

# Time Also Speeds Up, Dr. Einstein?

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The author shows that the speed of light, relative to any observer, is not constant in [10] and also, by contradiction, in this paper. This leads to mathematical disproof of Special Relativity and its derivatives such as Dr. Einstein's famous mass - energy equivalence,  $E = mc^2$ , which he incorrectly derived. Thus the very foundation of 21<sup>st</sup> century physics is invalid. This leads to the author's anti-neutron theory/model of the atom [16].

## 1. Special Relativity Disproof on One Page

The author presents easy to understand mathematical disproof of Einstein's Special Relativity on the first page of this paper and discuss why all the so called existing "proofs" of Special Relativity are incorrect. The author agrees with D. Sasso that "Special Relativity is obsolete." [20]

Three ticking clocks are synchronized while sitting next to each other. Consider a thought experiment analogous to Einstein's 1905 derivation of his famous "time slowing down" formula,  $t = t' \sqrt{1 - \frac{v^2}{c^2}}$ .

You sit on a train platform. Your time (being recorded on a note pad from your previously synchronized clock number 3) is "prime" time,  $t'$ . I am on the near side of a moving train (from left to right) and record time  $t$  on my note pad from clock number 2. Assume  $c$  is constant for us both, as did Einstein.

A light pulse is flashed at  $t = 0$  on clock 1 across the train toward us both and reaches me on the near side of the train car at  $t = t$  on my clock number 2. I measure the distance vector toward me across the train as  $ct$ , the first leg of a triangle.

You measure the base vector of the triangle created by the train moving at  $v$  relative to you from left to right during the time it took for the light to cross the train in time  $t$  for me on clock 2 and time  $t'$  for you on clock 3, which is length  $vt'$ .

You are situated so that when the light reaches me, you are looking straight along the hypotenuse of the triangle (the third leg). You think the light travelled that longer hypotenuse, and I think it went just across the train on leg 1, distance  $ct$  for me. Now we use the Pythagorean theorem:

$$(ct)^2 = (vt')^2 + (ct')^2 \quad (1)$$

$$\Rightarrow t = t' \sqrt{1 - \frac{v^2}{c^2}} \quad (2)$$

This is Einstein's famous 1905 (and incorrect) "time slowing down" formula. As seen, my time "slows down" due to relative uniform motion, according to Einstein. If  $v = c$ , my time slows to zero, and, of course,  $v$  can never exceed  $c$ , also according to Einstein.

Now we repeat the experiment with me at the front of the train car and you on the forward overpass. A light pulse is flashed from the middle of the train at  $t = 0$ , and reaches the front at a different  $t = t$ , and I see it travelling distance  $ct$ . You see it travelling  $ct' + vt'$ . Now solve  $ct = ct' + vt'$  for  $t$ :

$$t = t' \left( 1 + \frac{v}{c} \right) \quad (1)$$

So if  $v = c$  then  $t = 2t'$ , or time has now "speeded up" for me, etc. Time clocks cannot both slow down and speed up on the same train car; a contradiction, and therefore Special Relativity is wrong.

Thus, every encyclopedia, every physics text, tens of thousands of physics papers, "experimental proofs," etc., are all wrong. The very foundation of 21<sup>st</sup> century physics is wrong.

All of Einstein's conclusions from the above, including  $E = mc^2$ , are wrong. Aristotle was even wrong, remember?

## 2. Experimental Proof

Now, any experiment designed to confirm this analysis by your author needs to be done at  $0^\circ$  with respect to the velocity of the train car. If an experiment measures light at  $90^\circ$  with respect to velocity, it will of course agree with Einstein's incorrect formula since you are not distinguishing whether time slowed down or whether relative velocity increased. Just look at the clocks later! They will all still be synchronized.

The author's experiment [10], at  $0^\circ$ ; *does* distinguish between time slowing down or relative velocity increasing, and is practical as well as accurate enough to confirm the Baxter Doppler formula and disprove the incorrect Einstein relativistic Doppler formula.

