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Review Article

Holistic Approach to Longitudinal Scalar Wave (LSW) Driven By Quantum Electrodynamic Technique

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Abstract

For Electromagnetic (EM) Weapons approach, this author suggests that one should look at Longitudinal Scalar Wave (LSW) or Pressure Wave as a newly developed weapon in future directed energy warfare and take advantage of such innovative approach. Additionally, besides the only weapon application of this wave, we can have biomedical applications of such pressure wave at a lower frequency. Even the LSW at low frequency can produce cheap energy by taking advantage of Deuterium + Deuterium Fusion interaction, where we can reduce or lower the nuclear potential barrier, consequently, make the fusion of D+D to take place at a lower temperature. Similarly, this wave at certain frequency can be used for under-water communication, where submarine communities or special warfare group of any modern navy can utilize it. With this short review, it can be shown, a different perspective of directed energy beam weapons, knowingly that this type of weapons is not anything new and scientists and engineers, at national laboratories, department of energy and defense level including some universities nation-wide have been involved with research and development of such directed energy weapons.

Keywords: Directed Energy Weapons; Microwave; Scalar Wave; Millimeter Wave; Electromagnetic and Electrical Waves; Faraday's Wave.

Introduction

As you know from classical physics point of view, typically there are three kinds of waves and wave equations that we can talk about (i.e., Soliton Wave is an exceptional case and should be addressed separately).

These three types are, listed as the following form:

1. Mechanical Waves (i.e., wave on string)
2. Electromagnetic Waves (i.e., E and B fields from Maxwell's Equation to deduce the Wave Equations, where these waves carry energy from one place to another)
3. Quantum Mechanical Waves (i.e., Using Schrödinger Equations to study particles movement) The second one is subject of our interest, in terms of two types of waves involved in Electromagnetic Waves and they are:

A. Transverse Waves

B. Longitudinal Pressure Waves, also known as Longitudinal Scalar Wave (LSW)

From the above two waves, the LSW wave is matter of interest in Directed Energy Weapons (DEWs), and first we briefly describe the LSWs and their advantages for DEW purposes. Note that, tThe battles of tomorrow are not going to take place with speed of bullet or artillery shell, but rather will be fought with speed of light and electron, and that is why the new military age presents itself along with new innovative technologies that is discussed here in this short review. For the purpose of beam weapons as directed energy, we are not taking under consideration, the high power energy laser, since it is beyond the scope of this short review, however we focus on wave frequencies that are falling within high power microwave bandwidth and we introduce another beam weapon's concept that is known as scalar wave, which we know it as Longitudinal Scalar Wave, which possibly can justify the so called Havana sickness caused by an unnatural source, which falls within a man-made source of energy that can travel long distances and penetrated even through Faraday's cage and any other obstacle in front of it very similar to behavior and characteristic of soliton waves. Whatever covert sound or high energy acoustic or wave weapon this man-

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made phenomenon was or is will be discussed in this report with some means of physics behind it. All scientific discussion in this short review is presentation of these authors here [1-3].

Description of Transverse and Longitudinal Waves

A wave is defined as a disturbance which is travelled through a particular medium. The medium is material through which a wave is travelled from one location to another. If we take example of a slinky wave which can be stretched from one end to the other end and then becomes in static condition, this static condition is called neutral condition or equilibrium state. In the slinky coil, the particles are moved up and down then come into their equilibrium state. This generates disturbance in coil which is moved from one end to another. This is the movement of slinky pulse, which is a single disturbance in medium from one location to another. If it is done continuously and periodical manner, then it is called a wave. These are also called energy transport medium. They are found in different shape, show different behavior, and characteristic properties. On this basis, these are classified mainly in two types that are longitudinal, transverse, and surface waves. Here we are discussing the longitudinal waves, properties, and its examples. The movement of wave is parallel to medium of particles in these waves

Transverse Waves

For transverse waves the displacement of the medium is perpendicular to the direction of propagation of the wave. A ripple on a pond and a wave on a string are easily visualized as transverse waves. See (Figure 1-3). Transverse waves cannot be propagated in a gas or a liquid because there is no mechanism for driving motion perpendicular to the propagation of the wave. In summary, it is a wave in which the oscillation is perpendicular to the direction of wave propagation. Electromagnetic waves (and Secondary-Waves (or S-Waves or Shear waves which sometimes are called an Elastic S-Waves) in general are transverse waves.

