

New theory of light and ether

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Abstract

Light as a wave needs a medium of propagation. The ether is the medium through which propagate light waves. Light shows a surprising number of properties that were difficult to explain relatively to the ether, but which must appear as naturals, a normal result of the properties of ether. The ether must support the phenomena related to light, particles and their interactions.

- 1) The first property of light is the fact that it is a transverse wave.

The light spreads inside the ether, so should be a longitudinal wave. Also, given the enormous velocity of light, the ether should have a considerable density, so it should be detectable. How is it possible for a transverse wave to propagate within the ether? The explanation lies in analyzing how a transverse wave propagates, in understanding what essentially a transverse wave is.

The transverse wave propagates to the surface of environment, the oscillation occurring perpendicular to the direction of advance. Looking at the water surface where waves are, we actually notice that not the entire volume of water vibrates, but only its surface. The water surface is a plan, a two-dimensional space and the vibration occurs in the external environment, the air, which is a three-dimensional space. The transverse wave from surface of water are a vibration of a two-dimensional space in a three-dimensional space, and by extension a transverse wave is a vibration of a space with n dimensions into a space with $n+1$ dimensions.

Thus, the ether is a three-dimensional environment, the space itself, and the transverse vibration of light is performed in a space with four dimensions. The ether is not being driven by the movement of bodies.

Light is a form of transition from the three-dimensional space, the ether, to the space with four dimensions. As a general rule, the transition from a space with n dimensions to a space with $n+1$ dimension occurs by curving the n -dimensional space.

- 2) The second property of light is the constancy of velocity of light regardless of velocity of source or the observer.

The fact that the velocity of light is constant regardless of velocity of source is a normal property of waves and is a result of immobility of ether. Weirdest is the fact that velocity of light is constant regardless of observer's velocity, fact which is proved by the Michelson-Morley experiment. We will review this property.

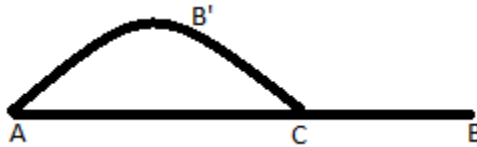
Normally, must be applied the classical velocity-addition formula, so the observed velocity of light will be smaller in the direction of advancing. In reality it is found that the velocity of light is constant and equal to c , as the observer would be immobile referring to the light.

Classical velocity-addition formula applies to observers who are in motion in the same type of space, three-dimensional for example. But the light moves in a three-dimensional space and the observer moves in a space with four dimensions. It's about a transformation of coordinates from a space with n dimension to a space with $n + 1$ dimension, knowing that the transition from an n -dimensional space to $n+1$ -dimensional

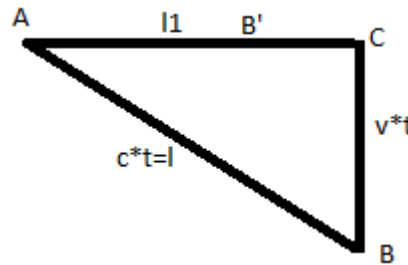
space takes place by curving the n-dimensional space. A straight line in n-dimensional space is a curved line in n+1-dimensional space.

Initially, we have an observer and a wave light that are moving in the same direction, they are meeting in the point C.

When the observer increases its velocity, normally the light needs to travel a longer distance and longer time until it reaches the observer (AB). The fact that the velocity of light appears to be constant and equal to c, can be explained by the fact that the observer, although it increased its velocity, went on a curve trajectory and not on a straight line, so that the velocity gain of observer is offset by the increase distance obtained by curving trajectory (AB'C), time to cross being the same. It's like saying that although the observer goes faster, he arrives at the same time at the intersection point (C), as result of a roundabout way. So the light travels a shorter distance to the intersection than normal (AC).



It compares the path of observer in space with four dimensions to the path of light in the three-dimensional space. AB is the distance to be covered normally by light, AC is the actual distance traveled by light and BC is the difference of path as result of observer's velocity v.



$$c^2 t^2 = l_1^2 + v^2 t^2$$

$$l_1^2 = c^2 t^2 - v^2 t^2 = t^2 (c^2 - v^2) = t^2 c^2 \left(1 - \frac{v^2}{c^2}\right)$$

$$l_1 = tc \left(\sqrt{1 - \frac{v^2}{c^2}}\right) = l \left(\sqrt{1 - \frac{v^2}{c^2}}\right)$$

$$l_1 = \frac{c}{t_1} \quad l = \frac{c}{t} \quad t_1 = \frac{t}{\sqrt{1 - \frac{v^2}{c^2}}}$$

These transformation equations from the ether as three-dimensional space to the space four-dimensional correspond to the set of special relativity equations, are valid only when relate the observer's motion to the light and have the value of a mathematical exercise.

