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Wavelength And Light Speed Affected By Dynamic Graviton Flux

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Abstract
Recently Rene Steinhauer did an experiment on the wavelength of standing waves of the same radio frequency by Lecher Line, and has found out an anisotropic difference on wavelength and light speed in various directions. These results can be explained reasonably well by dynamic gravitational flux and Wu's Spacetime Shrinkage Theory. When an object travels in different directions from that of the gravitational force vertical to the surface of earth, it interacts with various amounts of dynamic graviton fluxes subject to the directions. This interaction according to Wu's Spacetime Shrinkage Theory can change Wu's Unit Length and Wu's Unit Time of the subatomic particles in the object, and subsequently change all the properties of the object such as dimension, duration, velocity and acceleration, as well as wavelength, light speed and time dilation. Because of this reason, in Rene Steinhauer experiment, as electromagnetic wave travels in different directions from that of the gravitational force vertical to the surface of earth, its wavelength and speed can also be different. This experiment also gives an indirect proof to the existence of static and dynamic graviton fluxes based on Yangton and Yington Theory.

Keywords: *Graviton, Gravitational Force, Graviton Radiation, Graviton Flux, Static Graviton Flux, Dynamic Graviton Flux, Remote Gravitational Force, Light Speed, Yangton and Yington, Wu's Pairs, Wu's Spacetime Shrinkage Theory.*

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I. Background

Recently Rene Steinhauer [1] did an experiment on the wavelength of standing waves of the same radio frequency by Lecher Line, and has found out an anisotropic difference on wavelength and light speed in various directions. This result is conflicting to the common understanding that light speed is constant. In this paper a sound explanation is proposed based on dynamic gravitational flux and Wu's Spacetime Shrinkage Theory.

II. Graviton And Gravitational Force

Based on Yangton and Yington Theory [2], Wu's Pairs are the Building Blocks of the universe [2]. When two Wu's Pairs come together with the same circulation direction (either 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 attractive force between Yangton and Yington particles from each Wu's Pairs. This attractive force is called "String Force" [3]. By repeating this stacking process, various linear structures can be formed such as single string, multiple strings and ball type strings, etc. The single string structure is named "Graviton" [3].

When two gravitons 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 graviton and the Yingtons of the other graviton in each cycle of circulations. This process is called "Contact Interaction" and the group of attraction only string forces generated between the two adjacent gravitons in the same object is named "Gravitational Force" [3]. Other elementary subatomic particles having basic string structures such as quarks, leptons and bosons can also have gravitational forces between them, except photon and gluons which don't have string structures or adjustable circulations.

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 this group of string forces generated between two gravitons from different objects is called "Remote Gravitational Force". Also, the entire process is called "Graviton Radiation and Contact Interaction Theory" [4]. 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 an ordinary gravitational force which is "a single gravitational force" generated by the contact interaction between two adjacent gravitons on the same object. In addition, Remote Gravitational Force applied on target object is always towards to the opposite direction of the graviton flux from parent object.

As a result, instead of being produced by the propagation of gravitational force generated from parent object, 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 move as graviton flux through graviton radiation, and such that Remote Gravitational Force is produced.

IV. Static Graviton Flux And Dynamic Graviton Flux

Graviton flux is generated by graviton radiation, it is the graviton streams emitted from parent object to target object. There are two types of graviton fluxes observed at target object: static graviton flux and dynamic graviton flux [5]. Static graviton flux (also known as Aether Inflow) is the graviton flux emitted from parent object to a stationary target object at a straight path observed at the target object with intensity dependent on the speed of static graviton flux and distance between parent object and target object. Dynamic graviton flux (also known as Aether Wind) on the other hand is the graviton flux emitted from parent object to a moving object at an angle from the straight line between parent object and the initial position of target object while observed at the target object with intensity dependent on the speed of dynamic graviton flux and distance between parent object and target object observed at target object (It is different from the distance between parent object to the initial position of target object. However, it is negligible because of the relatively smaller moving speed of target object than the speed of graviton flux C).