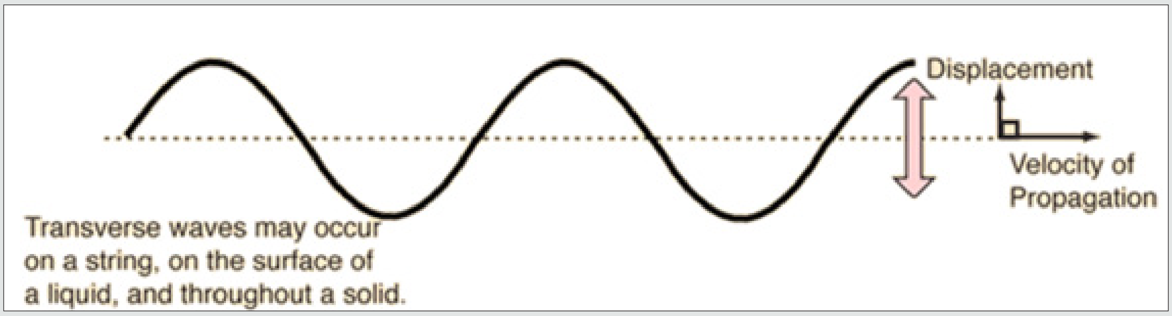

Figure 1: Depiction of a Transverse Wave.

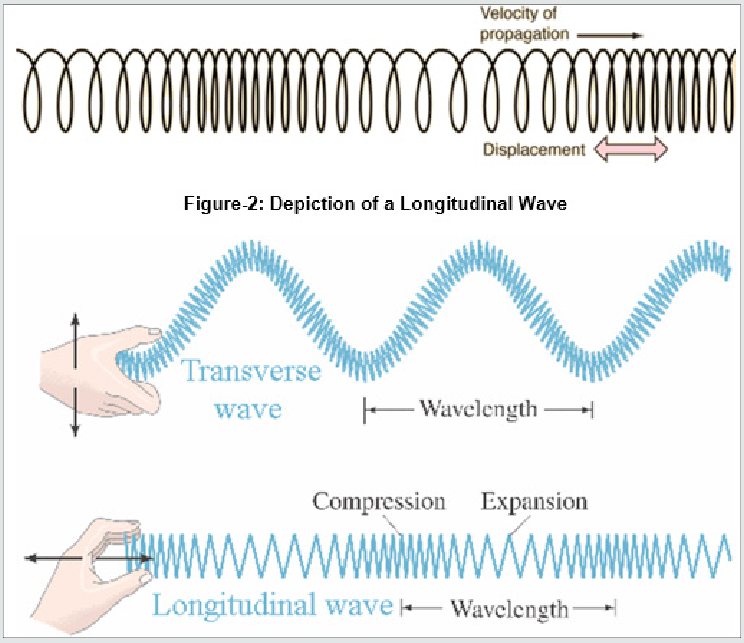

Figure 2: Illustration of Transverse Versus Longitudinal Wave.

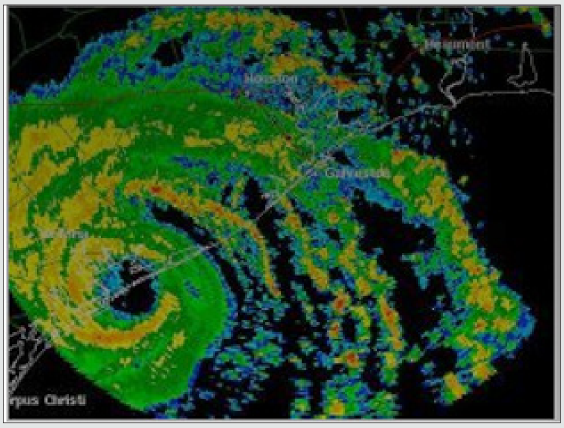

Figure 3: The Doppler Radar Image on TV weather News.

Longitudinal Waves

In longitudinal waves the displacement of the medium is parallel to the propagation of the wave. A wave in a "slinky" is a good visualization. Sound waves in air are longitudinal waves. See (Figure 2). In Summary, a wave in which the oscillation is in and opposite to the direction of wave propagation. Sound waves [and Primary-Waves or (P-Waves) in general] are longitudinal waves. On the other hand, a wave motion in which the particles of the medium oscillate about their mean positions in the direction of propagation of the wave, is called longitudinal wave. However, if we want to expand the subject of Longitudinal Wave (LW), before we go deeper into the subject of Longitudinal Scalar Wave (LSW), for longitudinal wave the vibration of the particles of the medium are in the direction of wave propagation. A longitudinal wave proceeds in the form of compression and rarefaction which is the stretch and compression in the same direction as the wave moves. For a longitudinal wave at places of compression, the pressure and density tend to be maximum, while at places where rarefaction takes place, the pressure and density are minimum. In gases only, longitudinal wave can propagate. Longitudinal waves are known as compression waves. A longitudinal wave travels through a medium in the form of compressions or condensations C and rarefaction R. A compression is a region of the medium in which particles are compressed i.e., particles come closer i.e., distance between the particles become less than the normal distance between them. Thus, there is temporary decrease in volume and as a consequent increase in density of the medium in the region of compression. A rarefaction is a region of the medium in which particles are rarefied (i.e., particles get farther apart than what they normally are). Thus, there is a temporary increase in volume and a consequent decrease in density of the medium in the region of rarefaction.