The light's velocity appears to be constant and equal to c for the observer as a fact that light travels in a three-dimensional space and the observer travels in a four-dimensional space.

Similar are derived the other known equations from special relativity.

- 3) The third property is the corpuscular aspect of light, the wave-particle duality, a fact highlighted by a series of experiences like the external photoelectric effect and Compton effect.

When light waves interact with obstacles which comparable size with the wavelength, becomes a standing wave. One such obstacle can be an energy barrier, like a material particle or an energy field.

This explanation is supported by the fact that aspect of particle of light manifests strongly for small wave lengths and is virtually nonexistent for large wave lengths.

- 4) The fourth property is the fact that light is an electromagnetic wave, consisting of an electric and a magnetic field.

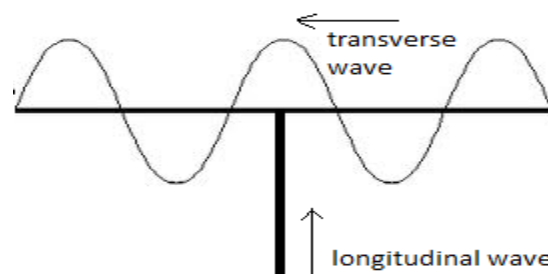
Considering a spherical field of longitudinal waves that propagate in water, can be seen that the wave front who is reaching the water surface forms a transverse wave that will be propagate along with the longitudinal wave, as a result of it. It is the same for light.

The electric field exists around the particles that contain electrical charge and has an individual existence and can be considered as field of longitudinal waves in the ether.

The magnetic field appears only as a result of electric field variation and does not exist by itself without an electric field which generates it and maintains it permanently.

The magnetic field is the transverse component of light, representing the curved ether as a three-dimensional space in a space with four dimensions.

The model of electromagnetic waves propagation is: the electric and magnetic field oscillate in phase perpendicular to each other and perpendicular to the direction of wave propagation and are generating one another. A longitudinal wave that is propagating in three-dimensional space generates a transverse wave in the four-dimension space, and vice versa. The idea is the same, namely that what is a right line in a n-dimensional space represents a curve in a n +1- dimensional space.



What are the fields

Electric and gravitational fields can be regarded as longitudinal waves in the ether, with a specific frequency. Because the electric field intensity is greater than the gravitational field intensity, can be deduced that the electric field frequency is also superior to that of gravitational field.

Can be affirmed that as an electric field variation generates an electromagnetic wave also a variable gravitational field will generate a similar wave, and generally a field of longitudinal waves in ether will generate a type of electromagnetic waves.

The amplification of electrical fields of same sign and the cancelation of those of opposite sign can be explained by the phenomenon of waves interference.

What are particles

Since particles are generated by colliding high-energy photons (high-frequency electromagnetic waves), we can say that the particles are standing waves.

The appearance of a standing wave is the result of repeated wave reflections in an enclosed space, which implies the existence of a separating surface against the external environment.

How there exists stable particles without electric charge, can be admitted that the role of reflection surface is represented only by the gravitational field. The existence of gravitational field creates a pressure on the ether in the vicinity of particle, corresponding to an increase in the density in the ether. The wave is captive in a closed space, bounded by a force field, strong enough to not let it propagate freely, creating the conditions for the formation and the stability of standing wave.

With the increasing of velocity of a particle, its energy is growing. This energy increase can be justified by the increased frequency and amplitude of standing wave which forms the particle.

It raises the question how a particle moves: as a material particle or as a wave.

How the particles preserve their status of uniform rectilinear motion without energy loss, specific property of waves, it can be said that particles moves like a wave, but without losing their standing character. It means that the movement of a particle is not achieved continuously, but discontinuous, step by step, as is quantified, depending on the frequency of internal standing wave, at each step the particle will move with a wavelength. How standing wave frequency increases with velocity, like a Doppler effect, it means that the advancing step will be smaller, and the particle will advance harder as the velocity increases.

In the case of accelerated motion, appears the phenomenon of inertia, and also it raises the question why the inertia of bodies is proportional to their mass. A proton, which has an electric charge equal to that of an electron, has an inertial mass proportional with his gravitational mass, so with the gravitational field strength. Also a neutron has an inertial mass proportional with his gravitational mass, but has no electric charge. So the inertial force it is a consequence of existence of gravitational field.