## 3. Does Light Take on the Speed of the Source?

When light is flashed at  $t = 0$  forward from the middle of a train car moving ahead at velocity  $v$  and arriving at the car front at  $t = t$ , just as the car front reaches the overpass ahead, the light travels a distance  $ct$  as measured on the train and  $ct + vt'$  as measured by you right at the underpass. A light flashed forward from the train platform just adjacent to the light flash on the car at  $t = t' = 0$  will just travel  $ct'$  on the ground, as the light on the car has already travelled  $ct + vt'$  and reaches the overpass ahead of the light flashed from the train platform. So, yes, the light does "take on" the speed of the source relative to the destination of the light which has the relative velocity with respect to the source. But you can also consider the train as being "fixed" at velocity  $v = 0$ , when the light is flashed at  $t = 0$  and the overpass considered as travelling toward the train car at velocity  $v$  and the overpass "meeting the light flash part way." In that sense, the light flash does not "take on" velocity  $v$ . In the case of the light flash from the platform, the light travels at velocity  $c$  and the

overpass does *not* “meet the flash part way” since there is no relative velocity, and this light flash and the overpass meet *later* than when the light flash from the train and overpass meet.

Suppose A and B are in relative motion  $v$ . Light is flashed from A toward B at  $t=0$ . You consider B as going to meet the flash from A “part way.” Or, you could consider the light as having “taken on”  $v$  and moving at  $c+v$ . The light travels for millions of light years. But, at  $t=1$  micro second, B slows down to  $v=0$  relative to A and does not “tell” A. What happens to the velocity  $v$  “taken on” by A? A does not “care.” A does not slow down (shed  $v$  “taken on”) and does not have to do anything unusual. The relative velocity is suddenly  $v=0$ , and A will “know” when it meets B millions of years later. Just look at the clocks and find that the relative speed was  $c$  rather than  $c+v$ , and no relativistic Doppler shift as Einstein would have predicted! [10]

#### 4. The Angle of the Dangle

As shown in [10], Einstein’s Special Relativity famous “time slowing down” formula was derived, analogous to a train car moving from left to right with an observer sitting on a train platform, and a light beam coming across the train car toward the observer. I define time as that ticked off (starting from  $T=0$ ) by five clocks, previously synchronized at  $T=0$  while sitting next to each other.

The train car in the analogy is travelling from left to right at velocity  $v$  relative to the train platform. When the light arrives at the near side of the train car, the observer, on the train platform, in line with the light path, will be looking along the hypotenuse of a right triangle formed with another side being distance  $vt$ , where  $t$  is the elapsed time for the light to cross the train car, and the remaining side being the width of the car.

Thus, the observer on the train platform sees the longer hypotenuse path travelled by the light, and an observer on the near side of the train car simply sees the light coming straight across the car along a shorter path. If you assume that light speed is constant, relative to both observers, then, since distance is  $ct$ , then a greater distance travelled by the light must be explained by a larger  $t$ , as did Einstein, and his resulting conclusion that time must have actually slowed down on the car.

Or, the relative velocity of the light must have increased, as claimed by your author. The reason for this claim is that for an observer on an overpass to the right will also see the light travel a longer path than an observer on the train at the front of the car. An observer on an overpass behind the car will see the light travelling a shorter path than an observer on the train car in the rear of the car. Einstein’s incorrect analysis would require the clock in the front of the car to slow down and the one in the rear of the car to speed up. That is a contradiction, and thus Einstein was wrong. Correct, is relative velocity changing and not absolute time ticked off by the clocks.

Now, any experiment designed to confirm this analysis by your author needs to be done at  $0^\circ$  with respect to the velocity of the train car. If an experiment measures light at  $90^\circ$ , it will of course agree with Einstein’s incorrect formula since you are not distinguishing whether time slowed down or relative velocity increased. Just look at the clocks later! They will all still be synchronized.

The author’s experiment [10], however, is correct, and at  $0^\circ$ , *does* distinguish between time slowing down or relative velocity increasing, and practical as well as accurate enough to confirm the Baxter Doppler formula and disprove the incorrect Einstein relativistic Doppler formula.

