

A Summary And Indirect Proves Of Wu's Pairs And Yangton And Yington Theory

Edward T. H. Wu

Abstract

Yangton and Yington Theory is a hypothetical theory that can be used to explain the formations, structures and phenomena of the universe based on the building blocks of the universe, "Wu's Pair", a superfine Yangton and Yington Antimatter particle pair with inter-attractive Force of Creation circulating against each other on an orbit. Yangton and Yington Theory can bridge two major but conflicting subjects Quantum Field Theory and General Relativity in modern physics. It explains and correlates almost everything in the universe, including space, time, energy and matter, as well as those objects and events from subatomic particles all the way to the boundary of the universe. So far 57 papers including 6 reviews with 7 equations and 38 theories have been published. In this paper a summary with a road map and indirect proves of Wu's Pairs and Yangton and Yington Theories are presented. As a result, Wu's Pairs is an excellent model of the universe. Even without the direct prove of existence by physical experiments, Wu's Pairs and Yangton and Yington Theory can be considered as the foundations of a binary universe. Just like the binary system to the decimal system in mathematics, many theories and principles developed in the binary universe can be used effectively in explanation of the real universe.

Keywords: Subatomic Particles, Standard Model, Wu's Pairs, Yangton and Yington Theory, Wu's Spacetime, Wu's Spacetime Equation, Wu's Spacetime Field Equation, Wu's Spacetime Shrinkage, Wu's Spacetime Transformation, Quantum Field Theory, Unified Field Theory, String Theory, Special Relativity, General Relativity, Time Dilation, Einstein's Spacetime, Einstein's Field Equation, Gravitational Flux, Gravitational Field, Equation of Light Speed, Cosmological Redshift, Gravitational Redshift, Universe Expansion, Quantum Entanglement, Quantum Superposition,

Date of Submission: 28-04-2023

Date of Acceptance: 09-05-2023

I. A Summary of Yangton and Yington Theory

In principle, all theories that scientists have proposed to explain the phenomena of the universe are developed from their logical thinking, physical experiments, common senses, and often based on a physical or mathematical model. However, the bottom line is how close simulation they are to the real world and how much sense they are in explanation of the phenomena.

Yangton and Yington Theory is a hypothetical theory that can be used to explain the formations, structures and phenomena of the universe based on the building blocks of the universe, "Wu's Pair", a superfine Yangton and Yington Antimatter particle pair with inter-attractive Force of Creation circulating against each other on an orbit. Although it is only a theory, the whole concept was developed based on a logical thought "Five Principles of The Universe" as follows:

1. There was Nothing in the universe in the beginning.
2. Nothing to Something must be a reversible process.
3. The Something must be a pair of Antimatter particles with an inter-attractive force such that they can attract and destroy each other.
4. From Something to permanent matter, there must be an external energy to cause a constant circulation motion between the two Antimatter particles so as to avoid them from recombination and destruction.
5. Eventually the whole universe will end and go back to Nothing.

It is believed that during Big Bang Explosion, Space and Energy were first generated from None through Singularity. Then, based on the Five Principles of The Universe, Energy of Creation and Energy of Circulation combined together to form Wu's Pairs, a superfine Yangton and Yington Antimatter particle pair with inter-attractive Force of Creation, circulating against each other on an orbit.

As proposed that Wu's Pairs is the building blocks of the universe. When two Wu's Pairs come together, they stack up on each other with String Force induced from Force of Creation between two adjacent Wu's Pairs to form a String Structure. By repeating the stacking processes, strings, rings and other related String Structures can be formed which is in compliance with "String Theory". As a result, all elementary subatomic

particles in Standard Model including quarks, leptons, Gauge Bosons, gluons, photon, Higgs Boson and Graviton having String Structures are composed of Wu's Pairs with String Force. Composite subatomic particles are made of elementary subatomic particles, which are glued together by four basic forces including gravitational force, electromagnetic force, weak force and strong force that are induced from Force of Creation subject to the subatomic structures and their interactions, which is in accordance to Unified Field Theory.

Higgs Bosons are string force carriers which can be considered as Wu's Pairs. Also, Higgs Field can be interpreted as the distribution of the string force. These concurs with that Wu's Pairs are the building blocks of all matters and mass is the total amount of Wu's Pairs multiplies Wu's Unit Mass.

Gravitational force is induced from string force generated by Force of Creation through the contact interaction between two gravitons with string structures. Electromagnetic force is created between electrons and positrons with spherical string structures. Both proton and neutron have ring structures. Weak force is formed between a pair of positron and neutron. In addition, strong force is produced between two neutrons and also between a pair of neutron and proton.

The propagation of gravitational force is caused by the graviton radiation and contact interaction. Graviton flux generated by graviton radiation can be used to derive Newton's Law of Universal Gravitation. Also, it is believed that Aether Inflow is the Static Graviton Flux caused by the emission of gravitons from parent object to target object, and Aether Wind is the Dynamic Graviton Flux generated by the relative motion between parent object and target object. In addition, Gravitational Wave is generated by the fluctuation of the graviton radiation from a pair of circulating massive stars or black holes. Furthermore, because Wu's Pairs can be influenced by graviton bombardment generated by graviton flux, and also the properties of an object or event are mainly dependent on Wu's Pairs, therefore, graviton flux can influence the properties of an object or event and cause gravitational redshift, time dilation, light deflection and Perihilion Precession of Mercury, etc.