The fact that the inertia of bodies is caused only by the gravitational field can be explained by the ratio of particle size relatively to the wavelength of electric field wave and respectively the gravitational field wave, being higher than the electric wavelength and smaller than the gravitational wavelength. By analogy with the phenomena that occur in surface water: a ship easy passes over regular waves, while a small body will be affected by their motion (waves are known to bypass obstacles smaller than the wavelength and do not pass obstacles larger than the wavelength).

It is not surprising why in the energy formula $E = mc^2$ appears also the velocity of light. Waves are the equivalent of pure energy, the equivalent matter-energy means the equivalent matter-wave. The energy of a particle at rest is equal to the standing wave energy.

The wave energy is calculated similar as the kinetic energy of a body. Considering a body with the lowest mass possible, equal to unity, so the body's energy is $E = m \frac{v^2}{2} = \frac{v^2}{2}$, where $m = 1$, m being the proportionality factor expressing mass of different bodies. Wave energy is $E = k \frac{c^2}{2} = \frac{c^2}{2}$, where $k = 1$, k represents the proportionality factor for the waves of different intensity (taking into account the amplitude and frequency).

The energy of two opposing waves who interfere (destructive interference) is zero.

The energy of standing wave is $E = 2 \frac{c^2}{2} = c^2$.

The internal energy of a particle in rest is $E = c^2$ when the mass is equal to 1 and $E = mc^2$, taking into account the mass as factor of proportionality (mass is seen as energy intensity).

Particle interaction through the fields

The particle is a standing wave, located in a space bounded by a barrier of energy generated by gravitational fields and electric longitudinal waves. Any weak or increase in the intensity of those fields mean a change in the strength of energy barrier, which will lead to an imbalance in the stability of standing wave and its tendency to move in the direction that energy field is weaker.

The phenomenon of interference of electric or gravitational fields, considered as longitudinal waves in the ether, will increase or decrease their strength, resulting in displacement of particle. For the contrary electric charges the interference is destructive, the field strength near the particle decreases and so the particles will attract each other, and for the electrical charges of same sign the interference is constructive, the field strength near the particle increases and so the particles will repel each other.

The phenomenon of wave interference depends on the frequency and the distance between sources, which must be an integer number of wavelengths. We can say that the difference between positives and negatives electric fields is the fact that is emitted in opposite phases.

A particular case is the atom, where electrons move in some circular closed orbits without transmitting or absorbing radiation energy. Normally, an electrical particle in accelerate motion will lose energy like electromagnetic radiation. Explanation is that in reality, despite the circular path, the electron moves straight and uniformly, explication sustained by the fact that the electron path length is multiple of wavelength, which is not possible in case of a circular motion. If the electron is moving uniformly straight means that there are no inertial forces that acts on him.

The electron does not radiate electromagnetic waves when moving around the nucleus and is not falling on the nucleus when two conditions are simultaneously met: the electric field intensity to be zero and also the gravitational field intensity to be zero, so that no inertial force acts on the electron in its circular motion.

The electric fields with the same intensity through destructive interference will be canceling and the electron and the proton will attract each other with a tendency to merge. In contrast, the gravitational field has different values for the electron and proton, so the destructive interference will give a null value in only one point in the distance between the two particles. Once beyond this point, if the electron and proton comes closer, given the difference in magnitude of waves, the destructive interference will become a constructive and the attractive gravitational field will become repulsive, and the two particles will be rejected. There is only one point where the gravitational field strength is canceled, and this is the path of electron around the proton.

In the case of an interaction of type electron-positron, or proton-antiproton, due to equality of gravitational fields and thus the equal intensity of amplitude waves, interference will be destructive and the particles will fusion.

Another particular case is the free fall of bodies in gravitational field. We are dealing with a destructive interference, so a reduction in the intensity of gravitational fields of body in free fall, so a decrease in force of inertia in the direction of fall. Although the body falls faster, it can be treated as a uniform rectilinear motion. The consequences are that, on the one hand, the body will not radiate gravitational waves, and on the other hand, due to the decrease of his inertia, it is possible to accelerate the bodies at any velocity, greater even than the velocity of light. Black holes may be the scene of such phenomenon due to enormous gravitational field.

An interesting fact is that the antiparticles do not exist freely in nature. If the particles were formed

by the photons annihilation, the process after which result a particle and his antiparticle, then the nonexistence of antiparticles are to be related to the antiparticles' lack of stability, namely that antiparticles turns into particles, ie change the sign of electric field.

