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Higgs Boson and Graviton Interpreted by String Force and String Structures Based on Wu's Pairs and Yangton and Yington Theory

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Abstract: *Standard Model is a group of subatomic particles derived from a mathematical model based on quantum field theory and Yang Mills Theory. In contrast, Wu's Pairs, a physical model are proposed as the building blocks of all subatomic particles based on the Yangton and Yington Theory. Since Higgs Bosons can be considered as the carriers of string force that are generated by Wu's Pairs, therefore the magnitude of the barrier caused by the string force carried by Higgs Bosons is proportional to the amount of Wu's Pairs. In other words, the mass of a particle is proportional to the amount of Higgs Bosons as that of Wu's Pairs. This concurs with that the mass is the total amount of Wu's Pairs based on Yangton and Yington Theory. When two string structures come together, they can attract to each other either end to end or side by side. These attractive only forces are known as "Gravitational Force" and the string structures that produce the gravitational force are called "Gravitons".*

Keywords: *Standard Model, Quantum Field Theory, Wu's Pairs, Yangton and Yington, String Theory, Unified Field Theory, Graviton, Quantum Gravity, Higgs Boson, Particle Radiation.*

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I. Standard Model

Subatomic particles [1] are very much smaller than atoms. There are two types of subatomic particles: elementary particles, which according to current theories are not made of other particles, and composite particles which are made of elementary particles. Particle physics and nuclear physics study these particles and how they interact.

The elementary particles of the Standard Model (Fig. 1) [2] include:

- Six flavors of quarks: up, down, bottom, top, strange, and charm
- Six types of leptons: electron, electron neutrino, muon, muon neutrino, tau, tau neutrino
- Twelve Gauge Bosons (force carriers): the photon of electromagnetism, the three W and Z Bosons of the weak force, and the eight gluons of the strong force
- The Higgs Boson

Various extensions of the Standard Model predict the existence of an elementary graviton particle and many other elementary particles.

Composite subatomic particles such as protons or atomic nuclei are bound states of two or more elementary particles. For example, a proton is made of two up quarks and one down quark, a neutron is made of two down quarks and one up quark, while the atomic nucleus of Helium-4 is composed of two protons and two neutrons.

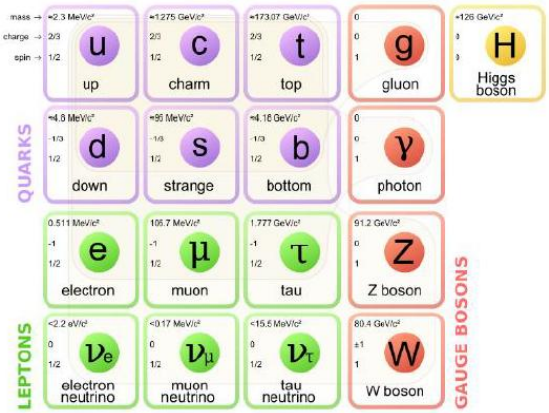

Fig. 1 The elementary particles of the Standard Model.

2. Yangton and Yington Theory

Yangton and Yington Theory [3] is a hypothetical theory of Yangton and Yington circulating antimatter particle pairs (Wu's Pairs) with a build-in inter attractive force (Force of Creation) that is proposed as the fundamental building blocks of all matter in the universe. All elementary subatomic particles having string structures as proposed by the string theory, are made of Wu's pairs by string force, the Yangton and Yington attractive force between two adjacent Wu's Pairs. Subject to the structures, the composite subatomic particles are made of elementary subatomic particles by four basic force including gravitational force, electromagnetic Force, weak force and strong force [4]. Yangton and Yington Theory not only explains the formation of subatomic particles in compliance with string theory [5] and unified field theory [6], but also interprets the correlations between space, time, energy and matter [7].

3. String Theory, String Force and String Structure

General relativity [8] and quantum field theory are not compatible, in order to unified four basic forces, physicists suggested that all matter, instead of a point structure, must have a linear structure with 10 dimensions like Calabi-Yau manifold (Fig. 2) [9]. This is known as the "String Theory" [5].