Photon is a free Wu's Pair emitted from a substance through a two stage separation and ejection process. Also, photon is a spinning polarized particle having Wave Particle Duality property that can generate electromagnetic wave along its traveling path. When a photon emitted from light source, it undergoes Photon Inertia Transformation where photon travels with two speeds, the Absolute Speed 3×10^8 m/s (the speed of photon away from the light source) and the Inertia Light Speed (the speed of light source away from the observer (reference point)). Vision of Light is developed and used for light speed calculation. Equation of Light Speed is a vector summation of Absolute Light Speed and Inertia Light Speed which opposes Einstein's Special Relativity and Velocity Time Dilation that are based on constant light speed. According to Equation of Light Speed, both light speed and wavelength can be affected by the direction and speed of light source (Inertia Light Speed) which successfully explains Acceleration Redshift, Axial Redshift and Transverse Redshift. Event Horizon on the other hand is caused by the competition between outward Absolute Light Speed and inward Inertia Light Speed. In addition, the expansion of the universe and Hubble's Law can be interpreted and calculated by Acceleration Doppler Effect and Dark Energy, except where the Dark Energy coming from remains a mystery. Furthermore, Length Contraction is caused by human visual memory which has nothing to do with light speed and Special Relativity.

Complying with Whirlpool Theory, where the kinetic energy of a spinning particle (object) is proportional to the mass and the spinning frequency of the particle (object), De Broglie Matter Wave, Planck constant and mass of Photon (Wu's Pair) can all be derived based on Yangton and Yington Theory. Although mass and energy conversion can be commonly found in nuclear reaction, instead of mass and energy conversion, Einstein's $E = MC^2$ is actually an energy conversion between matter's structure energy generated from String Force and Four Basic Forces, and photon's kinetic energy.

Electron has a spherical structure. It is composed of a number of Wu's Pairs, where Yangtons are loosely confined in the center due to the compression of the centrifugal force generated by the circulation of Yingtons. Positron has a similar structure except switching between Yangtons and Yingtons. In addition, electron is a spinning polarized particle having Wave Particle Duality property that both wave and particle properties can coexist at all times. However, under detection, the phase angles of the particle waves are influenced by the detector such that Double Slit Interference pattern can be interrupted and become disappeared which proves that Complementarity claimed by quantum physicists is not true.

Furthermore, quantum energy states can serve as the "Hidden Variables" in photons and electrons. In polarization process, the Hidden Variables (predetermined quantum energy states) can be affected either by adding energy to the quantum energy states of electron or reducing energy from the quantum energy states of photon such that the new quantum energy states (Field Dependent Hidden Variables) can be achieved. Also, Normalized Field Dependent Hidden Variables can be attained in further polarization processes based on Principle of Normalization.

In optical multiple polarization experiments, because elements are taken from mixed sample spaces which violate the principle of Set Theory that Bell's Inequality based on, therefore it cannot be used to prove if Hidden Variables exist. On the other hand, in electron entanglement experiments, although the elements are

taken from the same sample space, wrong data in lack of probability of polarization transformation are used for analyses, therefore the conclusions are also incorrect. In fact, with the correct data, Bell's Inequality should be obeyed.

The existence of Hidden Variables in Photon Polarization and Quantum Entanglement are indirectly proved by the agreement between probability of polarization transformation and experimental results. Field Dependent Hidden Variables suggests that the quantum superposition is not true and Field Dependent Corresponding Entanglement indicates that quantum entanglement is predetermined and free-will quantum entanglement doesn't exist.

Since Wu's Pairs are the building blocks of all matters, it is obvious that a fundamental measuring system can be established based on Wu's Unit Mass – the mass of Wu's Pair (a pair of Yangton and Yington Circulating Particles), Wu's Unit Time – the period of the circulation of Wu's Pair, and Wu's Unit Length – the diameter of the circulation orbit of Wu's Pair of a reference subatomic particle at a reference point and time.

Wu's Spacetime $[x, y, z, t](l_{yy}, t_{yy})$ is a special four dimensional system based on a three dimensional Cartesian System that is defined by the Wu's Unit Length l_{yy} (the diameter of Wu's Pairs) and Wu's Unit Time t_{yy} (the period of Wu's Pairs) of a reference subatomic particle dependent on the gravitational field and aging of the universe at a reference point and time. Wu's Unit Length and Wu's Unit Time are correlated to each other by Wu's Spacetime Equation ($t_{yy} = \gamma l_{yy}^{3/2}$).

The properties of an object or event, including Dimension and Duration, are dependent on two equilibriums: (1) Thermal equilibrium, in which the object or event reaches a fixed atomic and subatomic structures at a constant temperature and pressure through the interactions between atoms and subatomic particles, and (2) Subatomic Equilibrium, in which Wu's Pairs in subatomic particles reach a fixed Wu's Unit Length and Wu's Unit Time at a constant gravitational field and aging of the universe through the interactions of gravitons and built-in attractive Force of Creation in Wu's Pairs.

The biggest mystery of modern physics is that "Dimension" and "Duration" of an object or event (not "Space" and "Time" themselves) can change with local gravitational field and aging of the universe. At a constant gravitational field, because of the expansion of Wu's Pairs caused by bombardment of gravitons based on Graviton Radiation and Contact Interaction, complying with Gravity Affected Wu's Spacetime Shrinkage Theory, Dimension and Duration of the object or event are stabilized at fixed quantities. On the other hand, at a fixed aging of the universe, due to the attraction caused by Force of Creation in Wu's Pairs, complying with Aging Affected Wu's Spacetime Shrinkage Theory and CMB radiation, Dimension and Duration of the object or event can also be stabilized at fixed quantities.

Under both thermal and subatomic equilibriums, every object and event is a corresponding identical object and event and all the properties of the object or event, except mass and charge, should obey Three Principles – Principle of Equilibrium, Principle of Correspondence and Principle of Parallelism.