Table 1: The Two Parts of Wave Equation.

$$\nabla^2\vec{E} = \nabla(\vec{\nabla}\cdot\vec{E}) - \vec{\nabla}\times\vec{\nabla}\times\vec{E} = \frac{1}{c^2}\left(\frac{\partial^2\vec{E}}{\partial t^2}\right)$$

Equation 3-125

Nikola Tesla	Heinrich Hertz
• **Scalar Wave =** (Electric or Magnetic) **Longitudinal Wave**	• **Electromagnetic Wave =** **Transverse Wave**
Form (each time for velocity of propagation v): • ($v > c$): Neutrino radiation, morphogenetic fields, • ($v = c$): Photons, • ($v < c$): Plasma wave, thermal vortices, biophotons, earth radiation, …. • ($v = c$ $v = 0$): Noise	Form (each time for frequency): • Cosmic radiation • X-rays • Light • UV Radiation • Microwave • Radio waves • VLF, ULF,

The distance between the centers of two consecutive rarefaction and two consecutive compressions is called wavelength. Examples of longitudinal waves are sound waves, tsunami waves, earthquake P waves, ultrasounds, vibrations in gas, and oscillations in spring, internal water waves, and waves in slink etc. Table 1 shows in a survey, the two parts of the wave equation in the assignment to the terms and forms, where the right-hand side is the electromagnetic wave descriptions according to Heinrich Hertz and left-hand side is the scalar wave described by Nikola Tesla. The terms, on one hand is transverse wave and on the other hand longitudinal wave relate to the kind of wave propagation.

What is Microwave

You may be familiar with microwave images as they are used on TV weather news as illustrated in (Figure 4), and you can even use microwaves to cook your food. Microwave ovens work using microwave about 12 centimeters in length to force water and fat molecules in food to rotate. The interaction of these molecules undergoing forced rotation creates heat and the food is cooked. Microwave is a form of electromagnetic radiation with wavelengths ranging from about one meter to one millimeter corresponding to frequencies between 300 MHz and 300 GHz respectively. Different sources define different frequency ranges as microwaves; the above broad definition includes both UHF and EHF (millimeter wave) bands. A more common definition in radio-frequency engineering is the range between 1 and 100 GHz (wavelengths between 0.3 m and 3 mm). In all cases, microwaves include the entire SHF band (3 to 30 GHz, or 10 to 1 cm) at minimum. Frequencies in the microwave range are often referred to by their IEEE radar band designations: S, C, X, Ku, K, or Ka band, or by similar NATO or EU designations [4,5]. As we stated, microwaves are a portion or "band" found at the higher frequency end of the radio spectrum as illustrated in (Figure 5), but they are commonly distinguished from radio waves because of the technologies used to access them. As we also stated in above, different wavelengths of microwaves are grouped into "sub-bands" that are providing different information to scientists and Engineers. See (Figure 6) Microwaves are so cool that they are separated into sub-bands based on their wavelength. C-band microwaves are the portion on the electromagnetic spectrum that have a frequency ranging between 4 and 8 gigahertz. L-band microwaves are in the 1-2 gigahertz, S-band in the 2-4 GHZ range and X-bands which are in the 10-13 gigahertz range Ku- bands which are in the 11-14 GHZ radiation. Different wavelengths offer different effects. See (Figure 7)

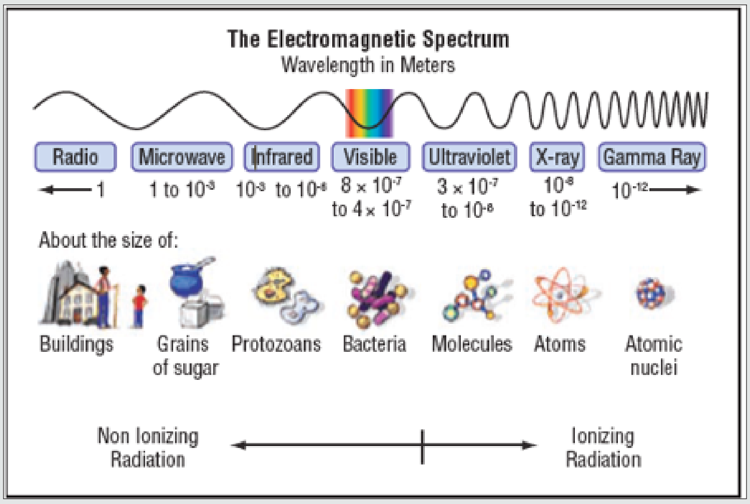

Figure 4: The Electromagnetic Spectrum of Radiation Waves.