To achieve the interference waves, constructive or destructive, two conditions are necessary: the first is that to have the same wavelength and the second is the distance between the particles to be a multiple of wavelengths. The first condition is fulfilled by the identical nature of electrical fields generated by particles and antiparticles, while for the fulfillment of second condition must be assumed that a particle cannot occupy any position in space but only certain predetermined position, thus the trajectories are not continuous but discontinuous, quantified. In turn, this condition can be fulfilled if we admit that the ether is like a network of wires, like a spider web, and not like a terrestrial atmosphere, or can be a combination of both.

The fact that a wave pass through an environment is equivalent to an increase in the density environment. Thus we have a phenomenon of refraction of electromagnetic waves passing through a field of longitudinal waves in the ether, as are the electric or the gravitational field.

Consequences and applications

1. A first important consequence is the possibility to cancel the gravitational attraction:

a) creating an opposite gravitational field, like positive and negative electric fields

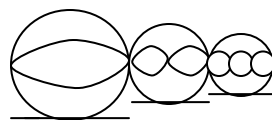
b) creating a field of energy strong enough to not allow the passage of gravitational waves. In principle can be achieved using non-gravitational fields, the electromagnetic waves for example, the main condition is to create a sufficiently high energy density. Building a device like this implies a set of coils arranged in star formation and trained in rapid rotation to provide a higher energy density per unit area.

c) eliminate any contact with ether, which would surely lead to the elimination of interaction with gravitational waves, by creating an "ethereal vacuum" around the material or by the total involvement of ether with the movement of bodies.

2. A second important consequence is the conservation and transports of energy

The particles are standing waves in the ether, so can be create standing waves with a bigger "size" measured in centimeters or meters. This would allow the conservation and the release of energy, and also its transport over long distances by means of electromagnetic launchers, which launching of standing waves like projectiles. You can achieve such power at great distances, even cosmic level. Planes and missiles would not be forced to carry fuel, can be supplied on the fly.

The figure below shows the schematic of a device for amplification and release of standing waves. It is a succession of spherical cavity through which pass a standing wave, each chamber having additional generators (coils) which will amplified the standing wave, initial standing wave is thus forced to increase his energy by increasing the frequency and amplitude. After exiting from device, the standing wave can stay stable and travel likes this if it is contoured by an electromagnetic wave with the wave length equal with the dimension of standing wave.



3. Super-light velocities

According to the theory it is possible to overcome the velocity of light. One way is to accelerate particles with sufficient energy, similar with the sonic wall breakage by planes. Other more advanced methods involving the cancellation of gravitational field and hence the inertial effect. Free fall of bodies in gravitational field, which implies the reduction of gravitational field and so of inertial force, means that a body can accelerate at any velocity, even greater than light. The black hole suns can be places of this kind of phenomena.

4. Obtaining the energy

To obtain the energy contained in atoms, can be acted directly on the fields that are responsible for maintaining the particles in atoms and in nucleus. The atomic fission and fusion can be obtained by acting on the fields that bind the particles through using wave interference phenomena, "at cold".

The total transformation of matter in energy implies the particle-antiparticle annihilation. These need to obtain antiparticles which can be accomplished by converting a particle in his antiparticle only by changing his field sign (positive or negative). More, knowing that a particle is a standing wave, the release of his internal energy can be achieved by cancellation of energy field which keeps the standing wave stable.

The light represents the ether curvature in the space with four dimensions, and is a form of transition from the ether to the space with four dimensions, the material space, not belonging fully to the three-dimensional space and neither to four-dimensional space.

Since the particles are standing waves which constantly interact with the ether, can be said that matter itself is not in fact this space with four dimensions, but can be when it will finally lost all contact with ether. If there is no contact with the ether, the particles can move at faster than the speed of light, and on the other hand, this kind of particles will not interact with ordinary matter.

There may be a large quantity of such matter, like another universe, but which escape undetected for these reasons.

The structure of ether. The ether can be considered as having a discontinuous structure, similar to Earth's atmosphere, or as a wire grid, similar to a spider web, or a combination of both.

Ether has the appearance of an ocean of energy in which the particles are immersed, the interaction between them being achieved through the waves. Ether is to the base of matter creation, and should not be surprising to find that ether is not like a quite sea, but in boiling, stir constantly, the empty space actually being the place of continue appearance and disappearance of particles with ephemeral existence.

Thus, the creation and disappearance of matter in the universe is the result of a continuous process, the particles are creating from the ether and are returning back in ether like waves.