- Principle of Equilibrium – As an object or event in thermal equilibrium at a constant temperature and pressure, also in subatomic equilibrium at a constant gravitational field and aging of the universe at a location and time, all the properties of the object or event should attain fixed quantities.
- Principle of Parallelism – For two corresponding identical objects or events at the same location and time (or at the same gravitational field and aging of the universe), the ratio between the quantities of the same property of the two objects or events remains constant, no matter gravitational field and aging of the universe.
- Principle of Correspondence – As the property of a corresponding identical object or event measured by the unit quantity of the same property of a reference corresponding identical object or event at the same location and time (or at the same gravitational field and aging of the universe), the amount of the unit quantity remains constant, no matter gravitational field and aging of the universe.

Based on Principle of Equilibrium, Principle of Parallelism and Principle of Correspondence, as well as Wu's Spacetime Equation, all properties of an object or event can be correlated to Wu's Unit Length of a reference subatomic particle which is named Wu's Spacetime Transformations. In accompany with Wu's Spacetime Shrinkage Theory, Wu's Spacetime Transformation can be used to interpret the changes of the properties of an object or event affected by gravitational field and aging of the universe, such as Cosmological Redshift, Gravitational Redshift, Time Dilation, Light Deflection, Perihelion Precession of Mercury, expansion of the universe, etc. In addition, Wu's Spacetime Transformation can be used to derive Wu's Spacetime Field Equation which correlates acceleration and gravity compared to Einstein's Field Equation which correlates Energy and acceleration.

When an object or event passes by a massive star, according to Wu's Spacetime Transformation and Gravity Affected Wu's Spacetime Shrinkage Theory, the speed of the object or event decreases while Wu's Unit Length increase ($V \propto l_{yy}^{-1/2}$), which can cause Deflection of Light and Perihelion Precession of Mercury. Furthermore, despite Acceleration Doppler Effect, the expansion of the universe and Hubble's Law can be derived from Aging Affected Wu's Spacetime Shrinkage Theory and Principle of Parallelism without Dark

Energy. In other words, the dimension and duration of an object or event on earth is actually shrinking rather than that the universe is expanding.

A corresponding identical object or event on a massive star (or black hole) has large length ($L \propto l_{yy}$) and time ($T \propto l_{yy}^{3/2}$), but small velocity ($V \propto l_{yy}^{-1/2}$) and acceleration ($A \propto l_{yy}^{-2}$) because of the large gravitational field. As the same object or event is observed on earth, because of the smaller Wu's Unit Length caused by the small gravitational field, the amounts of unit length and unit time are larger, also the amounts of unit velocity and unit acceleration are smaller than that of the corresponding identical object or event on earth. This result agrees very well with Einstein's General Relativity.

However, when a photon emitted from a far distance star or a massive star quenches onto earth, its Wu's Pair remains larger Wu's Unit Length and larger Wu's Unit Time compared to that of the Wu's Pair of the corresponding identical photon emitted from the corresponding identical light source on earth. This is the reason to cause Gravitational Redshift and Cosmological Redshift.

Because space (dimension) and time (duration) as well as spacetime (potential energy) in Einstein's General Relativity are properties of a corresponding identical object or event, same as that of a reference corresponding identical object or event, therefore, according to Principle of Parallelism, they all have a fixed correlation to the local gravitational field. In other words, the unit length (centimeter) and unit time (second) of a reference corresponding identical object or event can be used to reflect the space, time and spacetime in Einstein's General Relativity upon the local gravity with a correlation based on Wu's Spacetime Shrinkage Theory.

Einstein's Field Equation is derived upon the correlation between the derivative of space-time continuum (potential energy) and the acceleration in a nonlinear geometry system (geodesics), and then transformed to a Normal Spacetime System on earth. However, Wu's Spacetime Field Equation is derived upon the correlation between the Amount of Normal Acceleration and gravitational field in Wu's Spacetime System on earth. Furthermore, Wu's Spacetime Field Equations are derived with Wu's Spacetime Transformation based on Wu's Spacetime Equation ($t_{yy} = \gamma l_{yy}^{3/2}$) and Principles of Equilibrium, Correspondence and Parallelism. In Wu's Spacetime Field Equation, the amount of normal unit acceleration a is proportional to C^{-4} ($a \propto l_{yy}^{-2} \propto C^{-4}$) which is a function of Wu's Unit Length l_{yy} of a reference subatomic particle dependent on the gravitational field and aging of the universe at a reference point and time. Because C^{-4} appear on the matter and energy side (right hand side) of both equations, Einstein's Field Equations is equivalent to Wu's Spacetime Field Equations observed on earth ($C_0 = 3 \times 10^8$ m/s).

Einstein derived his theories including Special Relativity, General Relativity, Spacetime, Field Equations and Mass and Energy Conservation based on two wrong assumptions: (1) Light speed is always constant no matter the light sources and observers (reference points), and (2) Acceleration is the principle factor of the universe. In contrast, based on Yangton and Yington Theory, it is believed that (a) Light speed is not constant, instead, it is a vector summation of Absolute Light Speed and Inertia Light Speed, and (b) Gravitational field and aging of the universe are the principle factors of Wu's Spacetime instead of acceleration. As a consequence, the dimension and duration of a corresponding identical object or event are a function of Wu's Unit Time (t_{yy}) and Wu's Unit Length (l_{yy}) depending on the gravitational field and aging of the universe no matter the acceleration.

Furthermore, the correlations between quantities, arithmetic operations, equations of physical laws, physical constants are studied. They are all dependent on gravitational field and aging of the universe.

