

# Static Graviton Flux And Dynamic Graviton Flux

Edward T. H. Wu

---

## Abstract

According to Yangton and Yington Theory, Gravitational Force is generated by contact interaction between two adjacent gravitons on the same object. Remote Gravitational Force on the other hand is caused by contact interaction between the graviton on the target object and the graviton emitted from parent object through graviton flux based on Graviton Radiation and Contact Interaction Theory. Static Graviton Flux is the graviton flux moving from parent object to target object with intensity dependent on the distance between two objects. Dynamic Graviton Flux is the graviton flux moving at the same speed but opposite direction to that of target object with intensity dependent on the velocity of target object and the intensity of Static Graviton Flux. Static Graviton Flux can be generated by Graviton Radiation from any parent object. However, Dynamic Graviton Flux can only be generated with moving target object by the interaction between Static Graviton Flux and moving target object. Newton's Universal Gravitation is the Remote Static Gravitational Force  $F = G(m_1m_2/r^2)$  generated by Static Graviton Flux which can cause Aether Inflow. Effective Dynamic Remote Gravitational Force  $F_{dy} = (V\sin\theta/C) G(m_1m_2/r^2)$  is the perpendicular component of Dynamic Remote Gravitational Force generated by Dynamic Gravitational Flux which can cause Aether Wind.

**Keywords:** Yangton and Yington, Wu's Pairs, String Force, Gravitational Force, Universal Gravitation, Graviton Flux, Static Graviton Flux, Dynamic Graviton Flux, Graviton Bombardment, Graviton Radiation and Contact Interaction, Aether Inflow, Aether Wind.

---

Date of Submission: 05-06-2023

Date of Acceptance: 15-06-2023

---

## I. Graviton and Gravitational Force

Based on Yangton and Yington Theory [1], when two Wu's Pairs come together with the same circulation direction (both spin up or spin down), they can stack up on each other at a locked-in position, where Yangton of the first Wu's Pair lines up to the Yington of the second one due to the attraction between Yangton and Yington particles. By repeating the stacking processes, strings (such as gravitons), rings (such as neutrons and protons), balls (such as electrons and positrons) and other related structures composed of Wu's Pairs can be formed which are called "String Structures" [2].

Furthermore, when two string structures come together side by side, no matter the circulation directions, they can adjust themselves so as to attract each other at the contact points by a group of string forces generated between the Yangtons of one string structure and the Yingtons of the other string structures in each cycle of circulations. This process is called "Contact Interaction" and the group of attraction only string forces generated by the process is known as "Gravitational Force". Also, all the string structures that can produce the gravitational force are called "Gravitons" including quarks, leptons and bosons, except photon and gluons without string structures and adjustable circulations [2].

## II. Graviton Bombardment

According to Wu's Spacetime Shrinkage Theory [3], Wu's Unit Length and Wu's Unit Time of Wu's Pairs (building blocks of the universe) can be affected by particle bombardment, especially the graviton bombardment. Also, all the properties of an object or event are dependent on Wu's Unit Length and Wu's Unit Time of Wu's Pairs in the subatomic particles of the object or event. Therefore, the dimension, duration, velocity and acceleration of an object or event, as well as wavelength, light speed and time dilation can all be affected by the graviton bombardment resulting from static graviton flux (Aether Inflow) [4] and dynamic graviton flux (Aether Wind)[4] generated by graviton radiations from all the parent objects in the universe. Furthermore, because Wu's Pairs are randomly oriented in the target object, the effects caused by graviton bombardment are mainly dependent on the intensity of the bombardment, no matter of direction.

Under both thermal equilibrium at a constant temperature and pressure, and subatomic equilibrium at a constant gravitational field and aging of the universe, all Wu's Pairs in the subatomic particles of an object or event have fixed Wu's Unit Length and Wu's Unit Time, as is all the properties of an object or event. This is known as Principle of Equilibrium [5]. In addition, according to Wu's Spacetime Shrinkage Theory, an object or event at a massive graviton bombardment (or at a large gravitational field) or in an early stage aging of the

universe should have a larger Wu's Unit Length and Wu's Unit Time, a bigger dimension and duration, also a larger wave length, smaller light speed and slower time clock than that at a smaller graviton bombardment or in a later stage aging of the universe. These correlations can be used successfully in the interpretation of many cosmological phenomena such as Gravitational Redshift, Deflection of Light, Perihelion Precession of Mercury and Time Dilation, etc.