#### 5. Electromagnetic Energy Propagation

The writer describes electromagnetic energy as a follow up to [16]. The writer identifies the exact source and reason for “quantum” in quantum mechanics. A radio wave is continuous emissions, while infrared, light, X, and gamma are discrete because of the sudden deceleration of the electrons (inside the atom) when quickly stopping and thus “generating” electromagnetic emissions when electrons change energy states within the atom or inside the nucleus. That would explain a lot!

Those “bursts” of electromagnetic energy are the “photon” (Planck/Einstein) bundles of energy, quite different from a mostly continuous (but kind of sudden accelerations/decelerations at the positive and negative peaks) of radio waves. But how do the “photons” interfere with one another? And how do the “photons” diffract? Quite important is the general view of  $E=mc^2$ , which the author has disproved as a general law for ALL matter.  $E=mc^2$  is or might be approximate for annihilation [10].

This new approach will better address the “particle” wave duality quantum mechanics mystery.

If you suddenly “turn on” an electric, magnetic, or electromagnetic “field”, its influence will move away from the source at the speed of light. Nothing fancy. The influence travels at light speed relative to the source with no medium necessary (as with an electric or magnetic “field;”) and if the receiving end is moving at a relative velocity, such as moving toward the source at velocity  $v$ , then the relative speed of electromagnetic “field” relative to the receiving end is  $c+v$  [21].

An electromagnetic field is “generated” by acceleration or deceleration of an electric charge. A sinusoidally amplitude changing electric charge connected to the center of a dipole antenna will “send out” or “radiate” quite noticeable packets of electromagnetic energy each time the electric voltage peaks and changes from increasing to decreasing or the reverse. If you were “riding” on the sine, you would be affected (inertial - an analogy) most at these changes; that is at the positive and negative peaks. So there would be a particularly strong “packet” at each peak, but there would also be a (probably?) continuous electromagnetic field sent out at the speed of light during the entire sine function. When this expanding electromagnetic field encounters a similar dipole antenna wire some distance away, the undulating electromagnetic field causes electricity to flow on that distant wire identical to the electricity flow on the “transmitting” antenna, although much weaker, of course, since the “field” is spreading out while its influence “moves”. If the transmitting and receiving antennas are just the right length so that the electricity direction reverses just as its influence (voltage flow) on the wire reaches the end of the wire, we say the antennas are in resonance, analogous to pushing a child on a swing at just the right times so that the swing goes higher and higher.

But the electromagnetic energy, somehow, might not be continuous. D. Sasso refers to this sort of activity as nano radiation

[22]. We don't know what happens on a radio antenna wire. It might be in discrete "lumps" that "take off" after a necessary and "critically minimum" amount of acceleration or deceleration of the electron has taken place. It might be absolutely continuous.

However, the sinusoidal nature of this hookup (and possibly large collection of nano radiations) gives the electromagnetic entity a continuous wave like appearance together with a wave length which is determined by the physical frequency of "radio" transmitter oscillation of the original sinusoidal "radio frequency" voltage applied to the transmitting dipole antenna. Thus the confusion between waves and energy packets (bursts) or "particles."

The "lumps" of electromagnetic energy are stronger in proportion to the suddenness or rather the intensity of the acceleration or deceleration of electrons (or charges).

Radio waves are pretty low in energy, since the frequencies start at zero and extend from 0 to the 300 billion (or so) cycles per second, called Hertz by radiomen/radiowomen. The energy of this electromagnetic entity is thus proportional to the sinusoidal frequency, or we could say  $E = Kf$ , where  $f$  is frequency and  $K$  a constant, probably not Planck's constant. Planck's constant arises because of the so called "orbital" levels that the electrons start from at the atomic level, approximately analogous to a satellite giving off heat as it comes out of orbit. The atom probably has no such orbits, but chemists have been extremely successful in using this very useful approximate model. We say approximate because the model is just that, an analogous model. We will never see the atom "up close" anyway. Just as Freud models the human brain (with proposed names such as "id" and "ego"), far too complicated for exact mathematical analysis by "pea brained" humans!

When an electron changes "orbits" in an atom, the electron comes to an abrupt stop or deceleration, and the resulting bursts of deceleration energy are of different magnitudes, and Planck proposed their discrete values to be  $E = hf$ , where frequency incorrectly implies a wave like characteristic similar to a radio wave. But the damn things act like "waves," so it seems. Also emitted would be electromagnetic energy while the electron is accelerating out of orbit, right? Perhaps not. It is not clear to this writer exactly what is going on down there.