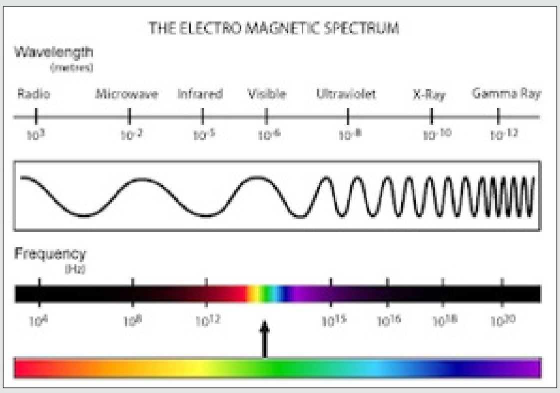

Figure 5: Different Bands of Microwaves Illustration.

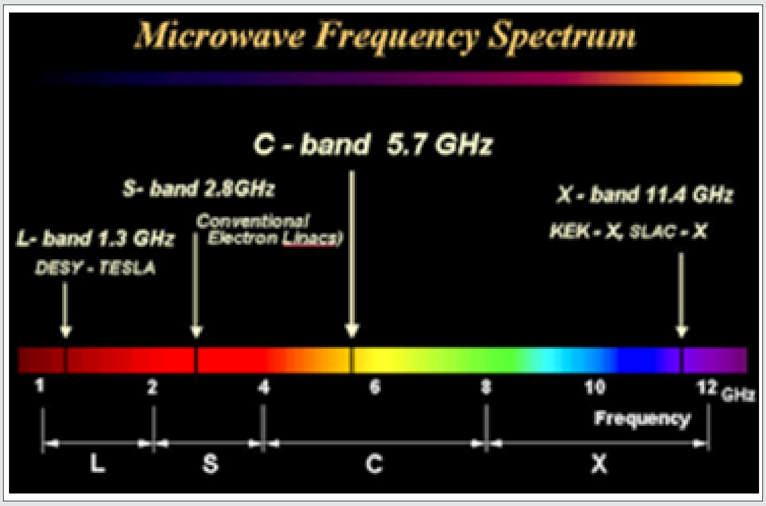

Figure 6: Microwave Sub-bands Spectrum.

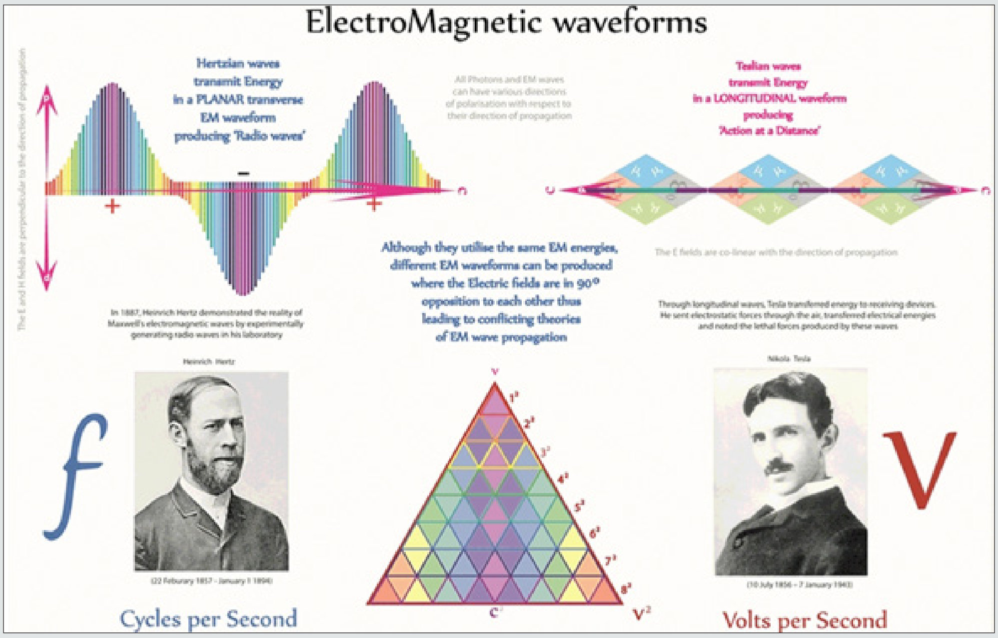

Figure 7: Electro-Magnetic Wave (EMW).