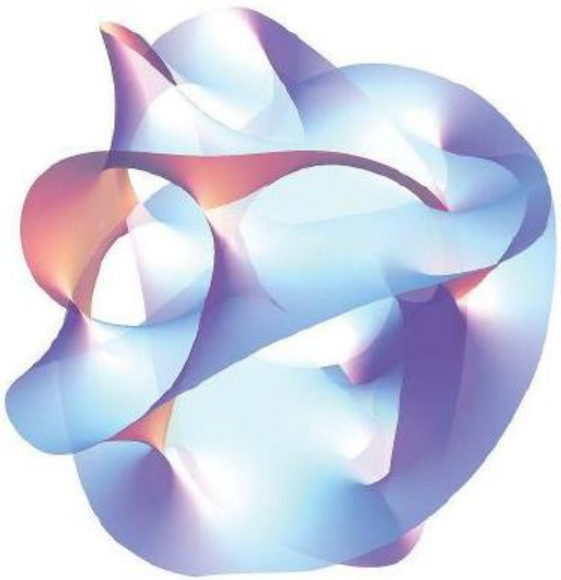

Fig. 2 A cross section of a quintic Calabi-Yau manifold.

Physicists have absolutely no idea what the structures of quarks and photon are, even with their state-of-the-art LHC [10]. However, based on the Yangton and Yington Theory, that all subatomic particles should have a string structure is not only very possible, but also quite obvious.

Wu's Pair is a pair of Yangton and Yington antimatter particles circulating in an orbit held by the inter-attractive Force of Creation between the two particles. When two Wu's Pairs come together with the same circulation direction, there is an interaction, which I call "String Force", that one Wu's Pair will stack up on top of the other one at a locked-in position where Yangton of the first Wu's Pair is lined up to the Yington of the second one, such that a string or ring structure of Wu's Pairs can be formed (Fig. 3), which complies very well with the string theory.

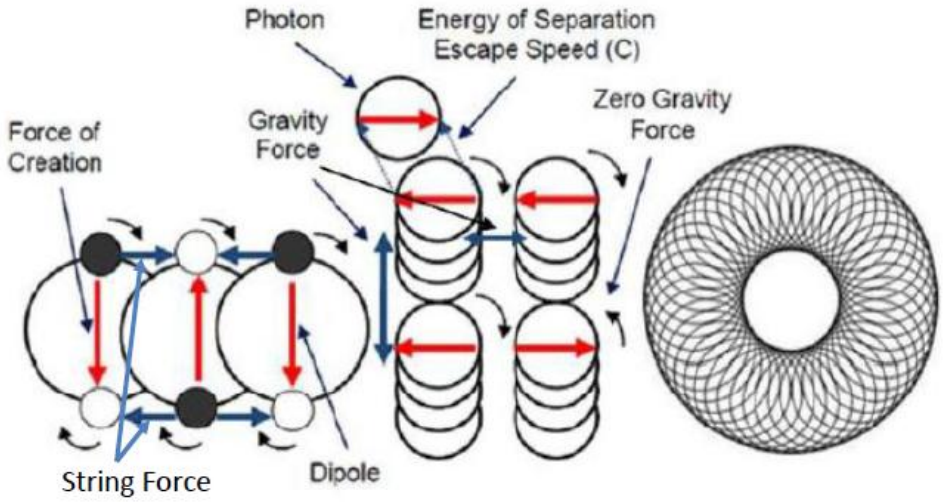

Fig. 3 Wu's Pairs stack up in a preferred direction by string force to form string and ring structures.

4. Higgs Boson, Higgs Field and Mass

According to Standard Model and Quantum Field Theory, the mass of a particle is the magnitude of the barrier applied to the particle by "Higgs Bosons" [11] that are generated from Higgs Field. However, what the Higgs Bosons and Higgs Field are and where they come from remain mysteries. Since Higgs Bosons can be considered as the carriers of string force that are generated by Wu's Pairs, therefore the magnitude of the barrier caused by the string force carried by Higgs Bosons is proportional to the amount of Wu's Pairs. In other words, the mass of a matter is proportional to the amount of Higgs Bosons as that of Wu's Pairs. This concurs with that the mass is the total amount of Wu's Pairs based on Yangton and Yington Theory.