Here we come to "weird" quantum mechanics where these visible light (Planck) electromagnetic bursts exhibit the wavelike feature of interference similar to the behavior of lower "frequency" (energy) radio waves. The electromagnetic field does spread out as it travels, thus explaining the double split experiment, but just how these electromagnetic "bundles" interfere with themselves and exhibit phase like behavior is not clear.

Your author maintains that just because it walks like a duck and quacks like a duck does not mean that it is, in fact, a duck as Maxwell's work implied! Radio waves are simply not exactly the same as heat, light, X, and gamma rays. Sasso comes to the same conclusion, but she does not offer an explanation why [22].

Just because these "photon" bursts of energy can interfere with each other does not mean that they are waves. If boys laugh and giggle it does not mean they are identical to girls who also laugh and giggle. Positive and negative "interfere." North and South magnets "interfere." So do "photons."

Electrons and positrons can cancel their charges as well as their masses [16]. How they "cancel" their masses is certainly not clear. But the simplistic and incorrect Einstein idea that  $E = mc^2$  for all mass would be just too good to be true. The mass - energy conversion process is a special case for only certain kinds of masses such as electrons and positrons.

Ref. [16] holds that all matter except anti-neutrons, which do not exist by themselves, contain charges, and thus all atom particles can therefore exhibit  $E = hf$  wavelike properties when accelerating and decelerating, per Louis DeBroglie. DeBroglie just went too far with his brilliant idea by suggesting that all mass has a wavelength.

When electric charges move around and stop abruptly inside the nucleus, where distances are small and forces therefore very high, the "bursts" of electromagnetic energy coming out are correspondingly very high bundles of energy called gamma rays. Sasso postulates rays even higher energy than gamma [20].

If you shoot electrons toward a metal plate, their sudden deceleration produces X electromagnetic radiation called X rays, which also show wavelike properties such as X ray diffraction.

When electrons and positrons "crash" together (and decelerate quickly), the ending speeds just before "contact" are quite high; either less than, equal to, or greater than the speed of light. If a sudden stop is from the speed of light, then by conservation of the kinetic energy of  $E = \frac{1}{2}mc^2$  for each "particle," the resulting gamma burst of electromagnetic energy would be a total of  $E = mc^2$  (totally unrelated to Einstein [10]). In fact, the actual energy levels are all over the lot. Organization of energy amounts only happens when definite energy "levels" in the atom occur such as in classical chemistry but is not the case, probably, in the nucleus [16].

If you scratch a nail along a screen, you can hear radio "white" noise across the entire dial from a high frequency (short wave) receiver because nano radiation is generated containing many different energy levels and having nothing whatsoever with the different resonant frequencies that the short wave radio happens to be tuning to.

So, if you could measure photon (gamma ray) energy, somehow, you could calculate the electron - photon speed at time of contact. The energies associated with radio frequency electromagnetic energy is quite difficult to calculate because there are likely an infinite number of acceleration/deceleration values during the sine. But, again, the electromagnetic energy might burst out at only critically energetic points.

This non quantitative paper offers a broad frame work for better understanding all electromagnetic energy as simple acceleration and deceleration of electric charges. Why and how electric charge acceleration does this cute trick is unclear, as is the relation between acceleration and gravity which is "generated" by (all kinds?) of mass.

## 6. $E = kmc^2$ as a Special Case for Electron-Positron Annihilation

The writer has shown that Einstein's famous formula  $E = mc^2$  is incorrectly derived [10]. The writer has further suggested that

$E = mc^2$  is not an identity, with implications for DeBroglie's famous equation,  $\lambda = h/p$ , and Planck's famous equation,  $E = hf$ , where  $f$  is the frequency in hertz and  $\lambda = c/f$  [8]. The author now proposes that there exists a  $k$ , such that  $E = kmc^2$ , as a special case for electron - positron annihilation.