### **III. Graviton Radiation and Contact Interaction – Remote Gravitational Force**

Like photon, graviton can also be radiated from a parent object by absorbing thermal or kinetic energy. This process is called "Graviton Radiation". As a graviton emitted from the parent object reaches the target object, it makes a contact side by side with the graviton on the target object where the two gravitons can adjust themselves so as to attract each other at the contact points by a group of string forces generated between the Yangtons of one graviton and the Yingtons of the other graviton in each cycle of circulations. This interaction is called "Contact Interaction" and these string forces are called "Remote Gravitational Force". Also, the entire process is called "Graviton Radiation and Contact Interaction Theory" [6]. In general, Remote Gravitational Force contains "a group of gravitational forces" generated by the contact interactions between two groups of gravitons, one group from target object and the other group through graviton flux from parent object. It is different from the ordinary gravitational force which is "a single gravitational force" generated by the contact interaction between two adjacent gravitons on the same object. In addition, due to the nature of attractive force, Remote Gravitational Force always has an opposite direction to that of the graviton flux.

As a result, instead of being generated by the propagation of gravitational force, Universal Gravitation as the remote gravitational force is generated by Graviton Radiation and Contact Interaction process between two objects. In fact, gravitational force cannot propagate by itself, only gravitons can be moved by graviton radiation such that Remote Gravitational Force can be produced.

### **IV. Static Graviton Flux and Dynamic Graviton Flux**

Graviton flux is generated by graviton radiation, it is the graviton stream emitted from parent object to target object via different paths. There are two types of graviton fluxes: Static Graviton Flux and Dynamic Graviton Flux (Fig. 1) (revised from [4][7]).

Static Graviton Flux (also known as Aether Inflow) is the graviton flux moving from parent object to target object at a straight path observed at the target object with intensity dependent on the distance between parent object and target object. Static Graviton Flux can be generated by Graviton Radiation from any parent object.

Dynamic Graviton Flux (also known as Aether Wind) is the graviton flux moving at the same speed but opposite direction to that of target object observed at the target object with intensity dependent on the velocity of target object and the intensity of Static Graviton Flux. Dynamic Graviton Flux can only be generated with moving target object by the interaction between Static Graviton Flux and the moving target object.

