocity with respect to each other, as described above.

### ABSTRACT(2)

The second postulate in Dr. Einstein’s 1905 paper is “...light ( $c$ ) is always propagated in empty space with a definite velocity  $v$  which is independent of the state of motion of the source...” The current brief paper identifies the difference between actual light speed and two different kinds of RELATIVE light speed, a critical distinction that Dr. Einstein and most current scientists did (do) not seem to understand.

### ARGUMENT

Since the distinction to be understood here is really geometric in nature, the author will use a “train open flat car” in deep space as a thought experiment setting:

## ASSUMING AN AETHER

So, we assume an aether such that the speed of light in empty space with respect to the aether is  $C$  (which is  $c$  divided by an equivalent index of refraction for that aether).

Aether moving to right at  $V$  with respect to frame  $x >$

{ \* light source    \* light destination} (at time 0)                      [\* observer in frame x]  
{car moving at relative velocity  $v$   
to right with respect to frame x}

<                      distance  $(C + V)t$  in frame x                      >

At time 0 the car has not moved. At time  $0 + dt$  the car has moved to the right slightly

{\* light source    \* light destination}                      [\* observer in frame x]

<  $v dt$  >

<    distance  $(C + V)t - v dt$  in frame x                      >

<    distance  $v dt + (C + V)t - v dt = (C + V)t$  in frame x                      >

As can be seen, the car velocity  $v$  only affects the distance in frame  $x$  traveled by the light and not its velocity  $C$ . Thus the speed of light is said to be constant and not affected by relative velocity  $v$ .

The real adjusted speed of light is  $C + V$ . Relative velocity  $v$  is not real because it is canceled by  $v dt + (C + V)t - v dt = (C + V)t$  above. However, the relative velocity  $v$  DOES cause a blue shift because the distance traveled by the light keeps getting smaller as the car moves to the right and thus increases the observed wave length.

Thus, by itself, the relative velocity  $C + v$  will cause a blue shift.  $f = C/\lambda$ , so that observed  $f(2) = (C + v)/\lambda$  and observed  $\lambda(2) = (C + v)/f(2) = \lambda$  (unchanged).

Also, by itself, the aether velocity  $V$  will cause another blue shift.  $f = C/\lambda$ , so that observed  $f(2) = (C + V)/\lambda$ .

The "phantom" relative velocity of light  $C + v$  is just an observed blue shift phenomena that has nothing to do with the actual velocity of light  $C + V$  (above) relative to the observer. Dr. Einstein made the monumental compound error of neglecting  $V$  and using  $c = c + v = c'$ , and then he directly and incorrectly derived all his Special Relativity formulas starting with time dilation and ending with  $E = mc^2$ . See [www.k1man.com.c1](http://www.k1man.com.c1)

Pretty simple, really.

## CLOSED TRAIN CAR

Assume the train car in the above thought experiment setting is closed, contains air, and is pressurized. Then the speed of light relative to the air would be “controlled” by the equivalent index of refraction of the air which would probably incorporate within it the index of refraction of the aether. Thus the movement of the aether by itself would not have a “Fizeau drag” effect on the light. The aether is “dragged” along with the air. This would be analogous to light in a piece of glass which itself is moving through air not being affected by the index of refraction of the air or the index of refraction of the aether.

Aether moving to right at  $V$  with respect to frame  $x$  >

{ \* light source    \* light destination}    (at time 0)    [\* observer in frame  $x$ ]  
{car moving at relative velocity  $v$   
to right with respect to frame  $x$ }

<                    distance  $(C_{air} + v) t$  in frame  $x$                     >

At time 0 the car has not moved. At time  $0 + dt$  the car has moved to the right slightly

{\* light source    \* light destination}                    [\* observer in frame  $x$ ]

<  $v dt$  >

<    distance  $(C_{air} + v) t - v dt$  in frame  $x$                     >

<    distance  $v dt + (C_{air} + v)t - v dt = (C_{air} + v)t$  in frame  $x$                     >

In this case the relative velocity  $v$  not only creates a blue shift for the observer but also plays a real velocity role, where the relative speed of light with respect to the observer is not phantom as we saw before above with  $v$ .

So, when analyzing experimental data, one must correctly understand the differences between the speed of light and the relative speeds of light, both real and phantom.

Dr. Einstein and most physicists today did (do) not do this. Thus we are stuck with entrenched incorrect Special Relativity formulas including time dilation and  $E = mc^2$  as being gospel.

***“To kill an error is as good a service, and sometimes even better than, establishing a new truth or fact.”***

***Charles Darwin***

"Great causes are never tried on the merits; but the cause is reduced to particulars to suit the size of the partisans, and the contention is ever hottest on minor matters." - Ralph Waldo Emerson - From his essay "Nature" 1844

\* Mr. Baxter has a degree in Industrial Engineering from the University of Rhode Island and is a Licensed Professional Engineer in Illinois and Maine. He is a graduate of Vermont Academy, which honored him in 1993 as a Distinguished Alumnus with the Dr. Florence R. Sabin Award. It was at Vermont Academy as a student where Mr. Baxter attended a talk and met the very popular relativity author James A. Coleman[3]. Mr. Baxter has been doing research in relativity and physics ever since and is currently Executive Director of the Belgrade Lakes Institute for Advanced Research. His current interests include physics, philosophy, and theology.



Glenn A. Baxter, P.E., at his home in Belgrade Lakes, Maine U.S.A.

See [www.k1man.com/g](http://www.k1man.com/g)





Glenn A. Baxter, P.E., age 4, with his dad, Frank H. Baxter (Bachelor of Science Degree, Mechanical Engineering, 1914, Rhode Island State College), and President of Frank H. Baxter Associates, 370 Lexington Avenue, New York City. See [www.k1man.com/fhb](http://www.k1man.com/fhb) and also [www.k1man.com/w10](http://www.k1man.com/w10) and [www.k1man.com/Loons](http://www.k1man.com/Loons)