More specifically, with 57 papers published, Wu's Pairs and Yangton and Yington Theory are applied successfully in definition, explanation and derivation of the following major physical phenomena and theories:

1. Five Principles of the Universe [1].
2. Wu's Pairs (Yangton and Yington Pairs) and Force of Creation [2].
3. Photon as a free Wu's Pair [2].
4. Elementary Subatomic Particles composed of Wu's Pairs based on String Force and String Structures (String Theory) [3].
5. Composite Subatomic Particles based on Elementary Subatomic Particles and Four Basic Forces [3].
6. Four Basic Forces and Unified Field Theory based on Force of Creation [4].
7. Quantum Field Theory based on Yangton and Yington Theory [5].
8. Antimatter and Baryogenesis based on Wu's Pairs [3].
9. Graviton and Gravitational Force based on Wu's Pairs and Force of Creation [3].
10. Graviton Radiation and Graviton Flux [6].
11. Static Graviton Flux and Aether Inflow [7].
12. Dynamic Graviton Flux and Aether Wind [7].
13. Graviton Radiation and Contact Interaction [6].
14. Newton's Law of Universal Gravitation and Remote Gravitational Force [8].
15. Gravitational Field and Static Graviton Flux [6].

16. Gravitational Waves and Graviton Radiation [6].
17. Higgs Bosons as Wu's Pairs and Higgs Field as the distribution of String Force and Wu's Pairs [9].
18. Wu's Unit Mass and Wu's Particle Mass Equations [10].
19. $E = MC^2$ as the energy transformation between Wu's Pairs and Photons [11].
20. Planck Constant, De Broglie Wave and Mass of Photon (Wu's Pair) [12].
21. Two Stage Photon Emission [10].
22. Photon Inertia Transformation [10].
23. Absolute Light Speed and Inertia Light Speed [10].
24. Black Body Radiation and Wu's Pairs [10].
25. Vision of Object, Vision of Light and Theory of Vision [13].
26. Equation of Light Speed [13][14].
27. Michelson – Morley Experiment interpreted by Equation of Light Speed [14].
28. Equation of Light Speed versus Special Relativity and Velocity Time Dilation [15][16].
29. Mistakes of General Relativity and Gravitational Time Dilation [17].
30. Acceleration Doppler Effect and Acceleration Doppler Redshift [18].
31. Hubble's Law and Acceleration Doppler Effect [18].
32. Axial Doppler Redshift and Transverse Doppler Redshift [19].
33. Event Horizon, Black Hole and Equation of Light Speed [20].
34. Length Contraction and Human Visual Memory [21].
35. Destruction of Wu's Pairs by aging of the universe [22].
36. Destruction of Wu's Pairs in Black Hole by gravitational force [22].
37. Wu's Spacetime System [22].
38. Wu's Spacetime Equation [22].
39. Subatomic Equilibrium [23].
40. Corresponding Identical Object or Event [23].
41. Principle of Correspondence [24].
42. Principle of Parallelism [25].
43. Principle of Equilibrium [26].
44. Wu's Unit Mass, Wu's Unit Time and Wu's Unit Length [24].
45. Wu's Spacetime Transformation. [27][28].
46. Wu's Spacetime Shrinkage Theory [22].
47. Wu's Spacetime Transformation and Wu's Spacetime Shrinkage Theory [26].
48. Space (Dimension) and Time (Duration) based on Wu's Spacetime [22].
49. Photon and Wu's Spacetime [22].
50. Cosmological Redshift and Aging Affected Wu's Spacetime Shrinkage Theory [22].
51. Gravitational Redshift and Gravity Affected Wu's Spacetime Shrinkage Theory [22].
52. Hubble's Law Derived by Wu's Spacetime Shrinkage Theory and Principle of Parallelism [29][30][31][32].
53. Deflection of Light Interpreted by Gravity Affected Wu's Spacetime Shrinkage Theory [33].
54. Perihelion Precession of Mercury Interpreted by Gravity Affected Wu's Spacetime Shrinkage Theory [33].
55. Corresponding Identical Objects and Events in large Gravitational Field observed on earth [34].
56. The hollow structure of Black Hole interpreted by Gravity Affected Wu's Spacetime Shrinkage Theory [35].
57. Single Slit Diffraction and Double Slit Interference interpreted by phase angle interference instead of Complementarity [36].
58. Photon Polarization and Entanglement based on Yangton and Yington Theory [37][38].
59. Electron Polarization and Entanglement based on Yangton and Yington Theory [38][39].
60. Quantum Polarization explained by Field Dependent Hidden Variables instead of Quantum Superposition [38][39][40].
61. Quantum Entanglement interpreted by Field Dependent Corresponding Entanglement instead of Free Will Quantum Entanglement [41].
62. Prove of Hidden Variables as quantum energy states by probability of polarization transformation [40][41][42].
63. Wu's Spacetime versus Einstein's Spacetime [35].
64. Wu's Spacetime Transformation and Wu's Spacetime Field Equations [28][43].
65. Wu's Spacetime Field Equations versus Einstein's Field Equations [35][44].
66. Einstein's Spacetime interpreted by Principles of Correspondence [45] and Parallelism [46].
67. Einstein's Spacetime Field Equation and Wu's Spacetime Transformation [28].
68. Einstein's seven mistakes due to constant light speed and acceleration principle [17].

