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Longitudinal Scalar Wave (LSW) Fact: It Is a True Science, Neither Pseudoscience Nor Fiction (A Short Memorandum)

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Abstract: The discovery of scalar energy many years ago has mostly been ignored since then. Scalar energy is still misunderstood, underappreciated, and underutilized today. To comprehend the future, one must look back at the past. Scalar energy was first discovered by Scottish physicist James Clark Maxwell, who was born in 1831. Maxwell made significant advances in mathematical physics. He developed the theories relating to electromagnetic fields and radiation. Maxwell's discoveries were advanced by Nikola Tesla, who also created instruments that demonstrated the presence of scalar energy. Nicola Tesla discovered an electromagnetic longitudinal wave in the early 1900s. It is capable of lossless energy transmission over great distances, lossless power transmission through solid metal objects, and wireless energy transmission. In this patent, Tesla neither named it nor provided a description of how it operated. Now, in the twenty-first century, it is referred to as LSWs (longitudinal scalar waves). Instantaneous longitudinal waves called scalars cover the entire field. In contrast to electromagnetic waves, which are transverse and move along an axis in a certain direction, they do not propagate along an axis or have a direction. As "vector" waves, electromagnetic waves lose power as they travel farther and pass through solid metal objects. Scalar waves also offer a unique property that Tesla does not include in his patent, which concentrates on the transportation of energy. These waves can transmit information as well.

Key words: QED (quantum electrodynamic), CED (classical electrodynamic), electromagnetic and classical electromagnetic, energy wave and Hertzian wave, TEM (transverse electromagnetic) wave.

1. Introduction

In both serious and less serious electrical engineering literature, there is a great deal of misunderstanding about what "Scalar Waves" are. This paper explains that these waves are hypothetical longitudinal waves. It is demonstrated that a longitudinal wave is made up of both a scalar potential and a vector potential. Acoustic waves have a complete analog in other media. There is discussion of longitudinal electromagnetic wave transmitters and receivers. In his experiment on wireless energy transmission, Nikola Tesla first discovered and employed scalar waves. The MCE (more complete electromagnetic) equation, which is an extension of the Maxwell equation, is described in 7 Book Series in Digital Format, written by the authors and launched in www.lingopanel.com and marketed under the slogan of *Learning In No Time*, a reliable, elegantly designed, and secure website to download very simple, short yet to the point in different topics in digital format that brings any types of readers from the basic to advance to the understanding of the subject of "LSW (Longitudinal Scalar Wave)", within very short period [1].

The concept of a "longitudinal scalar wave" is not a well-established or widely recognized scientific term within mainstream physics. It appears to be a term that has gained popularity within certain alternative or

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fringe theories, but it does not have a widely accepted scientific definition or basis. However, in this short memorandum, we have done our best to present this energy wave very objectively by describing it in different sub-sections in this article by taking a holistic approach yet living granular information in seven different volumes presented in Ref. [1] here under related topics that allow the reader to establish their own opinion if this subject of LSW is hype or if it is a fact and not a fiction nor a pseudoscience anymore regarding any escapism expressed by certain communities of scientists as well.

In physics, waves are typically characterized by their propagation direction and the nature of the oscillations they produce. Longitudinal waves are waves in which the oscillations occur parallel to the direction of wave propagation. Sound waves in air, for example, are longitudinal waves because the air molecules vibrate back and forth in the same direction that the sound wave is traveling.

LSWs, on the other hand, are typically described as waves that do not possess a direction of oscillation or polarization. They are often associated with scalar fields, which are mathematical constructs used in physics to describe quantities that are independent of direction, such as temperature or gravitational potential.

The term “Longitudinal Scalar Wave” seems to suggest a wave that has both longitudinal characteristics (oscillations parallel to propagation) and scalar characteristics (independent of direction). However, it is important to note that this concept is not well-established within mainstream physics and lacks empirical evidence or widely accepted theoretical frameworks.

It is worth mentioning that alternative theories and fringe concepts may use terminology that deviates from established scientific principles. While such ideas may be interesting to explore, it is important to approach them with critical thinking and exercise caution when it comes to accepting them as valid scientific concepts [1].

There are many different technical approaches by different paylists in the form of journal articles or books that are published, and they could be found on the Internet, such as Amazon, etc. [1-6].

However, it has been believed that derivations of the LSW from Ampere’s Maxwell’s Equations are required and were theoretically established as evidence of this energy wave driven by the existence of scalar electrodynamic waves.