J. C. Valks has recently shown calculations to suggest that, assuming Einstein's famous mass changing due to uniform relative motion relativistic equation,  $m = m_0/\sqrt{1-v^2/c^2}$ , is valid, then  $k \cong 40$  [19]. We have shown that  $m = m_0/\sqrt{1-v^2/c^2}$  is not valid [10].

Now, assuming that  $m = m_0/\sqrt{1-v^2/c^2}$  is not valid, we propose to calculate a new value for  $k$ . Actually,  $k \cong 40$  is not too bad as it is, because the important thing here is that we have suggested that  $E = mc^2$  is far too simplistic and not generally true for all mass but only true, or nearly true, within the author's anti-neutron theory/model of the atom [16].

The author shows in [10] that the speed of light is not constant, and that therefore special relativity is not correct, as well as a host of conclusions flowing from special relativity by Einstein, including the derivation of  $E = mc^2$ .  $E = mc^2$  CAN be derived from theoretical analysis of the annihilation of an electron and a positron, as done in [10], by temporarily neglecting spin. Then, by including spin, energy is actually greater than shown by  $E = mc^2$ . Thus, photon energy is "created" or rather transferred, from electron and positron mutual electrostatic energy, while their charges and masses both cancel out to zero. The fact is that photon energy can also be "created" and radiated from a radio antenna by accelerating electrons in the radio antenna wire without electrostatic charges cancelling and without masses cancelling. In the case of electron and positron annihilation, electromagnetic energy comes *directly* from the electrostatic energy stored in the electric field between the electron and positron before they accelerate as they are mutually attracted, while electromagnetic energy from a radio antenna comes from the fuel driving the electric generator which powers the radio transmitter which is attached to the radio antenna thus accelerating electrons and generating electromagnetic energy which is radiated from the radio antenna. The energy in the fuel, of course, came from fusion on the sun which was the original electron and positron annihilation.

In 1924, Louis de Broglie assumed the identity  $E = mc^2$  to be correct for all matter, and then he directly derived his equation and idea that  $\lambda = h/p$  for any particle with mass or even theoretical photon particles without mass. The collection of radical ideas was now that all mass was identical to energy and that all particles, with or without mass, had a characteristic wave length. This neatly linked together the concepts of both waves (photons) and particles, as well as mass and energy. If only physics and nature were that simple!

In [10], we assumed that de Broglie's equation was correct, and then derived  $E = mc^2$ . de Broglie did the reverse; he assumed  $E = mc^2$  to be correct and then derived his famous equation,  $\lambda = h/p$ . Starting with  $E = mc^2$  and Planck's relationship  $E = hf$ ,

where  $f = c/\lambda$  and momentum is  $p = mc$ , then  $hf = pc$  and  $hc/\lambda = pc$ , thus  $h/\lambda = p$  or  $\lambda = h/p$ , which is de Broglie's equation.

Suppose  $E > mc^2$ , as described in the first paragraph above, and  $E = hf$ , where  $f = c/\lambda$  and momentum is  $p = mc$ . Therefore  $E > pc$  and  $hf > pc$  or  $hc/\lambda > pc$ , and therefore  $h/\lambda > p$ , as described by Z. Y. Wang in his paper "  $\lambda = h/p$  is universal?" [7] There, Wang analyses photons in a wave guide and concludes that  $h/\lambda > p$  as well.

## 7. The Anti-Neutron Model of the Atom

The author proposes a simple universal theory/model of the atom composed of anti-neutrons, electrons, positrons, and neutrinos which better explains fusion, fission, radioactivity, electromagnetic radiation, gravity, electric force, magnetic force, and the strong force.

Ernest Rutherford from New Zealand, and working in England when he discovered that most of the mass of an atom was contained in the nucleus, was uncomfortable with elaborate theories and was known to say that he did not want to hear any physics that could not be explained to a barmaid.

The so called "Standard Model" of matter is just such an elaborate theory, yet it does not explain why four hydrogen atoms (four protons with their four electrons) can combine in fusion (like in the sun) to form a helium atom with its two protons and their electrons plus two neutrons, given that helium is lighter than the original four hydrogen atoms yet the two neutrons in helium are heavier than protons.

