

# Non-Propagation Action At A Distance

-by-

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The purpose of this paper will be to present the concept of non-local quantum field action outside the normal vector field propagation of the limiting velocity of light.

Albert Einstein pointed out many years ago that humans are handicapped by the limited ability to perceive the universe around them due not only to their narrow range of spectrum perception but the spatial limits in a dimensional sense. Failing to find an ether gave birth to relativity where the speed of light is invariant and everything in motion is relevant to the constant velocity of light in free space. In essence, any real body in motion was deemed by the theory of relativity as not being allowed to exceed the velocity of light since the mass would approach infinity, the length in the direction of travel would approach zero and the time interval of the object clock ticks would approach infinity. The accepted formulas for these actions are presented below in equations 1 through 3. ( Where  $v$  = body velocity and  $c$  = velocity of light.)

1) 
$$m' = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$
  $m'$  is the actual mass increase as the object rest mass  $m_0$  increases as  $v$  approaches  $c$ .

2) 
$$l' = l_0 \cdot \sqrt{1 - \frac{v^2}{c^2}}$$
  $l'$  is the actual length contraction in the direction of travel of  $l_0$  as  $v$  approaches  $c$ .

3) 
$$t' = \frac{t_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$
  $t'$  is the actual time between ticks of a body clock of the body  $t_0$  as  $v$  approaches  $c$ .

The Special Theory of Relativity is founded on the propagation of light which is in free space a constant velocity. Further it assumes a transverse wave vector nature where the wave has electric and magnetic components traveling in phase but rotated 90 degrees to each other and both components also traveling at the velocity of light 90 degrees to both of their spatial orientation. It has occurred to me that the concept of relativity may be founded on a special limiting case of a much more general information and energy transfer principle. In otherwords, Special Relativity may be limited in a way much like Newton's Law of Gravity is a special case of General Relativity when it comes to how nature is capable of transferring action at a distance.

Some interesting tests have recently revealed that instantaneous actions at a distance do occur in spite of the limiting velocity of light. Measurements where a photon is split and sent on widely separated parallel paths show instantaneous phase reaction in a second photon partner when the first photons path is caused a phase change.

The homopolar generator has been suggested as a proof of relativity but it can also bear heavily on the concept of the magnetic vector field having an instantaneous establishment feature via the vector magnetic potential. The following is quoted from the book **Special Relativity by Albert Shadowitz, copyright 1968, Dover**

**Publications, page 126:**

**"a metal disc in the xy plane revolves at a constant rate about the z axis through its center. A uniform magnetic field points in the z direction. Between a brush on the axis and one at the rim of the disc a unidirectional potential difference is generated (without the commutators of conventional d-c generators). If, instead of the disc revolving, the field-producing magnets are caused to revolve about the z axis, then no induced voltage is produced between the brushes. A flux-cutting explanation here is not possible."**

The only rational explanation concerning the above quote is that a field that is instantly established can have no transverse effect due to its rotating source. The action is most likely outside the limiting velocity of light and has little to do with special relativity.

A third natural phenomena that also shakes up conventional ideas of space and time action is the gravitational field that exists outside of the event horizon of a black hole. I pose this question: "how is it that photons of light cannot escape the event horizon of a black hole but gravitons can?" This action could only occur if the graviton action occurred at a velocity greater than the velocity of light, probably instantly. (If gravity is to be quantized, it must also exist as a particle as well as a wave). I have previously suggested in my book, "Electrogravitation As A Unified Field Theory", that gravitational action is most likely the result of a two or more systems interaction via the vector magnetic potential via a constant force potential vehicle particle that is in itself not dependent on the distance of action. The hang-up on light as the limiting velocity of action at a distance is that light, or photons, are the carrier of force in contemporary electrodynamics. This idea is carried forth into the subatomic realm of the nucleus where quarks are held together by gluons, etc. Further, the electromagnetic force is held as being THE force. Thus we have the FOUR forces where we have the strong, weak, electromagnetic, and gravitational forces only. Again, as I have pointed out in my book, the electromagnetic force is not really stated correctly as the FORCE is that of the electrostatic coulomb force when routinely being calculated and the magnetic component is ignored since it is assumed to be too weak to figure into useful action. The math in my book proves otherwise.