In my previous publications [5][6][7], I made two mistakes about the graviton flux generated in a pair of parent object and target object by taking: (1) Static graviton flux and dynamic graviton flux are independent to each other and they can both coexist at the same time, and (2) Total graviton flux is the summation of static graviton flux and dynamic graviton flux. In fact, static graviton flux and dynamic graviton flux for a pair of parent object and target object cannot coexist at the same time, therefore the summation of both fluxes as the total flux applied on the target object has no meanings.

According to Wu's Spacetime Shrinkage Theory, Wu's Unit Length and Wu's Unit Time of the subatomic particles in an object or event are dependent on the gravitational field (graviton bombardment strength) which is proportional to the total intensities of graviton fluxes applied on the object or event. Also, subsequently all the properties of the object or event are dependent on Wu's Unit Length and Wu's Unit Time, also as is the gravitational field (graviton bombardment strength) and the total intensities of graviton fluxes.

Since the intensity of dynamic graviton flux varies with the relative velocity between target object and parent object, therefore, the dimension, duration, velocity and acceleration of an object or event, as well as wavelength [1], light speed [1] and time dilation [8][9] can all be affected by the graviton bombardment strength applied on the object or event subject to the relative velocity between the parent objects and target object.

V. Static Graviton Flux And Newton's Law Of Universal Gravitation

According to Particle Radiation and Contact Interaction Theory, Newton's Law of Universal Gravitation can be derived and used to calculate the Static Remote Gravitational Force (Universal Gravitation) caused by static graviton flux between two stationary objects.

Like 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. As both parent object and target object are stationary, it is obvious that Static Graviton Flux (i_s), the gravitons emitted from parent object to 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. 14). Therefore,

$i_s = p\, m_1/r^2$

$\mathbf{i_s} = p\, m_1/r^2\, \mathbf{r}$

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 from m_1 to m_2.

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 stationary 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. 14). Therefore,

$F_s = q(pm_1/r^2)\ m_2$

$\mathbf{F_s} = q(pm_1/r^2)\ m_2\ \mathbf{S}$

Where F_s is the static remote gravitational force, $\mathbf{F_s}$ is the static remote gravitational force vector, 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 **S** is the unit vector with direction from m_2 to m_1.

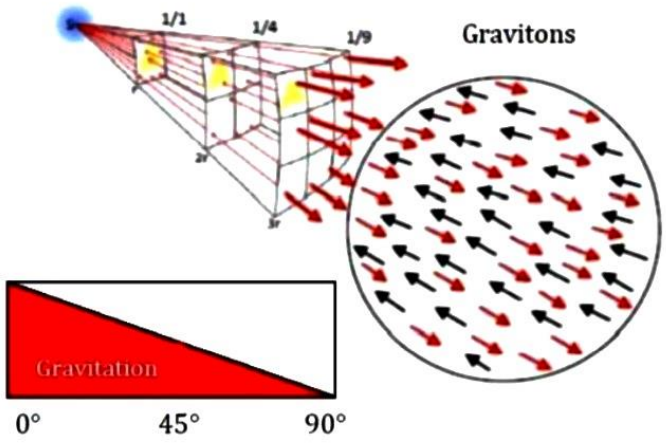


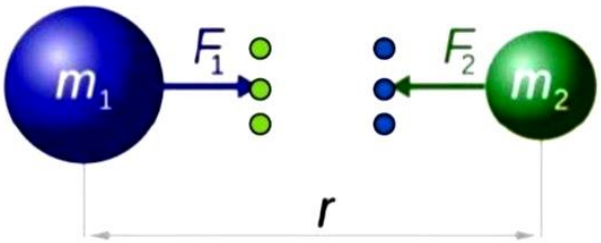
Fig. 1 **Gravitational force caused by Graviton Radiation and Contact Interaction.**

In addition, because of the random angels from 0° to 90° between the emitted gravitons from the parent object and the gravitons on the target (Fig. 1) [4], an average 50% of the full contact interactions should be expected.