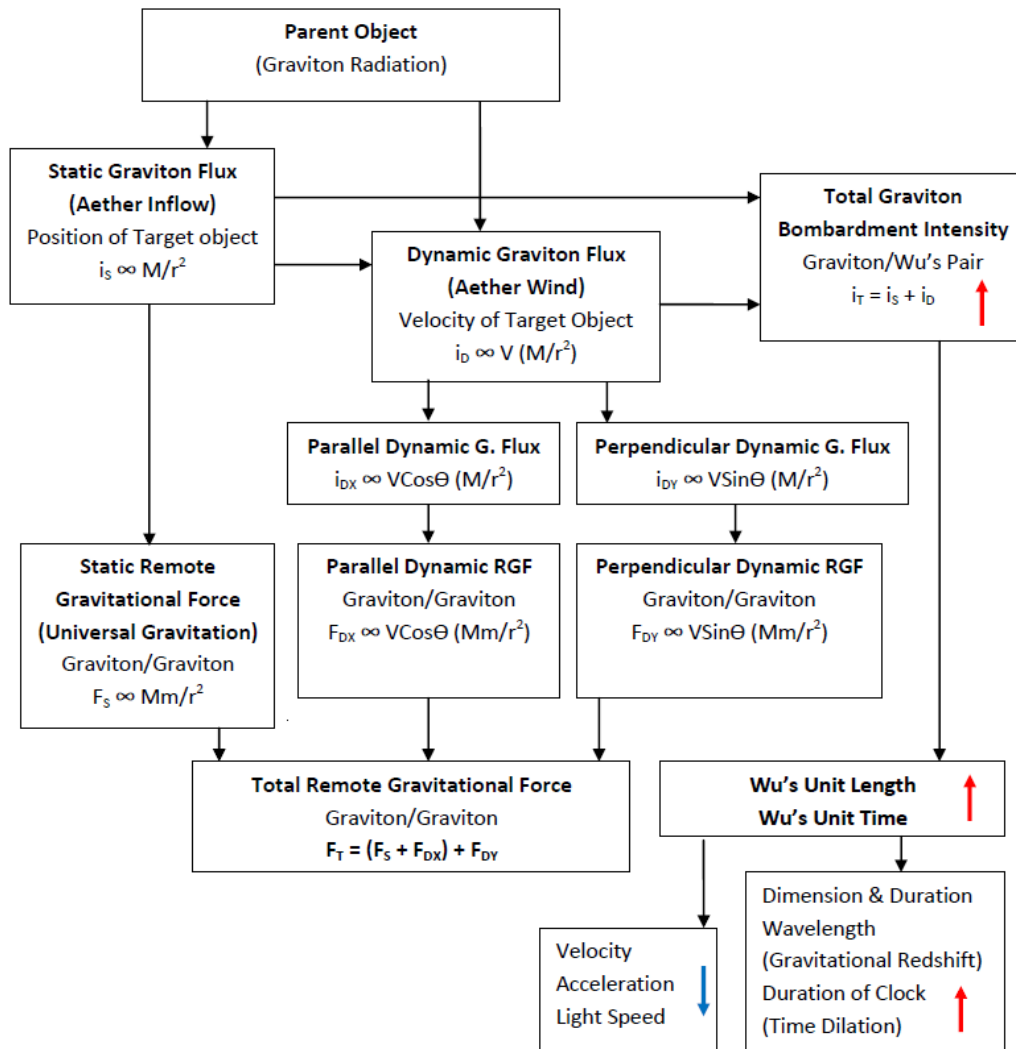


Fig. 1 The correlations between Static Graviton Flux and Dynamic Graviton Flux, and between Graviton Bombardment and Properties of Objects and Events.

Remote Gravitational Force (vector) is the total force generated by the contact interactions with target object caused by Static Graviton Flux (vector) dependent on the position of target object and Dynamic Graviton Flux (vector) dependent on the velocity of target object and the intensity of Static Graviton Flux.

On the other hand, the properties of an object or event are dependent on Wu's Unit Length and Wu's Unit Time of the subatomic particles in the object or even, which are dependent on the total graviton bombardment or the total intensity of gravitons, or in other words, the summation of the amounts of Static Graviton Flux and Dynamic Graviton Flux.

### V. Newton's Law of Universal Gravitation

According to Particle Radiation and Contact Interaction Theory, Newton's Law of Universal Gravitation can be used to calculate the Static Remote Gravitational Force (Universal Gravitation) between the two objects caused by Static Graviton Flux dependent on the position of target object [4][6].

Like a photon emitted from a heat source by absorbing thermal energy to overcome the string force, graviton can also be emitted from an object by absorbing thermal energy to overcome the gravitational force. It is obvious, Static Graviton Flux ( $i_s$ ), the gravitons emitted from the parent object reaching the target object per unit area per unit time, should be proportional to the mass of the parent object ( $m_1$ ), and also inversely proportional to the square of the distance ( $r$ ) between parent object and target object (Fig. 2). Therefore,

$$i_s = p \frac{m_1}{r^2}$$

$$\mathbf{I}_s = p \frac{m_1}{r^2} \mathbf{r}$$

Where  $\mathbf{I}_s$  is the static graviton flux vector,  $i_s$  is the static graviton flux,  $p$  is static graviton flux constant,  $m_1$  is the mass of parent object,  $r$  is the distance from  $m_1$  and  $\mathbf{r}$  is the unit vector with direction away from  $m_1$ .

Furthermore, the static remote gravitational force ( $F_s$ ) generated by contact interaction between the gravitons emitted from the parent object and the gravitons on the target object should be proportional to the static graviton flux ( $i_s$ ) in compliance with Graviton Radiation, and the total quantity of the gravitons on the target object that is proportional to the mass of the target object ( $m_2$ ) in accordance to Contact Interaction (Fig.2). Therefore,

$$\mathbf{F}_s = q(p m_1/r^2) m_2 \mathbf{S}$$

Where  $\mathbf{F}_s$  is the static remote gravitational force applied to target object  $m_2$  by parent object  $m_1$ ,  $q$  is graviton contact interaction constant,  $p$  is static graviton flux constant,  $m_1$  is the mass of parent object and  $m_2$  is the mass of target object,  $r$  is the distance between  $m_1$  and  $m_2$  and  $\mathbf{S}$  is the unit vector with direction from  $m_2$  to  $m_1$ .