What is a Scalar Wave

Scalar waves are conceived as longitudinal waves, like sound waves. Unlike the transversal waves of electromagnetism, which move up and down perpendicularly to the direction of propagation, longitudinal waves vibrate in line with the direction of propagation. Transversal waves can be observed in water ripples: the ripples move up and down as the overall waves move outward, such that there are two actions; one moving up and down, and the other propagating in a specific direction outward. Technically speaking, scalar waves have magnitude but no direction, since they are imagined to be the result of two electromagnetic waves that are 180 degrees out of phase with one another, which leads to both signals being canceled out. This results in a kind of 'pressure wave'.Mathematical physicist James Clerk Maxwell, in his original mathematical equations concerning electromagnetism, established the theoretical existence of scalar waves. After his death, however, later physicists assumed these equations were meaningless since scalar waves had not been empirically observed and repeatedly verified among the scientific community at large. Vibrational, or subtle energetic research, however, has helped advance our understanding of scalar waves. One important discovery states that there are many different types of scalar waves, not just those of the electromagnetic variety. For example, there are vital scalar waves (corresponding with the vital or "qi" body), emotional scalar waves, mental scalar waves, causal scalar waves, and so forth. In essence, as far as we are aware, all "subtle" energies are made up of various types of scalar waves Some general properties and characteristic of scalar electromagnetic waves (of the beneficial kind) that could be claimed, includes:

a. Travel faster than the speed of light.

b. Seem to transcend space and time.

c. Cause the molecular structure of water to become coherently reordered.

d. Positively increase immune function in mammals.

e. Are involved in the formation process in nature.

Not all scalar waves, or subtle energies, are beneficial to the living systems. Electromagnetism of the 60 Hz AC variety, for example, emanates a secondary longitudinal/scalar wave that is typically detrimental to living systems. Subtle Energy Science's energetic encoding technology and scalar-wave entrainment effectively cancel this detrimental wave and transmute it into a beneficial wave.

Scalar Wave Characteristics and Infrastructure

More details of this interest subject of this section and naturally this book is provided in Chapter 6 of the book written by Zohuri [3], however, the Scalar Wave is also a member of the wave family that we are talking about in this chapter, thus we need to bring it up as part of wave family here. Starting from Faraday's discovery - instead of the formulation of the law of induction according to Maxwell - an extended field theory is derived, which goes beyond the Maxwell theory with the description of potential vortices (noise vortices) and their propagation as a scalar wave but contains the Maxwell theory as a special case. The new field theory doesn't collide with the textbook opinion, but extends it in an essential point with the discovery and addition of the potential vortices Also, the theory of objectivity, which follows from the discovery, is compared in the form of a summary with the subjective and the relativistic point of view and the consequences for variable velocity of propagation of the scalar waves, formed from potential vortices, are discussed. From Maxwell's field equations only, the well-known transverse or Hertzian can be derived, whereas the calculation of Longitudinal Scalar Waves (LSW) gives zero as a result. This is a flaw of the field theory, since scalar waves exist for all particle waves, like e.g., as plasma waves, as photon or neutrino. Starting from Faraday's discovery, instead of the formulation of the law of induction according to Maxwell, an extended field theory is derived, which goes beyond the Maxwell theory with the description of potential vortices such as noise vortices and their propagation as a scalar wave but contains the Maxwell theory as a special case. With that the extension is allowed and does not contradict textbook physics [6,7].

It was a transverse wave, for which the electric and the magnetic field pointers oscillate perpendicular to the direction of propagation. This can be, seen as the reason, that the velocity of propagation is showing itself field independent and constant. It is the speed of light . The traveling at the speed faster than speed of light in space that is known as Alcubierre [8-10] rather than normal Euclidian has been proven theoretically as well as shown in laboratory [11]. With that Hertz had experimentally proven the properties of this wave, previously calculated in a theoretical way by Maxwell, and at the same time proven the correctness of the Maxwellian field theory. The scientists in Europe were just saying to each other: "well done!" as completely other words came across from a private research laboratory in New York: "Heinrich Hertz is mistaken, it by no means is a transverse wave but a longitudinal wave!" Besides the mathematical calculation of scalar waves this section of the book contains a voluminous material collection concerning the information technical use of scalar waves, infrastructure, derivation, and properties of such wave. If the useful signal and usually interfering noise signal changes their places if a separate modulation of frequency and wavelength makes a parallel image transmission possible. If it concerns questions of the environmental compatibility for the sake of humanity such as bio-resonance, among others or to harm humanity as for example electro smog or even the high energy weapon application of Star Wars also known as Strategic Defense Initiative (SDI) [6,8]. With regards to the environmental compatibility a decentralized electrical energy technology should be required, which manages without overhead power lines, without combustion and without radioactive waste. The liberalization of the energy markets will not on any account solve our energy problem, but only accelerate the way into the dead end. A useful energy source could be represented by space quanta, which hit upon the Earth from the sun or from space. They however only are revealed to the measurement technician if they interact. It will be shown that the particles oscillate and an interaction or collection with the goal of the energy technical use is only possible in the case of resonance. Since these space quanta as oscillating particles have almost no charge and mass averaged over time, they have the ability of penetration proven for neutrinos. In the case of the particle radiation discovered 100 years ago by Tesla, it obviously concerns neutrinos. We proceed from the assumption that in the future decentral neutrino converters will solve the current energy problem. Numerous concepts from nature and engineering, like on the one hand lightning or photosynthesis and on the other hand the railgun or the Tesla converter is instanced and can be discussed. Giving all the above scenarios, we start our discussion of scalar wave subject in this section and this chapter by asking ourselves, what is a "Scalar Wave" exactly? Scalar wave (hereafter SW) is just another name for a "longitudinal" wave. The term "scalar" is sometimes used instead because the hypothetical source of these waves is thought to be a "scalar field" of some kind similar to the Higgs Field for example. There is nothing particularly controversial about Longitudinal Waves (hereafter LW) in general as illustrated in (Figures 3-10). They are a ubiquitous and well-acknowledged phenomenon in nature. Sound waves traveling through the atmosphere (or underwater) are longitudinal as are plasma waves propagating through space also known as Birkeland currents. Longitudinal waves moving through the Earth's interior are known as "Telluric currents". They can all be thought of as pressure waves of sorts.