Furthermore, given G = pq, then Newton's Law of Universal Gravitation (Fig. 2) which is the same as static remote gravitational force can be represented as follows:

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

Where **F** is universal gravitation vector (static remote gravitational force vector), G is gravitational constant (static remote gravitational force constant) 6.674×10^{-11} N m^2 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 **S** is the unit vector with direction from m_2 to m_1.



$$F_1 = F_2 = G\frac{m_1 \times m_2}{r^2}$$

Fig. 2 Remote gravitational force between two objects.

VI. Dynamic Graviton Flux And Dynamic Remote Gravitational Force

Like any other flux, graviton flux is also proportional to the speed of graviton flux observed at target object,

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

$\mathbf{i} = k\mathbf{V_g} (m_1/r^2)$

Where i is graviton flux, k is graviton flux constant, V_g is the speed of graviton flux observed at target object, **i** is graviton flux vector towards target object, $\mathbf{V_g}$ is graviton flux vector towards target object.

It is obvious that graviton flux speed can change with the relative moving speed between a pair of parent object and target object. Static graviton flux is the graviton flux generated from a parent object to a stationary target object. Dynamic graviton flux on the other hand is the graviton flux produced from a parent object to a moving target object.

Fig. 3 (revised from [5][6]) shows a schematic diagram of two relatively moving objects with correlations between the speed of static graviton flux observed at parent object $\mathbf{V_s}$, the moving speed of target object observed at parent object **V** and the speed of dynamic graviton flux observed at target object $\mathbf{V_d}$.

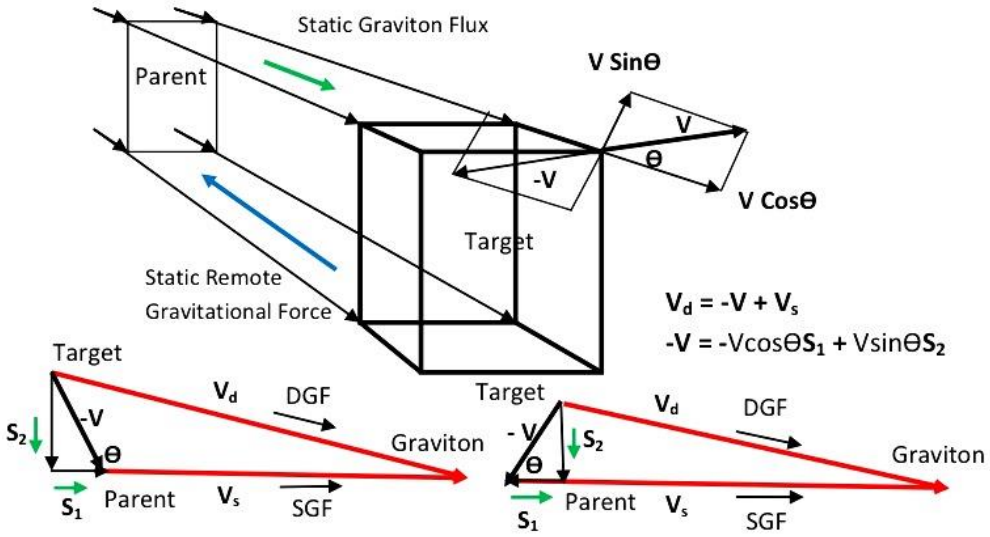


Fig. 3 A schematic diagram of static graviton flux (SGF) observed at parent object and dynamic graviton flux (DGF) observed at target object with Equation of Velocity $\mathbf{V_d = -V + V_s}$ correlating dynamic graviton flux speed observed at target object $\mathbf{V_d}$, parent object moving speed observed at target object **-V** and static graviton flux speed observed at parent object $\mathbf{V_s}$.