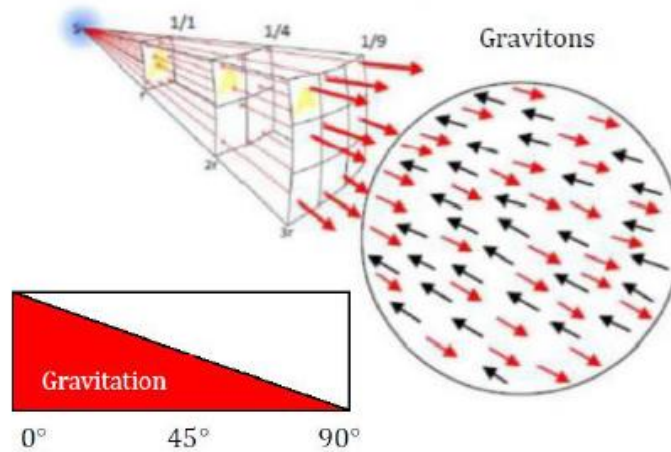


Fig. 2 Gravitational force caused by Graviton Radiation and Contact Interaction.

In addition, because of the random angles from  $0^\circ$  to  $90^\circ$  between the emitted gravitons from the parent object and the gravitons on the target (Fig. 2), an average 50% of the full contact interactions can be generated.

Furthermore, given  $G = pq$ , then, Newton's Law of Universal Gravitation (Fig. 3) can be represented as follows:

$$\mathbf{F} = G (m_1 m_2/r^2) \mathbf{S}$$

Where  $\mathbf{F}$  is universal gravitation (static remote gravitational force),  $G$  is gravitational constant (static gravitational constant)  $6.674 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$ ,  $m_1$  is the mass of parent object and  $m_2$  is the mass of target object,  $r$  is the distance between  $m_1$  and  $m_2$  and  $\mathbf{S}$  is the unit vector with direction from  $m_2$  to  $m_1$ .

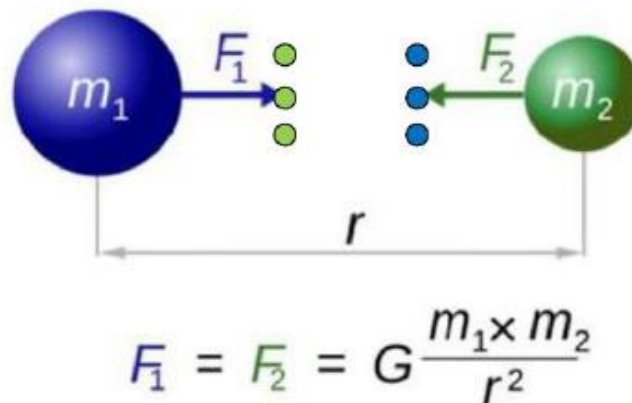


Fig. 3 Remote gravitational force between two objects.

**VI. Gravitational Field, Graviton Flux and Graviton Bombardment**

Gravitational Field is defined as the total remote gravitational force generated by parent objects on a unit mass ( $1K_g$ ) at a point in space. Therefore, according to Newton’s Law of Universal Gravitation, for a stationary single parent object system,

$$F_g = 1K_g G (M/r^2) S$$

Where  $F_g$  is the gravitational field,  $G$  is gravitational constant  $6.674 \times 10^{11} \text{ N m}^2 \text{ kg}^{-2}$ ,  $M$  is the mass of a parent object,  $r$  is the distance from the parent object to the unit mass and  $S$  is the unit vector from the point to the parent object.

The static graviton flux  $i_s$  from each parent object to the point is equal to  $p M/r^2$ ,  
 $i_s = p M/r^2$

In case of stationary system, there is no dynamic graviton flux, therefore, the total graviton bombardment intensity  $Q$  is equal to the total static graviton flux at the point which can be represented as follows:

$$Q = \sum p (M/r^2)$$

Where  $Q$  is total graviton bombardment intensity,  $p$  is static graviton flux constant,  $M$  is the mass of each parent object and  $r$  is the distance between the point and each parent object.