II. Indirect Proves of Wu's Pairs and Yangton and Yington Theory

Although “Yangton and Yington Theory” is a hypothetical theory in which “Wu's Pairs” – a superfine Yangton and Yington circulating Antimatter particle pairs with an inter-attractive Force of Creation is proposed as the building blocks of the universe, it can be proved by the following indirect evidences:

1. Wu's Pairs” – a superfine Yangton and Yington circulating Antimatter particle pairs with an inter-attractive Force of Creation as the building blocks of the universe can logically fulfill “Five Principles of the Universe”.
2. Photon as a free Wu's Pair can be generated and emitted from an object with electromagnetic field and polarization.
3. String structures made of Wu's Pairs by String Forces induced from Force of Creation can interpret subatomic particle structures and String Theory.
4. Higgs Bosons can be considered as the String Force Carriers generated by Wu's Pairs and Higgs Field can be interpreted as the distribution of the String Force, which complies with that mass is the total amount of Wu's Pairs multiplies Wu's Unit Mass.
5. Gravitational force can be interpreted as the interaction between two string structures and the graviton flux causing propagation of gravitational force can be interpreted by graviton radiation and contact interaction.
6. Newton's Law of Universal Gravitation as Remote Gravitational Force can be derived from Static Gravitational Flux.
7. Aether Inflow is generated by Static Graviton Flux and Aether Wind is caused by Dynamic Graviton Flux.
8. De Broglie Matter Wave and Planck constant correlated to the Wu's Unit Mass can be derived from Whirlpool Theory. Wave Particle Duality of photon and electron can be interpreted as the spinning polarized particles based on Wu's Pairs and Yangton and Yington Theory.
9. Two Stage Photon Emission and Photon Inertia Transformation can be used to derive Equation of Light Speed so as to explain Axial Doppler Redshift, Transverse Redshift and Acceleration Doppler Redshift as well as Event Horizon.
10. Cosmological Redshift can be explained by Aging Affected Wu's Spacetime Shrinkage Theory and Gravitational Redshift can be explained by Gravity Affected Wu's Spacetime Shrinkage Theory.
11. Hubble's Law and Cosmological Redshift can be derived from Aging Affected Wu's Spacetime Shrinkage Theory and Principle of Parallelism without dark energy. As a consequence, Universe Expansion and Acceleration can be interpreted by Wu's Spacetime Reverse Expansion Theory based on Aging Affected Spacetime Shrinkage Theory.
12. All the properties of an object or event, except mass and charge, are dependent on gravitational field and aging of the universe. Therefore, for gravity affected acceleration, Einstein's Spacetime, Gravitational Time Dilation, General Relativity and Field Equation are in compliance with Wu's Spacetime Shrinkage Theory, Principle of Parallelism and Wu's Spacetime Field Equation.
13. Deflection of Light and Perihelion Precession of Mercury can be interpreted by Gravity Affected Wu's Spacetime Shrinkage Theory and Principle of Parallelism.
14. Attraction and repulsion mechanism and phase angle interference opposing complementarity in Single Slit Diffraction and Double Slit Interference experiments, and Field Dependent Hidden Variable and Field Dependent Corresponding Entanglement against superposition and free will entanglement are successfully explained by Wu's Pairs and Yangton and Yington Theory.
15. Quantum Field Theory can be explained as a short range field generated by a point structure with electromagnetic, weak and strong forces.
16. Quantum Gravity Theory can be interpreted as a short range field generated by a string structure (graviton) with gravitational force.
17. Unified Field Theory can be explained as a short range field generated by various subatomic particles of string structures bonded together with four basic forces induced from Force of Creation.

As a result, Wu's Pairs is an excellent model in study of the universe. Even without direct proves of the existence by physical experiments, Wu's Pairs and Yangton and Yington Theory can be considered as the foundations of a binary universe. Just like the binary system to the decimal system in mathematics, many theories and principles developed in the binary universe can be used effectively in explanation of the real universe.

III. Wu's Equations and Theories

As a summary, a total of 7 sets Wu's Equations and 38 Wu's Theories related to Yangton and Yington Theory are included in this short note as follows:

Wu's Equations

Wu's Unit Mass and Wu's Particle Mass Equations

$$\begin{aligned}h &= \kappa m_{yy} \\ E &= (m/m_{yy}) h\nu \\ P &= (m/m_{yy}) h/\lambda \\ \lambda &= (m/m_{yy}) h/P\end{aligned}$$

Where m_{yy} is Wu's Unit Mass, κ is Whirlpool Constant, h is Planck's constant, ν is frequency, λ is wavelength, P is the momentum and m is the mass of particles.

Equation of Light Speed

$$C' = C + V$$

Where C' is the Normal Light Speed observed at the reference point, C is the Absolute Light Speed observed at the light source (dependent on the local gravitational field and aging of the universe, 3×10^8 m/s on earth) and V is the Inertia Light Speed, the moving speed of the light source observed at the reference point. Equation of Light Speed holds at the time of photon emission, no matter the reference points. It also works for a constant speed light source at anytime referenced at light origin or its inertia system.

Wu's Spacetime Equation

$$t_{yy} = \gamma l_{yy}^{3/2}$$

Where t_{yy} is the circulation period of Wu's Pairs, named Wu's Unit Time, l_{yy} is the size of the circulation orbit of Wu's Pairs, named Wu's Unit Length, and γ is Wu's Spacetime Constant.

Principle of Parallelism

For two corresponding identical objects or events at the same gravitational field and aging of the universe, the ratio between the quantities of the same property of the two objects or events remains constant, no matter gravitational field and aging of the universe.

$$P = nP'$$

Where P and P' are quantities of the same property of two corresponding identical objects or events, n is a real number constant.

