

Novel and Innovative Physics Equations for the Modern Era

Part E) Theory of everything and superstring theory

Gh. Saleh

Saleh Research Centre, Netherlands

1. Theory of Everything

Since ancient times, the idea of a unified set of laws governing nature has been a constant aspiration for scientists. From Newton to Einstein, all have sought to find a comprehensive law that describes all of nature's forces within a single, coherent framework. This concept, known as the "Theory of Everything," aims to explain gravity, electromagnetism, and the nuclear forces in a unified manner. Now, after many years of research, this theory has finally come to fruition, proposed and proven.

Based on previous research by Saleh Theory, it has been demonstrated that the four known forces of nature—gravity, electromagnetism, and the strong and weak nuclear forces—are, in fact, composed of entangled and interacting photons. This photonic structure can manifest as different types of forces depending on specific spatiotemporal conditions. For example, the gravitational and, similarly, the magnetic forces are composed of entangled photons that exhibit spring-like, oscillatory behaviour.

The Coulombic force, much like the gravitational forces, possesses a structure of entangled photons but on a much smaller scale. The strong and weak nuclear forces are essentially manifestations of Coulombic forces, originating from specific arrangements of protons and neutrons within the atomic nucleus.

Fundamentally, the force itself is a structure made of these entangled photons. It is the specific dynamics, coupling, and structural arrangement of these photons that lead to the formation and differentiation of the various types of force in nature.

In theories of the Saleh Theory, not only are all forces unified, but all forms of energy are also, in a sense, unified, making it a more complete and comprehensive theory than a traditional Theory of Everything. We will examine the equivalence of all energies in the following section.

Consider a planet orbiting a star. The gravity force, which consists of the entangled photons flowing between the star and the planet, holds the planet in its orbit. The energy of these entangled (gravitational) photons is, in fact, equal to and equivalent to the kinetic energy of the planet. This relationship can be expressed as:

$$\frac{1}{2}mv^2 = nh\nu \Rightarrow E_K = E_G$$

Additionally, for electromagnetic waves, according to Saleh equation, we have:



$$\frac{1}{2} m_p (c^2 - r^2 \omega^2) = h\vartheta \Rightarrow E_R = E_\vartheta$$

Since, according to Saleh theory, every mass is in fact the result of an aggregation of photons, it can be concluded that nuclear energy is also defined based on this very photonic structure. Therefore, the famous equation $E = mc^2$ can be rewritten as the sum of the energies of the individual photons that constitute the mass.

$$N \frac{1}{2} m_p (c^2 - r^2 \omega^2) = M c^2 \Rightarrow E_R = E_N$$

in light bulbs, electrical energy is converted into radiant energy. So, “Radiant Energy = Electrical Energy”

$$n \frac{1}{2} m_p (c^2 - r^2 \omega^2) = R I^2 t \Rightarrow E_R = E_E$$

Where “n” is the number of photons emitted from the lamp.

Since in transformers, magnetic energy is always converted into electrical energy, so:

“Electrical Energy = Magnetic Energy”

$$q(\vec{V} \times \vec{B}) \cdot \vec{d} = R I^2 t \Rightarrow E_B = E_E$$

Therefore, it can be said that all energies are equal, equivalent and identical.

$$E_K = E_G = E_R = E_N = E_E = E_B = E_\vartheta = E_U = \dots$$

So, we can write the following comprehensive relation, which we named the Saleh Comprehensive Equation of Theory of Everything or the Equation of the Primary Energy Chart, from the Big Bang till now.