As a result, for a stationary single parent object system, the graviton bombardment intensity is equal to static graviton flux which is proportional to gravitational field.

(Note: The concentration of graviton vectors mentioned in my previous publications [6][8] is incorrect and should be replaced by graviton flux and intensity of graviton bombardment [9]).

**VII. Effective Dynamic Graviton Flux and Effective Dynamic Remote Gravitational Force**

Static Graviton Flux can be generated from any parent object to target object. However, Dynamic Graviton Flux can only be produced by moving target object. Fig. 4 shows a schematic diagram of Dynamic Graviton Flux [4].

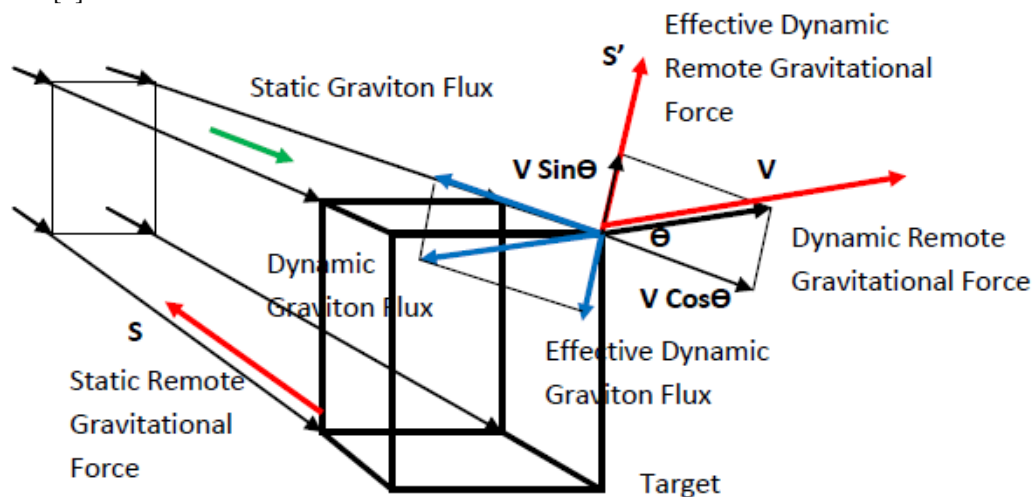


Fig. 4 Correlations between static graviton flux, static remote gravitational force, target object moving velocity, dynamic graviton flux, dynamic remote gravitational force, effective dynamic graviton flux and effective dynamic remote gravitational force.

Because graviton flux is proportional to the mass of parent object and velocity of graviton, also inversely proportional to the square of the distance from parent object,

$$i = kV_g (m_1/r^2)$$

Where  $i$  is graviton flux,  $k$  is graviton flux constant,  $V_g$  is graviton speed,  $m_1$  is the mass of parent object and  $r$  is the distance from parent object.

Therefore,

$$i_s = kC (m_1/r^2)$$

$$i_d = kV (m_1/r^2)$$

Also,

$$p = k C$$

Therefore,

$$i_s = p (m_1/r^2)$$

$$i_d = (p/C) V (m_1/r^2)$$

$$i_d = (V/C) i_s$$

Where  $i_s$  is static graviton flux (with direction from  $m_1$  to  $m_2$ ), and  $i_d$  is dynamic graviton flux (with direction opposite to the moving direction of  $m_2$ ).  $k$  is graviton flux constant,  $p$  is static graviton flux constant,  $C$  is static graviton flux speed (assuming the same as Absolute Light Speed),  $V$  is the speed of target object,  $m_1$  is the mass of parent object and  $r$  is the distance between parent object and target object.

Furthermore, dynamic graviton flux is a vector with the same speed but opposite direction as that of the velocity of target object. Also, dynamic graviton flux has two components: One component is parallel to the static graviton flux ( $i_{dx}$ ) with a speed of  $V\cos\Theta$  (where  $V$  is the speed of the moving target object and  $\Theta$  is the angle between static graviton flux and target object moving direction), and the other one is perpendicular to the static graviton flux ( $i_{dy}$ ) with a speed of  $V\sin\Theta$  (Fig. 4). Since  $V$  is much smaller than static graviton flux speed (assuming Absolute Light Speed  $C$ ), therefore the parallel component along static graviton flux ( $i_{dx}$ ) is negligible and only the perpendicular component ( $i_{dy}$ ) named Effective Dynamic Graviton Flux [4] should be considered.