Wu's Spacetime Transformations

$$\begin{aligned}L &= l m l_{yy} \\ T &= t n \gamma l_{yy}^{3/2} \\ V &= v m n^{-1} \gamma^{-1} l_{yy}^{-1/2} \\ A &= a m n^{-2} \gamma^{-2} l_{yy}^{-2} \\ C &= c m n^{-1} \gamma^{-1} l_{yy}^{-1/2}\end{aligned}$$

Where m is the reference-dependent constant of normal unit length, n is the reference-dependent constant of normal unit time, γ is Wu's Spacetime constant and l_{yy} is Wu's Unit Length of the reference corresponding identical subatomic particle at a location and time. Also l , t , v , a and c are amounts of normal unit length, time, velocity, acceleration and light speed respectively and they are constants ($c = 3 \times 10^8$ m/s) for corresponding identical objects or events no matter gravitational field and aging of the universe.

Wu's Spacetime Field Equations

$$a = \sigma \gamma^2 l_{yy}^2 (GM/R^2)$$

$$a = \delta \gamma^2 C^4 (GM/R^2)$$

Where R is the distance of a point in space from the parent object mass M , a is the amount of normal unit acceleration, σ and δ are reference-dependent real number constants associated with the reference subatomic particle, γ is Wu's Spacetime constant, G is Newton's gravitational constant, l_{yy} is Wu's Unit Length of a reference subatomic particle and C is the Absolute Light Speed.

Effective Dynamic Remote Gravitational Force

$$F_a = k V \sin \Theta G(m_1 m_2 / r^2) S'$$

Where F_a is effective dynamic remote gravitational force (vector), k is dynamic remote gravitational force constant, V is the relative speed between parent object m_1 and target object m_2 , Θ is the angle between the moving directions of static graviton flux and target object, and S' is the unit vector in the perpendicular direction of static graviton flux at the same side as that of the moving target object to static graviton flux.

Wu's Theories

1. Five Principles of the Universe
2. Wu's Pairs – Yangton and Yington Theory
3. Photon – A Free Wu's Pair
4. String Structures and String Force
5. Graviton and Gravitational Force
6. Graviton Radiation and Contact Interaction
7. Static Graviton Flux (Aether Inflow)
8. Dynamic Graviton Flux (Aether Wind)
9. Gravity Affected Wu's Spacetime Shrinkage Theory
10. Aging Affected Wu's Spacetime Shrinkage Theory
11. Subatomic Equilibrium
12. Corresponding Identical Object or Event
13. Principle of Parallelism
14. Wu's Spacetime Transformations
15. Wu's Spacetime Reverse Expansion Theory
16. Wu's Spacetime Field Theory
17. Whirlpool Theory
18. Wu's Particle Mass Theory
19. Wu's Pair Circulation Theory
20. Theory of Vision
21. Photon Inertia Transformation
22. Equation of Light Speed
23. Axial Redshift
24. Acceleration Redshift
25. Transverse Redshift
26. Visual Memory Length Contraction
27. Spinning Polarized Particle Theory
28. Photon Interference Model
29. Electron Interference Model
30. Photon Spin Model
31. Electron Spin Model
32. Probability of Photon Polarization Transformation
33. Probability of Electron Polarization Transformation
34. Field Dependent Hidden Variable
35. Principle of Normalization
36. Photon Polarization Transformation Diagram
37. Electron Polarization Transformation Diagram
38. Field Dependent Corresponding Entanglement

IV. Conclusion

Yangton and Yington Theory is a hypothetical theory that can be used to explain the formations, structures and phenomena of the universe based on the building blocks of the universe, "Wu's Pair", a superfine Yangton and Yington Antimatter particle pair with inter-attractive Force of Creation circulating against each other on an orbit. Yangton and Yington Theory can bridge two major but conflicting subjects Quantum Field Theory and General Relativity in modern physics. It explains and correlates almost everything in the universe, including space, time, energy and matter, as well as those objects and events from subatomic particles all the way to the boundary of the universe. So far 57 papers including 6 reviews with 7 equations and 38 theories have been published. In this paper a summary with a road map and indirect proves of Wu's Pairs and Yangton and Yington Theories are presented. As a result, Wu's Pairs is an excellent model of the universe. Even without the direct prove of existence by physical experiments, Wu's Pairs and Yangton and Yington Theory can be considered as the foundations of a binary universe. Just like the binary system to the decimal system in mathematics, many theories and principles developed in the binary universe can be used effectively in explanation of the real universe.