$$E_{et} = N \frac{1}{2} m_p (c^2 - r^2 \omega^2) = N' h\vartheta$$

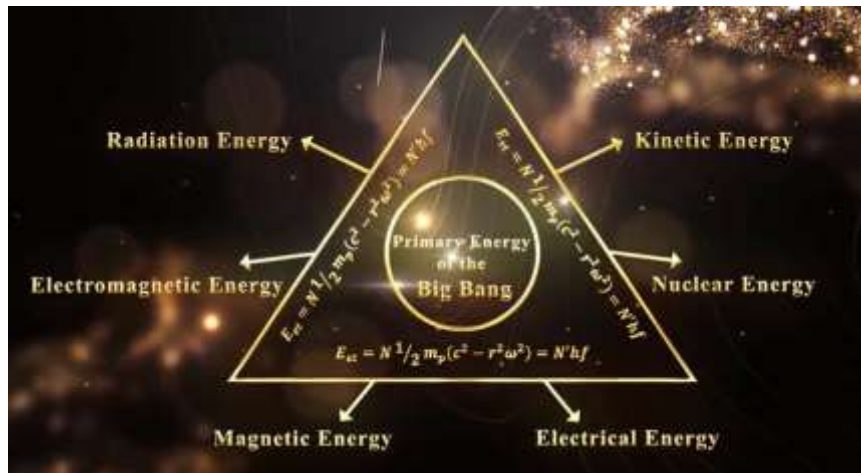


Figure 1. Saleh Comprehensive Equation of Theory of Everything



2. Superstring Theory

Superstring theory is one of the most advanced theories in theoretical physics. Instead of point-like particles, it introduces extremely small, vibrating strings as the fundamental components of matter. This theory is defined in a ten-dimensional space (or, in a more advanced theory, an eleven-dimensional space). Its key feature is the combination of strings with the principle of supersymmetry, which helps us to better understand the structure of the universe.

Based on the eleven dimensions of photon movement previously explained in Saleh articles—a brief explanation of which will be provided here—the theory can be explained and interpreted based on the movements of photons, which are the building blocks of the universe.

External movement of a photon:

The photon also has different motions. The external motion or the projectile, which consists of two types: a forward motion with a velocity equal to C , which is performed in three Dimensions, and a rotational motion in two two-dimensional planes. So, the external part of photon motion could be explained in five dimensions.

$$3D+2D=5D$$

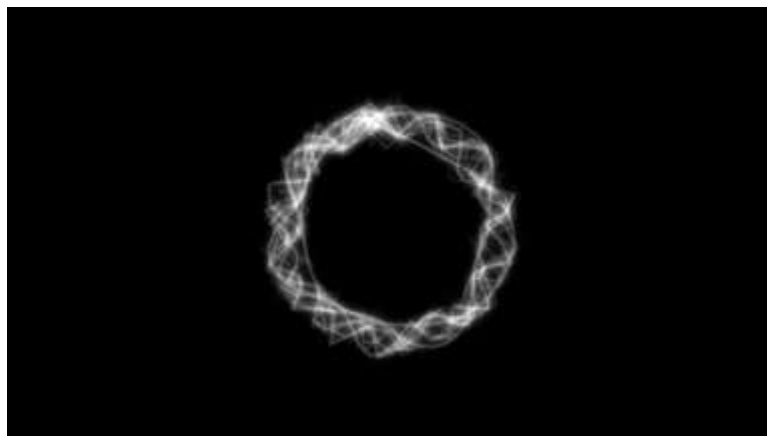
Three dimensions relate to the linear motion of the photon, while two dimensions relate to its rotational motion.

Internal motion of photon:

Photon also possesses internal motion. This motion comprises two parts: the first is vibrational, causing photons to make small movements in space and adding three extra dimensions. Since, aside from the vibrational motion, a photon moves along an indirect, closed, and tiny path, three additional dimensions should be included, bringing the total internal dimensions of photon motion to six. This means that the photon is traversing a closed path in 3 dimensions while vibrating in the other 3 dimensions.

$$3D+3D=6D$$

Three dimensions relate to the vibrational motion of the photon, while three dimensions relate to the motion of the photon in a closed loop.



And the sum of the internal and external motions of a photon is:

$$5D + 6D = 11D$$

The number of dimensions of motion corresponds exactly to the eleven dimensions of superstring theory.

In reality, due to its mathematical complexity and lack of scientific evidence, superstring theory remains on the boundary of theoretical physics and unproven hypotheses. However, based on the findings of Saleh Theory, this theory can be well-explained and interpreted using the objective realities of photon movements.

2.1. Introducing the Photon as String

In previous articles, we had introduced the structure of electrons, protons, and neutrons, stating that electrons are like a shell on hollow spheres, protons are dense spheres, and neutrons are a combination of the two – a solid sphere within a spherical shell – all of which are constructed from photons. We also elaborated on the reasons for this structure's validity.

Furthermore, we verified the photon's physical parameters and demonstrated that it is a particle with a constant mass. However, when this particle with a constant mass is emitted from an electron and travels individually, it moves in a nested helical path. This path results from the rotational motion of the photon's source, the electron, around itself and the nucleus.

In this article, we address the significant point that, considering the nested helical motion of photons, we can describe $5 + 5 + 1$ dimensions of movement for them. The nested or double helical motion comprises two helices. Movement along the first helical path requires 5 degrees of freedom, thus allowing 5 dimensions of movement to be attributed to it. Similarly, five degrees of freedom, or dimensions of movement, can also be attributed to the second helix. Combined with the photon's rotational motion around itself, a total of $10 + 1$ movements can be defined for the photon. Therefore, the photon could be a suitable candidate to be introduced as a string.

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