Because effective dynamic graviton flux is the component perpendicular to static graviton flux, therefore,

$$i_d = (p/C) V (m_1/r^2)$$

$$i_{dy} = (p/C)(V\sin\Theta)(m_1/r^2)$$

Also,

$$F_{dy} = q m_2 i_{dy}$$

$$G = pq$$

Therefore,

$$F_{dy} = (V\sin\Theta/C) G(m_1m_2/r^2)$$

$$F_{dy} = (V\sin\Theta/C) F_s$$

$$\mathbf{F}_{dy} = (V\sin\Theta/C) G(m_1m_2/r^2) \mathbf{S}'$$

Where  $\mathbf{F}_{dy}$  is effective dynamic remote gravitational force (revised from [4][7]),  $F_s$  is static remote gravitational force (universal gravitation),  $G$  is static gravitational constant,  $V$  is the speed of target object  $m_2$ ,  $\Theta$  is the angle between static graviton flux and target object moving direction, and  $\mathbf{S}'$  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.

As a result, the total remote gravitational force  $\mathbf{F}_T$  is a vector summation of static remote gravitational force  $\mathbf{F}_s$  and effective dynamic remote gravitational force  $\mathbf{F}_{dy}$ .

$$\mathbf{F}_T = \mathbf{F}_s + \mathbf{F}_{dy}$$

$$\mathbf{F}_s = G (m_1m_2/r^2) \mathbf{S}$$

$$\mathbf{F}_{dy} = (V\sin\Theta/C) G(m_1m_2/r^2) \mathbf{S}'$$

In addition, gravitational field is defined as the total remote gravitational force generated by parent objects on a unit mass ( $1K_g$ ) at a point in space. Therefore, for a dynamic single parent object system (with a moving target object), the gravitational field can be represented as follows:

$$\mathbf{F}_g = 1K_g G[(M/r^2) \mathbf{S} + V\sin\Theta/C (M/r^2) \mathbf{S}']$$

Furthermore, for a multiple parent objects system, the total graviton bombardment intensity  $Q$  at a point is equal to the total graviton flux, which is the summation of the total static graviton flux from all parent objects and the total effective dynamic graviton flux from the moving parent objects.

$$Q = \sum i_s + \sum i_{dy}$$

$$Q = \sum p (M/r^2) + \sum (p/C)V\sin\Theta (M/r^2)$$

The total graviton bombardment intensity determines Wu's Unit Length and Wu's Unit Time of Wu's Pairs, as well as the wavelength, clock duration and all the properties of an object or event.

### VIII. Conclusion

According to Yangton and Yington Theory, Gravitational Force is generated by contact interaction between two adjacent gravitons on the same object. Remote Gravitational Force on the other hand is caused by contact interaction between the graviton on the target object and the graviton emitted from parent object through graviton flux based on Graviton Radiation and Contact Interaction Theory. Static Graviton Flux is the graviton flux moving from parent object to target object with intensity dependent on the distance between two objects. Dynamic Graviton Flux is the graviton flux moving at the same speed but opposite direction to that of target object with intensity dependent on the velocity of target object and the intensity of Static Graviton Flux. Static Graviton Flux can be generated by Graviton Radiation from any parent object. However, Dynamic Graviton Flux can only be generated with moving target object by the interaction between Static Graviton Flux and moving target object. Newton's Universal Gravitation is the Remote Static Gravitational Force  $F = G(m_1m_2/r^2)$

generated by Static Graviton Flux which can cause Aether Inflow. Effective Dynamic Remote Gravitational Force  $F_{dy} = (V \sin \Theta / C) G(m_1 m_2 / r^2)$  is the perpendicular component of Dynamic Remote Gravitational Force generated by Dynamic Gravitational Flux which can cause Aether Wind.

### References

- [1]. 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.
- [2]. 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.
- [3]. 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.
- [4]. 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.
- [5]. 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.
- [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. "A Summary and Indirect Proves of Wu's Pairs and Yangton and Yington Theory." IOSR Journal of Applied Physics (IOSR-JAP), 15(3), 2023, pp. 23-33.
- [8]. 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.
- [9]. 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.