The biquaternion variant of the electrodynamics theory is possible. Typically, a gauge transformation of the potentials has no effect on the Maxwell equations, and one is free to select any gauge condition. For instance, the possible Lorenz inhomogeneous wave equations are produced by the Lorentz gauge condition. The generalized Maxwell theory, written in terms of potentials, can be made to automatically satisfy the Lorenz inhomogeneous wave equations by the introduction of a scalar field, without the need for a gauge condition. Regarding a transformation of the potentials, this theory of electrodynamics is no longer gauge invariant; rather, it is electrodynamics with broken gauge symmetry. The appearance of the extra scalar field terms can be thought of as a conditional current regulation that does not defy the principle of conservation of charge.

- The foreseeing of an inertial longitudinal electroscalar wave (LES wave).
- Superluminal wave solutions and perhaps classical photon tunneling theory.
- An expanded Lorentz force equation with an additional scalar term.
- Theorems of generalized energy and momentum with an additional power flow term related to LES waves.

This theory allows for the possibility of a charge density wave that solely produces a scalar field.

It is possible to formulate the theory of electrodynamics in these forms extremely effectively by including phenomena like quaternions and biquaternions. J. C. Maxwell also employed Hamilton’s quaternions [7] in his *Treatise on Electricity and Magnetism* [8, 9]. The biquaternion form was utilized by A. Waser [10]. The quaternion is an excellent tool for expressing the common four-qualities found in physics, such as four-position, four-speed, four-momentum, four-force, four-potential, and four-current [11].

2. Hertzian Wave versus Scalar Wave

Let me clarify the difference between Hertzian waves and scalar waves.

Hertzian waves, also known as electromagnetic waves, are the waves that are commonly studied and utilized in mainstream science and technology. These waves are characterized by both electric and magnetic fields oscillating perpendicular to each other and perpendicular to the direction of wave propagation. Hertzian waves include radio waves, microwaves, infrared waves, visible light, ultraviolet waves, X-rays, and gamma rays. They are described by the electromagnetic wave equations derived from Maxwell’s equations.

Additionally, the impacts of infrared rays and Hertzian waves, which are electromagnetic waves in the radar and radio range, are typically thought to be equal to the effect generated by heating. While infrared rays excite the vibrational modes of big molecules and release heat as well, lengthier radio waves primarily cause thermal agitation of molecules and excitation of molecular rotations. Fats with unsaturated carbon chains absorb both types of radiation preferentially.

On the other hand, scalar waves are a theoretical concept discussed in some alternative or fringe theories. Scalar waves, as proposed in these theories, are described as waves that propagate without an associated electromagnetic field or with a scalar field instead of a vector field. Proponents of scalar wave theories suggest that these waves can carry information or energy in a manner that differs from electromagnetic waves.

It is important to note that the existence and properties of scalar waves are not supported by mainstream scientific evidence or widely accepted within the scientific community. The concepts and claims related to scalar waves often lack rigorous experimental validation and are considered pseudoscientific.

In nutshell, Hertzian waves (electromagnetic waves) are well-established waves studied in mainstream science, while scalar waves are a theoretical concept proposed in alternative theories. It is crucial to approach claims related to scalar waves with skepticism, as they are not supported by mainstream science.

3. Is LSW Science or Fiction?

LSWs refer to a type of wave that propagates in a scalar field rather than in a vector field. Unlike electromagnetic waves, which consist of both electric and magnetic fields oscillating perpendicularly to each other and to the direction of wave propagation, LSWs have no polarity or directionality.

Proponents of the theory of scalar waves suggest that these waves can be used for a wide range of applications, including energy transmission, communication, and even medical treatment. However, there is little scientific evidence to support these claims, and many scientists and engineers are skeptical of the existence and practicality of LSWs.

It is important to note that the concept of LSWs is not widely accepted in the scientific community and is considered by some to be pseudoscientific. While some researchers continue to investigate the potential uses and properties of these waves, more rigorous testing and validation are needed to confirm their existence and practicality.

A LSW is a type of wave that travels through a medium without exhibiting any transverse oscillations. Unlike transverse waves, which oscillate perpendicular to the direction of propagation, LSWs oscillate in the same direction as the wave travels.

Scalar waves are also sometimes referred to as “longitudinal waves” or “compression waves”. They are characterized by the absence of a magnetic field component, with only an electric field component present. Scalar waves are also known to have a non-linear nature, which means that their behavior is not predictable using linear equations.

Despite their theoretical existence, there is currently no experimental evidence to support the existence of LSWs. Some scientists have proposed that such waves may have potential applications in areas such as communication and energy transmission, but further research is necessary to confirm their existence and explore their potential applications

In summary, LSW is a new kind of electromagnetic, which is considered as “Energy Wave” rather than “Hertzian Wave”, that are typically TEM (transverse electromagnetic) type of waves anywhere from VLF (very low frequency) to VHF (very high frequency) as well as covering wavelength of millimeter and microwave ranges too.