In modern day electrodynamics (both classical and quantum), Electromagnetic Waves (EMW) traveling in "free space" (such as photons in the "vacuum") are generally considered to be TW. But this was not always the case. When the preeminent Mathematician James Clerk Maxwell first modeled and formalized his unified theory of electromagnetism in the late 19th-century neither the EM SW/LW nor the EM TW had been experimentally proven, but he had postulated and calculated the existence of both. After Heinrich Hertz demonstrated experimentally the existence of transverse radio waves in 1887, theoreticians (such as Heaviside, Gibbs, and others) went about revising Maxwell's original equations (who was now deceased and could not object). They wrote out the SW/LW component from the original equations because they felt the mathematical framework and theory should be made to agree only with experiment. Obviously, the simplified equations worked — and helped them make the AC/DC electrical age engineerable. But at what expense? Soon after Hertz's claim of discovering Maxwell's transverse EM waves Tesla visited him and personally demonstrated the experimental error to him. Hertz agreed with Tesla and had planned to withdraw his claim, but varying agendas intervened and set the stage for a major rift in the "accepted" theories that soon became transformed into the fundamental "laws" of the electric science that have held sway in industry and the halts of academia to the present day. See illustration in (Figure 7).

Then in the 1889 Nikola Tesla (a prolific experimental physicist and inventor of AC) threw a proverbial wrench in the works when he discovered experimental proof for the elusive electric scalar wave. This seemed to suggest that SW/LW, opposed to Transverse Wave (TW), could propagate as pure electric waves or as pure magnetic waves. Tesla also believed these waves carried a hitherto-unknown form of excess energy he referred to as "radiant". This intriguing and unexpected result was said to have been verified by Lord Kelvin and others soon after. See illustration in (Figures 8,9) [3]. However, instead of merging their experimental results into a unified proof for Maxwell's original equations, Tesla, Hertz, and others decided to bicker and squabble over who was more correct. In, actuality, they both derived correct results. But because humans (even "rational" scientists) are fallible and prone to fits of vanity and self-aggrandizement, each side insisted dogmatically that they were right, and the other side was wrong. The issue was allegedly settled after the dawn of the 20th-century when:

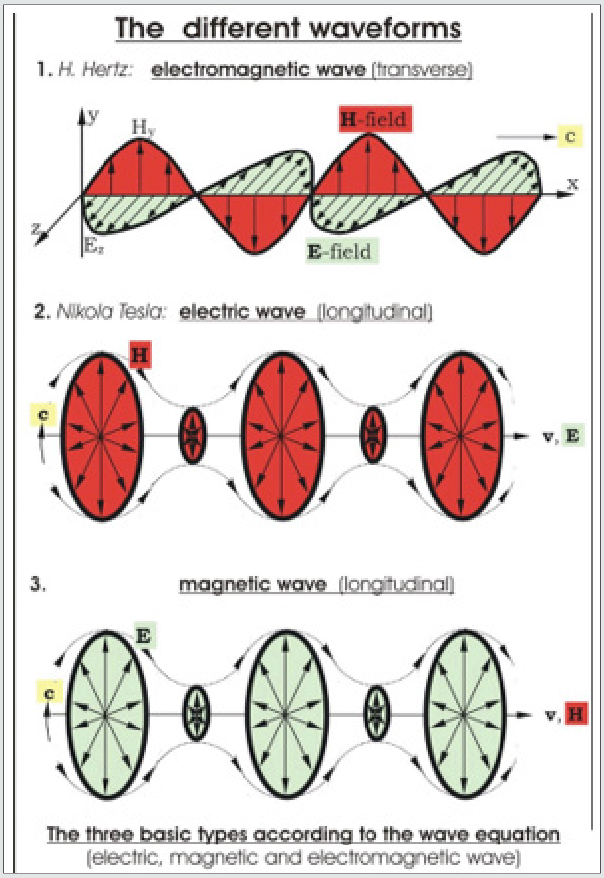

Figure 8: Illustration of Different Waveforms.