Because of Principle of Vision and Theory of Vision, for constant velocities, the velocity of graviton flux observed at target object ${}_t\mathbf{V}_g$ (equals to $\mathbf{V_d}$ moves towards target) is the vector summation of the velocity of parent object observed at target object ${}_t\mathbf{V}_p$ (equals to **–V** moves away from target) and the velocity of graviton flux observed at parent object ${}_p\mathbf{V}_g$ (equals to $\mathbf{V_s}$ moves away from parent object). Therefore,

${}_t\mathbf{V}_g = {}_t\mathbf{V}_p + {}_p\mathbf{V}_g$

And

$\mathbf{V_d = -V + V_s}$

As shown in Fig. Z13,

$\mathbf{-V} = -V\cos\Theta\ \mathbf{S_1} + V\sin\Theta\ \mathbf{S_2}$

And

$\mathbf{V_S} = C\mathbf{S_1}$

Therefore,

$\mathbf{V_d} = (C - V\cos\Theta)\ \mathbf{S_1} + V\sin\Theta\ \mathbf{S_2}$

$V_d = [(C - V\cos\Theta)^2 + (V\sin\Theta)^2]^{1/2}$

Where V is the speed of target object observed at parent object, Θ is the angle between the velocity of target object **V** and static graviton flux $\mathbf{V_s}$. Also $\mathbf{S_1}$ is the unit vector along $\mathbf{V_s}$ and $\mathbf{S_2}$ is the unit vector perpendicular to $\mathbf{V_s}$ away from target object. V_d is the velocity of dynamic graviton flux observed at target object and $\mathbf{V_d}$ is the vector of velocity of dynamic graviton flux towards target object and observed at target object.

Because graviton flux is defined as the amount of gravitons pass through a unit area per unit time, therefore graviton flux must be proportional to the speed of graviton as follows:

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

$\mathbf{i} = k\mathbf{V_g}\ (m_1/r^2)$

As a consequence, static graviton flux can be represented as follows:

$i_s = kV_s\ (m_1/r^2)$

$\mathbf{i_s} = k\mathbf{V_s}\ (m_1/r^2)$

Also static remote gravitational force can be represented as follows:

$F_s = qkV_s\ (m_1m_2/r^2)$

$\mathbf{F_s} = qk\mathbf{V_s}\ (m_1m_2/r^2)$

In addition, dynamic graviton flux can be represented as follows:

$\mathbf{i_d} = k\mathbf{V_d}\ (m_1/r^2)$

Based on Equation of Velocity,

$\mathbf{V_d = -V + V_s}$

Therefore,

$\mathbf{i_d} = k\ (\mathbf{-V + V_s})\ (m_1/r^2)$

In addition, $\mathbf{i_d}$ can be calculated by the angle Θ between the velocity of target object **V** and static graviton flux $\mathbf{V_s}$ based on $\mathbf{S_1}$ and $\mathbf{S_2}$ a two unit vector Cartesian system as follows:

$\mathbf{i_d} = k\ [(C - V\ Cos\Theta)\ \mathbf{S_1} + V\ Sin\Theta\ \mathbf{S_2}]\ (m_1/r^2)$

Where $\mathbf{i_d}$ is the vector of dynamic graviton flux, Θ is the angle between the velocity of target object **V** and static graviton flux $\mathbf{V_s}$. Also $\mathbf{S_1}$ is the unit vector along $\mathbf{V_s}$ and $\mathbf{S_2}$ is the unit vector perpendicular to $\mathbf{V_s}$ away from target object.

Therefore dynamic graviton flux i_d can be calculated as follows:

$i_d = k[(C - V\ Cos\Theta)^2 + (V\ Sin\Theta)^2]^{1/2}\ (m_1/r^2)$

Furthermore,

$p = kC$

$pq = G$

$qk = G/C$

Where k is graviton flux constant, p is static graviton flux constant, q is graviton contact interaction constant. C is Absolute Light Speed and G is gravitational constant.