The anti-neutron model of the atom, introduced here for the first time, does explain all this plus much more. All matter is composed of anti-neutrons, electrons, positrons, and a host of neutrinos. All these particles exhibit a quantum quantity of energy called "spin" in units and half units of Planck's constant divided by  $2\pi$  known as " $\hbar$ ". An anti-neutron (spin 0) and a positron (spin  $1/2$ ) form a proton (spin  $1/2$ ). An anti-neutron (spin 0) and an electron (spin  $1/2$ ) form an anti-proton (spin  $1/2$ ). An anti-neutron (spin 0) plus an electron (spin  $1/2$ ) and positron (spin  $1/2$ ) form a neutron (spin  $1/2$ ) plus a neutron neutrino (spin  $1/2$ ). An electron (spin  $1/2$ ) and a positron (spin  $1/2$ ) form a photon (spin 1). All other elementary particles are either contained within the anti-neutron itself, or are formed by combinations of particles within the anti-neutron plus electrons and positrons. That's it! Note that the anti-neutron discovered by Bruce Cork in 1956 reported spin of  $1/2$  and an isospin of  $1/2$ . The effective spin of an anti-neutron in this model is defined as  $1/2$  minus  $1/2 = 0$ .

When four hydrogen atoms combine to form helium, two electrons drop energy levels and annihilate two positrons to form two anti-neutrons which attach to the other two hydrogen atoms to form helium, all held together by the strong force. Since the two positive protons in the nucleus strongly repel each other by electric forces, there remains substantial fission energy (like a compressed spring) in the helium nucleus that was obtained (squeezed in) during the original fusion process.

The helium atom formed in fusion is quite a stable atom and, indeed, the helium nucleus is actually a particle in its own right, known as an alpha particle, first observed in 1896 when Henri

Becquerel noticed that tightly packaged photographic plates were being fogged by radioactive uranium ores. Also being ejected from the uranium were electrons which were called beta "rays."

Now in a star, further hydrogen atoms experience fusion, some completely to form anti-neutrons, and some less completely to form ordinary neutrons. They stick together by the strong force, and this builds up all the higher elements which contain protons, anti-neutrons, and neutrons. The ordinary neutrons are less stable, and some eject electrons (beta "rays") and antineutrinos during beta decay (the electrons were being held in by the so called weak force which, in the anti-neutron model, is actually just an ordinary electric force such as positive being attracted to negative) thus transmuting the atom to the next higher element since the ordinary neutron thus becomes a proton. Other neutrons combine their electrons with their positrons, emit photons, become anti-neutrons, and thus form more stable (lower energy) isotopes of the same element.

In uranium fission (like the Hiroshima bomb), a neutron smashing into the uranium atom splits it apart, and this releases huge electrostatic energy (as opposed to commonly and incorrectly assumed  $E = mc^2$  energy) as the positive pieces strongly repel and violently separate. During this mayhem, many other re-combinations occur, including the shooting out of ordinary neutrons, which strike other uranium atoms and cause the well known chain reaction and also leave a rather radioactive mess behind. Radioactivity is simply neutrons slowly changing to (lower energy) protons and/or anti-neutrons.

Anti-neutrons only exist inside the nucleus. Theoretically, a proton could decay by ejecting a positron to become an anti-neutron, but proton decay has never been observed. Similarly, a proton could absorb an electron to become a free neutron, and free neutrons are fairly common.

The Copenhagen interpretation of quantum physics is that if something cannot be measured or seen, it does not exist and should not even be discussed. The elementary particle zoo of hundreds of observed atomic particles is just that sort of thing which is covered by the all encompassing anti-neutron. You can smash sub atomic particles together and create all sorts of these observed subatomic particles as shattered pieces and recombinations of those pieces together with electrons, positrons, and neutrinos, but we will never be able to figure out how such pieces fit together internally to construct the anti-neutron according to the anti-neutron theory or model. Any particle that does not seem to fit within this model can be considered to be "rogue particles in waiting" which will perhaps someday reveal some role that they might have to play in the scheme of things in particle physics.