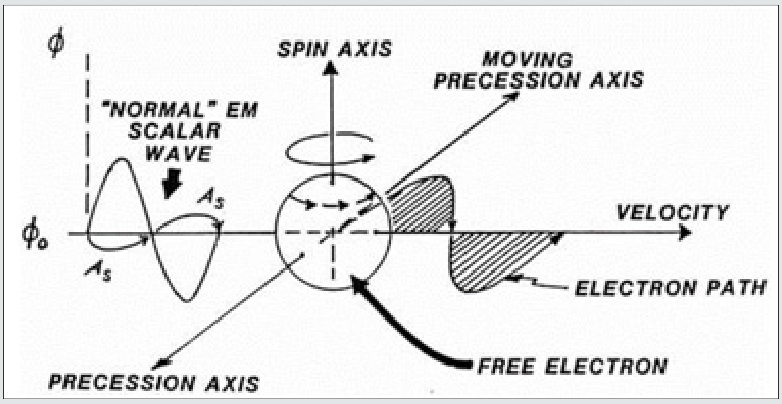

Figure 9: Illustration of Electron Path and Normal EM Scalar Wave.

i. The concept of the mechanical (passive/viscous) Ether was purportedly disproven by Michelson-Morley and replaced by Einstein's Relativistic Space-Time Manifold, and

ii. Detection of SW/LW's proved much more difficult than initially thought (mostly due to the wave's subtle densities, fluctuating frequencies, and orthogonal directional flow). As a result, the truncation of Maxwell's equations was upheld.

SW/LW in free space however are quite real. Besides, Tesla's empirical work carried out by Electrical Engineers such as Eric Dollard, Konstantin Meyl, Thomas Imlauer, and Jean-Louis Naudin (to name only some) have clearly demonstrated their existence experimentally. These waves seem to be able to exceed the speed of light, pass through EM shielding also known as Faraday Cages, and produce over-unity (more energy out than in) effects. They seem to propagate in a yet unacknowledged counter-spatial dimension also known as hyper-space, pre-space, false-vacuum, ether, implicit order, etc. See (Figure 10) [3]. For more detailed information refer to Zohuri book.

Figure 10: Imaginary Hype Space.

Radiation Wave and What Is It?

Using radiation description defined by United States (U.S.), National Aeronautics and Space Administration (NASA), we can state that, Radiation is a form of energy that is emitted or transmitted in the form of rays, electromagnetic waves, and/or particles. In some cases, radiation can be seen (visible light) or felt (infrared radiation), while other forms like x-rays and gamma rays are not visible and can only be observed directly or indirectly with special equipment. All alone these characteristics can be defined by the "Electromagnetic Spectrum" of the wavelength of these radiation waves as illustrated in (Figure 6). Although radiation can have negative effects both on biological and mechanical systems, it can also be carefully used to learn more about each of those systems. The motion of electrically charged particles produces electromagnetic waves. These waves are also called "electromagnetic radiation" because they radiate from the electrically charged particles. They travel through empty space as well as through air and other substances. Scientists have observed that electromagnetic radiation has a dual "personality." Besides acting like waves, it acts like a stream of particles (called photons) that has no mass. The photons with the highest energy correspond to the shortest wavelengths and vice versa. The full range of wavelengths (and photon energies) is called the electromagnetic spectrum. The shorter the wavelength, the more energetic the radiation and the greater the potential for biological harm.

Conclusion

Directed Energy Weapons is nothing new to mankind, historically the origination of such weapons falls in centuries ago when first time the famous Greek mathematician, physicist, engineer, inventor, and astronomer, Archimedes of Syracuse where he used different mirrors to collect sun beams and focusing them on Roman's fleet to destroy enemy ships with fire. This is known as The Archimedes Heat Ray. Archimedes may have used mirrors acting collectively as a parabolic reflector to burn ships attacking Syracuse. The device was used to focus sunlight onto approaching ships, causing them to catch fire. Off course the myth or reality of Archimedes Heat Ray is still a questionable story, but certain experiments with help of group of students from Massachusetts Institute of Technology that was carried out with 127 one-foot (30 cm) square mirror tiles in October of 2005 that was focused on a mock-up wooden ship at a range of around 100 feet (30 m). The flames broke out on a patch of the ship, but only after the sky had been cloudless and the ship had remained stationary for around ten minutes. It was concluded the device was a feasible weapon under these conditions. Battles of tomorrow will be fought with different weapons that have more lethal effects and faster delivery systems. One of mankind's greatest achievements in the twenty's century is the ability to destroy his entire race several times over! At this time of intensive arms buildup, as more and more dollars and rubles are invested in the next generation of weapons, it is in the best interest of every citizen to be aware and be able to make an informed judgment on the best possible direction for the arm race. Offensive or defensive weapons are a cruel reality that nevertheless must be reckoned with on both sides of the Iron Curtain [7].