References

- [1]. Edward T. H. Wu "Five Principles of The Universe and the Correlations of Wu's Pairs and Force of Creation to String Theory and Unified Field Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 10, no. 4, 2018, pp. 17-21.
- [2]. Edward T. H. Wu, "Yangton and Yington—A Hypothetical Theory of Everything", Science Journal of Physics, Volume 2015, Article ID sjp-242, 6 Pages, 2015, doi: 10.7237/sjp/242.
- [3]. Edward T. H. Wu. "Subatomic Particle Structures and Unified Field Theory Based on Yangton and Yington Hypothetical Theory". American Journal of Modern Physics. Vol. 4, No. 4, 2015, pp. 165-171. doi: 10.11648/j.ajmp.20150404.13.
- [4]. Edward T. H. Wu "Standard Model and Quantum Field Theory versus Wu's Pairs and Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 10, no. 4, 2018, pp. 50-56.
- [5]. Edward T. H. Wu. "Quantum Field versus Gravitational Field and Electrical Field and Quantum Field Theory Based on Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 15(2), 2023, pp. 01-10.
- [6]. Edward T. H. Wu. "Gravitational Waves, Newton's Law of Universal Gravitation and Coulomb's Law of Electrical Forces Interpreted by Particle Radiation and Interaction Theory Based on Yangton & Yington Theory". American Journal of Modern Physics. Vol. 5, No. 2, 2016, pp. 20-24. doi:10.11648/j.ajmp.20160502.11.
- [7]. Edward T. H. Wu. "Aether Wind and Aether Inflow versus Dynamic and Static Graviton Fluxes and Their Effects on Light Speed and Time Dilation." IOSR Journal Of Applied Physics (IOSR-JAP), Volume 14, Issue 5 Ser. II (Sep. – Oct. 2022), PP 34-42.
- [8]. Edward T. H. Wu. "Graviton Bombardment, Static and Dynamic Graviton Fluxes and Their Effects on Space, Time, Light and Properties of Objects and Events." IOSR Journal of Applied Physics (IOSR-JAP), 15(2), 2023, pp. 16-25.
- [9]. Edward T. H. Wu "Higgs Boson and Graviton Interpreted by String Force and String Structures Based on Wu's Pairs and Yangton and Yington Theory" IOSR Journal of Applied Physics (IOSR-JAP) , vol. 11, no. 6, 2019, pp. 51-55.
- [10]. Edward T. H. Wu. "Mass, Momentum, Force and Energy of Photon and Subatomic Particles, and Mechanism of Constant Light Speed Based on Yangton & Yington Theory". American Journal of Modern Physics. Vol. 5, No. 4, 2016, pp. 45-50. doi: 10.11648/j.ajmp.20160504.11.
- [11]. Edward T. H. Wu. "Einstein's $E = MC^2$ as Energy Conversion Instead of Mass and Energy Conservation and Energy and Space Annihilation Based on Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 2, 2019, pp. 57-61.
- [12]. Edward T. H. Wu."Derivations of Planck Constant and De Broglie Matter Waves from Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 5, 2019, pp. 68-72.
- [13]. Edward T. H. Wu. "Vision of Object, Vision of Light, Photon Inertia Transformation and Their Effects on Light Speed and Special Relativity." IOSR Journal of Applied Physics (IOSR-JAP), vol. 9, no. 5, 2017, pp. 49–54.
- [14]. Edward T. H. Wu. "Equation of Light Speed." IOSR Journal of Applied Physics (IOSR-JAP), 14(02), 2022, pp. 47-59.
- [15]. Edward T. H. Wu. "Light Speed in Vacuum is not a Constant and Time Doesn't Change with Velocity—Discrepancies Between Relativities and Yangton & Yington Theory". American Journal of Modern Physics. Vol. 4, No. 6, 2015, pp. 367-373. doi: 10.11648/j.ajmp.20150406.12.
- [16]. Edward T. H. Wu. "Special Relativity and Velocity Time Dilation – An Imagination or Just a Pure Mathematical Definition?." IOSR Journal of Applied Physics (IOSR-JAP), 13(2), 2021, pp. 38-43.
- [17]. Edward T. H. Wu. "Einstein's Seven Mistakes." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 3, 2019, pp. 15-17.
- [18]. Edward T. H. Wu, Redshift Caused by Acceleration Doppler Effect and Hubble's Law Based on Wu's Spacetime Accelerating Shrinkage Theory, American Journal of Modern Physics. Vol. 6, No. 1, 2017, pp. 10-15. doi: 10.11648/j.ajmp.20170601.12.
- [19]. Edward T. H. Wu. "Axial Doppler Shift, Transverse Doppler Shift and Acceleration Doppler Shift Interpreted and Derived by Equation of Light Speed." IOSR Journal of Applied Physics (IOSR-JAP), 14(02), 2022, pp. 23-30.
- [20]. Edward T. H. Wu "Event Horizon and Black Hole Interpreted by Photon Inertia Transformation and Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 6, 2019, pp. 58-61.
- [21]. Edward T. H. Wu. "Length Contraction Interpreted by Human Visual Memory Instead of Special Relativity." IOSR Journal of Applied Physics (IOSR-JAP), 13(1), 2021, pp. 35-41.
- [22]. Edward T. H. Wu. "Time, Space, Gravity and Spacetime Based on Yangton & Yington Theory, and Spacetime Shrinkage Versus Universe Expansion". American Journal of Modern Physics. Vol. 5, No. 4, 2016, pp. 58-64. doi: 10.11648/j.ajmp.20160504.13.
- [23]. Edward T. H. Wu. "Subatomic Equilibrium and Subatomic Properties as Foundations of Wu's Spacetime Theories and Wu's Spacetime Field Equations." IOSR Journal of Applied Physics (IOSR-JAP), 12(6), 2020, pp. 42-51.
- [24]. Edward T. H. Wu "Mass, Time, Length, Vision of Object and Principle of Correspondence Based on Yangton and Yington Theory" IOSR Journal of Applied Physics (IOSR-JAP), vol. 10, no. 5, 2018, pp. 80-84.
- [25]. Edward T. H. Wu. "Principle of Correspondence, Principle of Parallelism and Redshift Based on Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(3), 2020, pp. 14-18.
- [26]. Edward T. H. Wu. "Principle of Equilibrium, Principle of Correspondence and Principle of Parallelism as the Foundations of Wu's Spacetime Theories." IOSR Journal of Applied Physics (IOSR-JAP), 12(4), 2020, pp. 50-57.
- [27]. Edward T. H. Wu. "What Are the Truths of Time and Space." IOSR Journal of Applied Physics (IOSR-JAP), Volume 14, Issue 1 Ser. I (Jan. – Feb. 2022), PP 31-42.
- [28]. Edward T. H. Wu. "Wu's Spacetime Transformation and Wu's Spacetime Field Equation." IOSR Journal of Applied Physics (IOSR-JAP), 15(2), 2023, pp. 39-49.
- [29]. Edward T. H. Wu "Hubble's Law Derived from Wu's Spacetime Shrinkage Theory and Wu's Spacetime Reverse Expansion Theory versus Universe Expansion Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 1, 2019, pp. 03-07.
- [30]. Edward T. H. Wu. "Interpretation of Dark Matter, Dark Energy and Hubble's Law Based on Wu's Pairs and Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(2), 2020, pp. 54-65.
- [31]. Edward T. H. Wu. "A Revised Derivation of Hubble's Law by Wu's Spacetime Shrinkage Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(3), 2020, pp. 01-04.
- [32]. Edward T. H. Wu. "Hubble's Law Based on Wu's Spacetime Shrinkage Theory and Principle of Parallelism." IOSR Journal of Applied Physics (IOSR-JAP), 12(6), 2020, pp. 18-22.
- [33]. Edward T. H. Wu. "Perihelion Precession of Mercury and Deflection of Light Interpreted by Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(1), 2020, pp. 20-26.
- [34]. Edward T. H. Wu. "General Relativity versus Yangton and Yington Theory – Corresponding Identical Objects and Events in Large Gravitational Field Observed on Earth." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 3, 2019, pp. 41-45.
- [35]. Edward T. H. Wu. "Einstein's Spacetime and Einstein's Field Equations Versus Wu's Spacetime and Wu's Spacetime Field Equations." IOSR Journal of Applied Physics (IOSR-JAP), vol. 11, no. 2, 2019, pp. 13-18.