The mathematical existence of this energy was first proposed in a series of groundbreaking equations by Scottish Mathematician, James Clerk Maxwell, in the mid of 1800-1939. This energy is called scalar energy. It is characterized by both particle and wave like. The waves of this energy are called longitudinal EMW (electromagnetic wave) to distinguish them from transverse EM, the kind we are familiar with in our daily life. Tesla’s name of this energy is scalar energy or ZPE (zero-point energy). However, the lateral claim is a debatable argument, that is, readers will find a book around the subject ZPE in Ref. [1].

4. Criticisms and Skepticism of LSWs

The concept of LSWs faces significant criticisms and skepticism within the scientific community. Here are some common concerns and reasons for skepticism.

4.1 Lack of Experimental Evidence

One of the primary criticisms is the absence of robust experimental evidence supporting the existence and properties of LSWs. Claims made about these waves often lack empirical verification through rigorous scientific experiments with proper controls and independent verification.

4.2 Incompatibility with Established Physics

LSWs often contradict well-established principles of physics, including Maxwell’s equations, which describe electromagnetic waves and their behavior. Claims of scalar waves typically propose effects and phenomena that are inconsistent with the known laws of physics, such as the ability to transmit information faster than the speed of light.

4.3 Lack of Theoretical Framework

The concept of LSWs lacks a comprehensive and widely accepted theoretical framework. The absence of a rigorous mathematical formulation or a consistent theoretical basis raises concerns about the validity and reliability of the claims made regarding these waves.

4.4 Pseudoscientific Associations

LSWs are often associated with pseudoscientific or fringe theories, which further contribute to skepticism. The connection of these waves to alternative medicine, free energy claims, and other unconventional fields raises concerns about the scientific rigor and credibility of the associated claims.

4.5 Misinterpretation of Scientific Terminology

Critics argue that the term “longitudinal scalar wave” may be a misinterpretation or misapplication of established scientific terminology. Scalar waves, as understood in physics, typically refer to waves that are not associated with a specific direction of oscillation or polarization. The addition of the “longitudinal” descriptor seems to introduce confusion and deviate from established scientific definitions.

4.6 Lack of Consensus and Peer Review

Another point of criticism is the absence of widespread acceptance or support from the scientific community. Claims regarding LSWs often lack peerreviewed publications in reputable scientific journals and fail to garner support from experts in relevant fields. The lack of consensus among experts raises concerns about the validity and scientific credibility of the concept.

It is important to note that skepticism and criticism are inherent to the scientific process, and alternative theories must withstand scrutiny and rigorous evaluation to gain scientific acceptance. While it is essential to remain open to new ideas, it is equally important to approach them with critical thinking and rely on empirical evidence and consensus within the scientific community.

5. Current Research and Future Directions of LSWs

When it comes to the current research and future directions of LSWs, it is important to note that this concept remains largely outside the mainstream scientific consensus. As a result, there is limited ongoing research specifically focused on LSWs within established scientific communities. However, some individuals and groups who support alternative or fringe theories continue to explore this topic. Here are a few areas that could be considered.

5.1 Alternative Physics and Energy Research

Some researchers and inventors associated with alternative physics and energy exploration claim to be investigating LSWs. They propose various devices or experimental setups that they believe can generate or utilize these waves for applications such as energy generation, communication, and healing. However, it is crucial to approach these claims with skepticism and rigor, as they often lack scientific evidence and verification.

5.2 Experimental Investigations

Certain individuals or groups interested in LSWs conduct their own experiments to explore the phenomenon. These experiments may involve attempts to generate and detect scalar waves using specialized equipment or setups. However, it is important to note that the scientific validity and reliability of such experiments can be questionable, as they often lack proper controls and independent verification.

5.3 Theoretical Explorations

Some proponents of alternative theories continue to develop and refine theoretical frameworks around LSWs. They may propose mathematical models, equations, or explanations to support their claims. However, it is crucial to critically evaluate these theories and ensure they align with well-established principles of physics and scientific methodology.

5.4 Integration with Quantum Physics

In some alternative theories, attempts are made to connect LSWs with concepts from quantum physics. The aim is to explore potential connections between these waves and quantum phenomena, such as entanglement or non-locality. However, it is important to exercise caution when bridging alternative concepts with established scientific theories, as the level of scientific rigor and evidence can vary significantly.

It is worth emphasizing that the scientific community at large does not widely recognize or actively pursue research on LSWs. The lack of empirical evidence, testable predictions, and consistent theoretical frameworks has hindered its acceptance as a legitimate scientific concept. Therefore, it is important to approach this topic with critical thinking and recognize the distinction between mainstream science and alternative theories.

6. Conclusions

In physics, waves are typically characterized by their propagation direction and the nature of the oscillations they produce. Longitudinal waves are waves in which the oscillations occur parallel to the direction of wave propagation. Sound waves in air, for example, are longitudinal waves because the air molecules vibrate back and forth in the same direction that the sound wave is traveling.

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