When a non-accelerated charge moves at a constant velocity, either in a linear straight line or even in constant circular rotation, it will not generate an electromagnetic wave. It requires an acceleration, or impulse, to cause the electron or other charged body, to emit an electromagnetic wave or photon. A change in its kinetic energy must occur in order that an electromagnetic wave be generated. It is known however that magnetic force fields occur without electric fields being present and vis-versa. I propose that the magnetic vector potential associated with the magnetic **B** field and the electric scalar potential associated with the electric E field may sustain their nature (support their fields) once established, instantaneously. I base this postulate on the below equation where  $c^2$  is set to its equivalent  $1/\mu_0 \cdot \epsilon_0$  as derived by James Clerk Maxwell. The radical containing the Lorentz expression in equations 1 through 3 previous is labeled below as L.

$$4) \quad L = \sqrt{1 - \frac{v^2}{c^2}} \quad \text{and now inserting the Maxwell equivalent for } c^2,$$

$$5) \quad L = \sqrt{1 - (\mu_0 \cdot \epsilon_0) \cdot v^2} = \text{unity, ( or 1), if } \epsilon_0 \text{ or } \mu_0 = 0.$$

It is obvious that if we are considering only the magnetic case of a field, then  $\epsilon_0 = 0$ . A zero  $\epsilon_0$  means no relativistic notions need apply concerning the magnetic field proper. This also means that if the electric field only is being considered, then the relativistic notion is also non-applicable. Note that neither case involves a changing E or **B** field and thus may remain as separate non-relativistic entities. This is the case for most all of my book. Photons need not apply for action at a distance work.

The effect of considering either the permittivity or permeability of free space as approaching zero in the above equations suggests that if we apply this line of reasoning to the phase and group velocities, the result yields an infinite velocity. This is shown in equations 6 and 7 below.

$$6) \quad \text{Normally,} \quad V_p = \frac{c^2}{V_g} \quad \text{or} \quad V_g = \frac{c^2}{V_p}$$

Now replacing  $c^2$  by  $1/\mu_o \cdot \epsilon_o$  will yield:

$$7) \quad V_p = \frac{1}{\epsilon_o \cdot \mu_o \cdot V_g} \quad \text{or} \quad V_g = \frac{1}{\epsilon_o \cdot \mu_o \cdot V_p}$$

In the limit, as either the permeability or permittivity approaches zero it is seen that the phase or group velocity approach infinity, respectively.

Therefore, as long as we are considering the so called static field condition for **E** or **B**, we can allow for the action at a distance to occur at a velocity much greater than the limiting velocity of light,  $c$ . The limited velocity action associated with the normal transverse electromagnetic wave or photon may have everything to do with the way it is generated. The **E** field is normal to the **B** field and both are normal to the direction of propagation. Tesla however generated a wave where the **B** field was inline with the **E** field and both were normal to the direction of propagation. Thus his method of action at a distance differed spatially as well as in the phase. The **E** field was generated between a ball at the top of a resonant quarter wave coil vertical to the ground and the **B** field was also vertical to the ground. This is dot product, not cross-product as in an ordinary electromagnetic wave. This is then a scalar (not vector) wave. Further, the **E** and **B** components are 90 degrees apart in time.

Since the **E** and **B** components are 90 degrees apart in time, when one is maximum, the other is zero. Then the above equations dealing with the permittivity or permeability component approaching zero defines the Tesla mode of wave propagation as having an infinite velocity of propagation. Further, the quarter-wave close to the ground would tend not to disperse with distance as a spherical wave does. (The other quarter-wave being mirrored in the ground below the upper space quarter-wave.) Finally, at the receiver, the missing component at the time of reception would be supplied by energy space so that the **E** and **B** components would again be in phase, which is the opposite of what happens in an ordinary receiver. This would cause a net power gain of times two. No wonder a tertiary winding in the Tesla's power transmission coil caused such a large power build-up in the final high voltage coil!

One has to wonder what might have transpired if Tesla would have conspired with David Bohm to build a power transmission device.

In conclusion, the scalar wave cannot be shielded against since it is not like a normal electromagnetic wave. It is not transverse and the **E** and **B** are not in phase in time. Thus it does not suffer from the relativistic constraint of having a limiting velocity of light in free space but instead has a nearly infinite velocity. Since all we see is by virtue of reflected photons, it is only natural that the true nature of the universe is so well hidden.

-- Author --

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