- [36]. Edward T. H. Wu. "Single Slit Diffraction and Double Slit Interference Interpreted by Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(2), 2020, pp. 10-16.
- [37]. Edward T. H. Wu. "Photon Polarization and Entanglement Interpreted by Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(3), 2020, pp. 01-06.
- [38]. Edward T. H. Wu. "Hidden Variables versus Bell's Inequality and Conflicts of Superposition, Complementarity and Entanglement in Quantum Mechanics." IOSR Journal of Applied Physics (IOSR-JAP), 12(3), 2020, pp. 24-35.
- [39]. Edward T. H. Wu. "Quantum Entanglement and Hidden Variables Interpreted by Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 12(2), 2020, pp. 39-46.
- [40]. Edward T. H. Wu. "Field Dependent Hidden Variables and Principle of Normalization Versus Bell's Inequality, Quantum Superposition and Quantum Entanglement." IOSR Journal of Applied Physics (IOSR-JAP), 13(2), 2021, pp. 48-53.
- [41]. Edward T. H. Wu. "Hidden Variables Based on Quantum Energy States Proved by Probability of Polarization Transformation Instead of Bell's Inequality." IOSR Journal of Applied Physics (IOSR-JAP), 15(1), 2023, pp. 05-20.
- [42]. Edward T. H. Wu. "Hidden Variables Do Exist and Bell's Inequality Does Obeyed." IOSR Journal of Applied Physics (IOSR-JAP), 13(3), 2021, pp. 07-17.
- [43]. Edward T. H. Wu. "Wu's Spacetime Field Equation Based On Yangton And Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), vol. 10, no. 2, 2018, pp. 13-21.
- [44]. Edward T. H. Wu. "A Summary of Wu's Spacetime Field Equation and Its Comparison to Einstein's Field Equation" IOSR Journal of Applied Physics (IOSR-JAP), 12(1), 2020, pp. 09-19.
- [45]. Edward T. H. Wu. "Einstein's Spacetime Interpreted by Principle of Correspondence based on Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 13(4), 2021, pp. 43-47.
- [46]. Edward T. H. Wu. "What Are the Truths of Gravity and General Relativity." IOSR Journal of Applied Physics (IOSR-JAP), 14(01), 2022, pp. 25-51.
- [47]. Edward T. H. Wu. "Arithmetic Operations and Physical Quantities." IOSR Journal of Applied Physics (IOSR-JAP), 14(03), 2022, pp. 07-10.
- [48]. Edward T. H. Wu. "Equations of Physical Laws and Physical Constants Affected by Gravitational Field and Aging of the Universe." IOSR Journal of Applied Physics (IOSR-JAP), 14(03), 2022, pp. 29-33.
- [49]. Edward T. H. Wu. "Wu's Spacetime Equation and Wu's Spacetime Constant." IOSR Journal of Applied Physics (IOSR-JAP), 14(03), 2022, pp. 47-53.
- [50]. Edward T. H. Wu. "What If Light Speed Is Not Constant." IOSR Journal of Applied Physics (IOSR-JAP), 13(5), 2021, pp. 52-68.
- [51]. Edward T. H. Wu. "What If Complementarity and Superposition Are Only Imaginations and Einstein's Hidden Variables Are Nothing but Truth." IOSR Journal of Applied Physics (IOSR-JAP), 13(6), 2021, pp. 16-36.
- [52]. Edward T. H. Wu. "What If Earth Is Shrinking Instead of the Universe Is Expanding." IOSR Journal of Applied Physics (IOSR-JAP), 13(6), 2021, pp. 70-81.
- [53]. Edward T. H. Wu. "What If God's Particles Does Exist and How Do They Build the Universe." IOSR Journal of Applied Physics (IOSR-JAP), 13(6), 2021, pp. 26-41.
- [54]. Edward T. H. Wu. "A Summary of Yangton and Yington Theory and Their Interpretations on Subatomic Particles, Gravitation and Cosmology" IOSR Journal of Applied Physics (IOSR-JAP), vol. 10, no. 5, 2018, pp. 45-50.