## 8. The Missing Higgs Particle

Still missing in the so called "Standard Model" is finding the Higgs particle (the "God particle") which, like the anti-neutron, is postulated to also have a spin of 0. Note that in the anti-neutron model of helium, the two positively charged (and therefore strongly repelling) protons are apparently held together by the strong force in the presence of the two anti-neutrons, also in the nucleus. The anti-neutron (and ordinary neutrons, for that

matter) thus seem to be intimately associated with the strong force as well as being a majority contributor to the atom's mass as is also postulated for the Higgs particle. It could be that we have thus found the Higgs particle after all. The Higgs particle is simply the anti-neutron, right in front of our noses!

## 9. Nuclear Fusion Calculations

A proton has a mass of 938.3 MeV and a positron has the same mass as an electron of 0.511 MeV. An anti-neutron, therefore, has a mass of 938.3 MeV minus 0.511 MeV = 937.789 MeV. So, four hydrogen atoms combine as follows in the fusion process:  $4(938.3)$  hydrogen atoms >  $2(938.3)$  hydrogen atoms +  $2(937.789)$  anti-neutron atoms + 2 photons. Notice that the helium atom on the right hand side of this equation is lighter by the masses of an electron and a positron which have combined and thus annihilated their two masses completely to form 2 photons of pure energy which just happens to agree with Einstein's postulated (for the wrong reasons) formula,  $E = mc^2$  [23,24].

## 10. Forces

The fundamental forces, in order of strength, are gravity (10 to the 40<sup>th</sup> as strong as the so called weak force), the so called weak force (1/1000 the strength of electric or magnetic forces), the electric force, the magnetic force, and the strong force (forty times stronger than the electric or the magnetic force). As seen above, the weak force is just an electric force, and the term and concept of the weak force is really superfluous. Thus, the anti-neutron model of the atom uses only gravity, electric, magnetic, and the strong forces.

## 11. Gravity

There are actually three kinds of gravity. First is ordinary Newtonian gravity that is caused by matter, just as certain types of matter cause electric forces. The second type of gravity is caused by linear acceleration (such as being thrown back in your airplane seat). The third type of gravity is caused by circular motion (such as whirling a tennis ball around at the end of a string). Contrary to Einstein, linear acceleration gravity and Newtonian mass caused gravity are not equivalent because they are not EXACTLY the same. Mass caused gravity gets weaker as you go away from the mass causing it, or opposite to the direction of the gravity force. Linear acceleration gravity does not weaken as you move in the opposite direction to the direction of the gravity force. Circular motion caused gravity does weaken as you move in a direction opposite to the direction of the gravity force. But gravity seems, nevertheless, to be closely related to motion, and that is why gravity bends light in the same way that motion appears to bend light. It is unclear just how gravity is able to work, and both Newton's and Einstein's models of gravity just explain what gravity does without explaining how gravity does it. Nor do Maxwell's equations explain how electric and magnetic fields do what they do. Feynman's diagrams show what particles and so called photons appear to be doing but do not explain how the particles and so called photons manage to do it. Einstein's geometric model of gravity is a bit more precise than Newton's classic model that is, nevertheless, a very accurate model of gravity and was good enough to get astronauts to and

back from the moon. Einstein's artificial concept of curved space does, however, seem to show that the path of travelling light energy, without mass (so called photons), is bent, since the light, without mass, is simply following a straight line in what is postulated to be curved space which is somehow curved by the presence of mass.

The similarity between gravity, accelerated motion, and the bending of light is intriguing, however. Imagine being in a space ship accelerating upward. A light beam shined crosswise inside the ship would appear to bend downward just as the same beam would also appear to be bent by gravity if the ship were subject to ordinary gravity by simply sitting on the surface of the earth or some other massive body.

But since ordinary mass gravity is not really equivalent to acceleration gravity as Einstein suggests, this intriguing similarity between accelerated motion and ordinary gravity does not provide any more of an understanding than his curved space explanation does. Mathematically describing a geometrically curved space is one thing, but just how matter generates such curving of empty space is a mystery just as great or greater than what is trying to be explained in the first place.

Einstein spent his entire life trying to unify the forces of gravity with electric and magnetic forces, but without any success. Einstein paid little or no attention to the strong force and died long before the foolishness about the so called weak force was invented and Nobel prized time and again.