As part of Directed Energy Beam Weapons, we are also taking under consideration the Scalar Wave (SW) which is just another name for a "Longitudinal Wave (LW)". The term "scalar" is sometimes used instead because the hypothetical source of these waves is thought to be a "scalar field" of some kind similar to the Higgs Field for example. There is nothing particularly controversial about longitudinal waves (hereafter LW) in general. They are a ubiquitous and well-acknowledged phenomenon in nature. Sound waves traveling through the atmosphere (or underwater) are longitudinal as are plasma waves propagating through space (aka Birkeland currents). Longitudinal waves moving through the Earth's interior are known as "telluric currents". They can all be thought of as pressure waves of sorts. SW/LW are quite different from "transverse" waves. You can observe transverse waves (TW) by plucking a guitar string or watching ripples on the surface of a pond. They oscillate (vibrate, move up and down, or side-to-side) perpendicular to their arrow of propagation (directional movement). Comparatively SW/LW oscillate in the same direction as their arrow of propagation. From Maxwell's field equations only the well-known (transverse) Hertzian waves can be derived, whereas the calculation of longitudinal scalar waves gives zero as a result. This is a flaw of the field theory, since scalar waves exist for all particle waves, like e.g., as plasma wave, as photon- or neutrino radiation. Starting from Faraday's discovery, instead of the formulation of the law of induction according to Maxwell, an extended field theory is derived, which goes beyond the Maxwell theory with the description of potential vortices (noise vortices) and their propagation as a scalar wave but contains the Maxwell theory as a special case. With that the extension is allowed and does not contradict textbook physics. William Thomson, who called himself Lord Kelvin, after he had been knighted, already in his lifetime was a recognized and famous theoretical physicist. The airship seemed too unsafe to him and so he went aboard a steam liner for a journey from England to America in the summer of 1897. He was on the way in a delicate mission.

Eight years before his German colleague Heinrich Hertz had detected the electromagnetic wave in experiments in Karlsruhe and scientists all over the world had rebuilt his antenna arrangements. They all not only found and confirmed the wave as such, but they even could also show the characteristic properties.

It was a transverse wave, for which the electric and the magnetic field pointers oscillate perpendicular to the direction of propagation. This can be, seen as the reason, that the velocity of propagation is showing itself as field independent and constant. It is the speed of light c. With that Hertz had experimentally proven the properties of this wave, previously calculated in a theoretical way by Maxwell, and at the same time proven the correctness of the Maxwellian field theory. The scientists in Europe were just saying to each other: "well done!" as completely other words came across from a private research laboratory in New York: "Heinrich Hertz is mistaken, it by no means is a transverse wave but a longitudinal wave!" Scalar waves are also called 'electromagnetic longitudinal waves', 'Maxwellian waves', or 'Teslawellen' ('Tesla waves'). Variants of the theory claim that Scalar electromagnetics (also known as scalar energy) is the background quantum mechanical fluctuations and associated zero-point energies. In modern day electrodynamics (both classical and quantum), Electromagnetic Waves (EMW) traveling in "free space" (such as photons in the "vacuum") are generally considered to be TW. But this was not always the case. When the preeminent Mathematician James Clerk Maxwell first modeled and formalized his unified theory of electromagnetism in the late 19th-century neither the EM SW/LW nor the EM TW had been experimentally proven, but he had postulated and calculated the existence of both. After Heinrich Hertz demonstrated experimentally the existence of transverse radio waves in 1887, theoreticians (such as Heaviside, Gibbs, and others) went about revising Maxwell's original equations (who was now deceased and could not object). They wrote out the SW/LW component from the original equations because they felt the mathematical framework and theory should be made to agree only with experiment. Obviously, the simplified equations worked — they helped make the AC/DC electrical age engineerable.

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Besides the mathematical calculation of scalar waves in the book by Zohuri [3] contains a voluminous material collection concerning the information technical use of scalar waves, if the useful signal and the usually interfering noise signal change their places, if a separate modulation of frequency and wavelength makes a parallel image transmission possible, if it concerns questions of the environmental compatibility for the sake of humanity (bio resonance, among others) or to harm humanity (electro smog) or to be used as high energy directed weapons also known to us as Star Wars or Strategic Defense Initiative (SDI) as new dawn of tomorrows battel field weapons.

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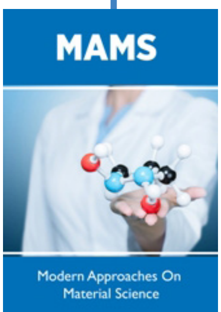

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