As a result, a Higgs Boson particle can be considered as a single String Force and Higgs Field can be interpreted as the distribution of String Forces (Higgs Bosons). Since mass is the total amount of Wu's Pairs in a particle, therefore it doesn't disappear by itself or makes any change with the speed of the particle. In other words, it obeys the Law of Conservation of Mass and opposes to Einstein's Special Relativity.

5. Graviton and Gravitational Force

Wu's Pairs can be used to form elementary subatomic particles of string structures in a variety of shapes. When two string structures come together in the same circulation direction, they can attract each other at the ends of the strings by locking in the Yangton of one string to the Yington of the other string. Otherwise, there is no interaction if they are in the opposite circulation directions. However, when two string structures come together side by side, no matter the circulation directions, they can adjust themselves to attract each other as the Yangtons of one string contact the Yingtons of the other string during each cycle of the circulations. These attractive only forces are known as "Gravitational Force" (Fig. 4) and the string structures that produce the gravitational force are called "Gravitons" [12].

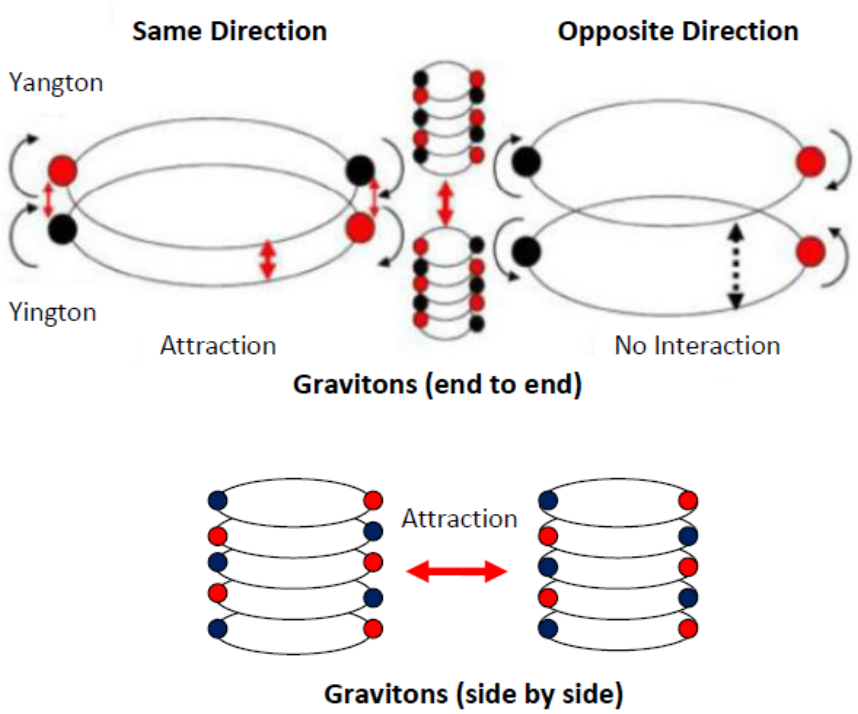

Fig. 4 Gravitational force between two graviton particles

6. Field versus Wave

According to Yangton and Yington Theory, field is not generated by wave. In fact, field is generated by the particle radiation and contact interaction [26][8] instead of wave propagation. That is why photon is a wave but not a field (without contact interaction), and graviton is a field (with particle radiation and contact interaction) but not a wave (without spin and circulation). However, Higgs Bosons considered as a short range string structures made of Wu's Pairs and string force, have properties of both wave and field. Like Wu's Pairs, it can spin by itself, in additional to making contact interaction through particle radiation like gravitons. This matches very well with quantum field theory.