## 12. Electric and Magnetic Forces Similar to Gravity and the Strong Force

Electric forces seem to be invisible forces of attraction and repulsion. Plus and minus charges attract. Plus and plus or negative and negative repel. Similarly, magnetic forces both attract and repel. Gravitational forces caused by mass only attract. Gravitational forces caused by linear acceleration and circular motion can both attract and repel. How these forces manage to accomplish these attractions and repelling is unclear, even in the standard model, if not much more unclear in the standard model. It is not surprising that how the strong force manages to exert its attractive influence on positively charged protons as well as anti-neutrons and ordinary neutrons in the nucleus is equally if not even more unclear. No theory really explains how any of these forces work satisfactorily. They explain what they do and how much they do it but not how they do it.

## 13. Electromagnetic Radiation

A steady electric current through a wire causes magnetic field "lines" at right angles to the direction of flow of the current and circling around the wire. This is Ampere's law. But a steady electric current through the primary of a transformer will not cause a current to flow through the secondary of the transformer. There is induction from primary to secondary only when the primary current is changing, thus causing a change in the magnetic field, according to Faraday's law:  $E = -d\Phi/dt$ .

Now consider Fig.1. An alternating voltage and thus alternating current (ac) at some radio frequency is applied at the center of the half wave dipole antenna at the left of the diagram. Through infinitesimal segment  $ds$  flows the current  $di/dt$  thus

giving rise to a magnetic line of force being generated which "moves" (at the speed of light) from left to right until it strikes the other dipole wire at the right of the diagram at the corresponding infinitesimal length  $ds'$ , thus generating an identical but weaker current,  $di'/dt$  at that point. The net result of this system is an exact reproduction at the "receiver" connected to the right hand dipole of the signal that was applied to the center of the left hand dipole in Fig. 1.

$di/dt$  consists of many electrons being accelerated and decelerated, and thus, the "travelling" magnetic field attributed to a single one of those electrons through one complete cycle would be what we call a photon. The frequency of the "radio" signal applied to the dipole at the left is quite similar to the "frequency" of "light photon" as calculated by  $E = hf$ . The energy  $E$  of a radio photon is quite low as compared to the light, X-ray, or gamma ray photons which are generated by non free electrons associated with atomic activity. In the case of light, the activity is electrons changing their "orbital" energy levels which give rise to most chemical reactions. In the case of X-rays and gamma rays, the activity is electrons changing much greater energy levels within the nucleus. The idea of "orbits" (outside of the nucleus) is a huge stretch but serves well as a model for chemists to use to explain chemical activity, rather well actually. Explaining nuclear activity is similar, with the same idea of electrons changing energy levels. The basic idea is that a faster accelerating or decelerating electron is responsible for the higher energy "photons" as calculated by  $E = hf$ .

We have a way (above) of gradually turning a magnetic field on and off. The field exhibits its influence at a distance at the speed of light, as we measure the speed of radio "waves" and the speed of light "waves." As we have seen, radio and light are not really waves at all but rather a "moving" magnetic field which spreads out as the distance increases, a full cycle of the originating accelerating, decelerating, reversing direction and accelerating and decelerating being called a "photon" or single "packet" of moving energy and also a wave. This is how a single photon can go through two separated slits in Young's experiment. A photon doesn't really become a complete photon until its expanding magnetic line of force finds an electron to act upon. Coming out of the other side of the two slits in Young's experiment, are two "new" moving magnetic fields which can interfere like waves when encountering a receiving electron.

If we could turn an electric field and a gravitational on and off in a similar manner, we would find that the field lines of force also travel in a similar manner at the speed of light [18].

## 14. Conclusion

Special Relativity is wrong, and its almost universal acceptance my most physicists today is a giant "log jam" in the progress of 21st century physics. The so called "Standard Model" is thus a "house of cards." We need to go back to the critical scientific junction point, roughly 1905, fix the most damaging problems, and rebuild from there. Thousands of new PhD. as well as other scientific papers are immediately needed which are consistent with this.

Future research for this writer and his colleagues will be examination of physics fundamentals such as the truer nature of

magnetism, electric charge, radiation, and gravity. One important area is simply making mainstream scientists that there is a serious problem with Special Relativity.

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