7. Quantum Field Theory

Conventional gravitational field is the measurement of the strength of gravitational force on a unit mass (m_2 = 1kg) at a point in space. According to Newton's Law of Universal Gravitation, a formula of gravitational field (F_g) can be derived as follows:

$F_g = G (\sum m r^{-2})$

Where G is the gravitational constant 6.674×1011 N m^2 kg^{-2} and $\sum$ is the summation of all m r^{-2}.

Since mr^{-2} is proportional to the concentration of the free gravitons emitted from an object m at a distance r, therefore $\sum m\ r^{-2}$ is equivalent to the total amount of contact interaction caused by the gravitons emitted from all the objects in the universe upon a unit mass at a point in space. In other words, gravitational field is the distribution of contact interaction caused by graviton radiation from all the objects in the universe upon a unit mass at a point in space.

Similarly, the electrical field which is defined as the electrical force applied on a single electrical charge in the universe can be interpreted as the distribution of contact interaction caused by electron radiation from all the charged particles in the universe upon a unit charge at a point in space.

As a result, the distribution of contact interaction caused by particle radiation upon a unit particle at a point in space based on a quantized particle can be considered as the foundation of quantum field theory. In other words, quantum fields are not just an imagination but an actual image of the distribution of contact interaction caused by particle radiation upon a unit particle at a point in space.

8. Quantum Gravity Theory

There are two problems, infinity and non-renormalization [13], involved in the derivation of a quantum gravity theory based on general relativity and quantum field theory. Spring theory and loop quantum gravity [14] are proposed as two possible solutions.

According to Yangton and Yington Theory, gravitational force can be generated between two string structures made of Wu's Pairs (Fig. 3). Therefore, a physical model "Graviton" can be built by a string structure made of multiple Wu's Pairs. In addition, quantum field is considered as the distribution of the contact interaction caused by particle radiation upon a unit particle at a point in space. It is believed that a "Quantum Gravity Theory" can be derived based on the graviton with string structure made of Wu's Pairs and the theory of graviton radiation and contact interaction.

9. Unified Field Theory

According to Yangton and Yington Theory, Force of Creation, the inter-attractive force between Yangton and Yington Pairs is the fundamental force of the universe. Elementary subatomic particles of string structure are composed of Wu's Pairs with string force generated from Force of Creation. Composite subatomic particles are made of elementary subatomic particles with four basic forces induced from Force of Creation. In other words, subject to the structures, all matter in the universe can be structured by elementary and composite subatomic particles with four basic forces based on Force of Creation. This is known as "Unified Field Theory" [6]. For example, based on Force of Creation, gravitational force can be created between two graviton particles, electromagnetic force can be generated between electrons and protons, weak force can be formed between neutrons and positrons, and strong force can be produced between two neutrons, also between a neutron and a proton [4].

In the past few decades, physicists have tried to develop a quantum gravity theory in combination with the quantum field theories of electromagnetic force, weak force and strong force to achieve a unified field theory. So far, there has been a little success in deriving such a theory due to the incompatibility between general relativity and quantum field theory. However, based on Wu's Pairs and Yangton and Yington Theory, subatomic particles with string structures made of Wu's Pairs and Force of Creation can be easily complied with unified field theory.

II. Conclusion

Standard Model is a group of subatomic particles derived from a mathematical model based on quantum field theory and Yang Mills Theory. In contrast, Wu's Pairs, a physical model are proposed as the building blocks of all subatomic particles based on the Yangton and Yington Theory. Since Higgs Bosons can be considered as the carriers of string force that are generated by Wu's Pairs, therefore the magnitude of the barrier caused by the string force carried by Higgs Bosons is proportional to the amount of Wu's Pairs. In other words, the mass of a particle is proportional to the amount of Higgs Bosons as that of Wu's Pairs. This concurs with that the mass is the total amount of Wu's Pairs based on Yangton and Yington Theory. When two string structures come together, they can attract to each other either end to end or side by side. These attractive only forces are known as "Gravitational Force" and the string structures that produce the gravitational force are called "Gravitons".

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