Therefore, the dynamic remote gravitational force can be represented as follows:

$\mathbf{F_d} = (G/C)[(C - V\ Cos\Theta)\ \mathbf{S_1} + V\ Sin\Theta\ \mathbf{S_2}]\ (m_1m_2/r^2)$

$F_d = (G/C)[(C - V\ Cos\Theta)^2 + (V\ Sin\Theta)^2]^{1/2}\ (m_1m_2/r^2)$

Where $\mathbf{F_d}$ is the vector of dynamic remote gravitational force and F_d is dynamic remote gravitational force. $\mathbf{S_1}$ is the unit vector along $\mathbf{V_s}$ and $\mathbf{S_2}$ is the unit vector perpendicular to $\mathbf{V_s}$ away from target object.

VII. Gravitational Field

Gravitational field is defined as the total remote gravitational forces generated by all the parent objects in the universe onto a unit mass ($1K_g$) target object.

Therefore, for a single parent object and $1K_g$ target object, the static gravitational field F_{gs} (also noted as F_g) and its vector $\mathbf{F_{gs}}$ (also noted as $\mathbf{F_g}$) can be represented as follows:

$F_{gs} = F_g = 1K_g\ G\ (M/r^2)$

$\mathbf{F_{gs}} = \mathbf{F_g} = 1K_g\ G\ (M/r^2)\ \mathbf{S}$

Also, for a single parent object and $1K_g$ target object, the dynamic gravitational field F_{gd} and its vector $\mathbf{F_{gd}}$ can be represented as follows:

$F_{gd} = 1K_g\ (G/C)[(C - V\ Cos\Theta)^2 + (V\ Sin\Theta)^2]^{1/2}\ (M/r^2)$

$\mathbf{F_{gd}} = 1K_g\ (G/C)[(C - V\ Cos\Theta)\ \mathbf{S_1} + V\ Sin\Theta\ \mathbf{S_2}]\ (M/r^2)$

As a result, for a single parent object and $1K_g$ target object, the intensity of dynamic gravitational field F_{gd} can vary with the relative moving velocities and directions of target object. For examples,

If V = 0 (static graviton flux), then $F_{gd} = F_{gs} = F_g = 1K_g\ G(M/r^2)$

If $\Theta = 0^o$, then $F_{gd} = 1K_g\ G\ (1\text{-}V/C)\ (M/r^2)$

If $\Theta = 90^o$, then $F_{gd} = 1K_g\ G\ (1 + V^2/C^2)^{1/2}\ (M/r^2)$

If $\Theta = 180^o$, then $F_{gd} = 1K_g\ G\ (1+V/C)\ (M/r^2)$

If $\Theta = 45^o$, then $F_{gd} = 1K_g\ G\ (M/r^2) = F_g$

If $\Theta > 45^o$, then $F_{gd} < 1K_g\ G\ (M/r^2)$ or $F_{gd} < F_g$

If $\Theta < 45^o$, then $F_{gd} > 1K_g\ G\ (M/r^2)$ or $F_{gd} > F_g$

Furthermore, for a multiple parent object system, the total gravitational field vector can be represented as follows:

$\mathbf{F_{gT}} = \sum \mathbf{F_{gs}} + \sum \mathbf{F_{gd}}$

$\mathbf{F_{gT}} = \sum 1K_g\, G\, (M/r^2)\, \mathbf{S} + \sum 1K_g\, (G/C)[(C - V\, Cos\Theta)\, \mathbf{S_1} + V\, Sin\Theta\, \mathbf{S_2}]\, (M/r^2)$

Also, according to Wu's Spacetime Shrinkage Theory, the total intensity of gravitational fields ($Q_g = \sum F_{gs} + \sum F_{gd}$) can affect Wu's Unit Length and Wu's Unit Time of the subatomic particles in an object or event, and subsequently changes all the properties of the object or event. Therefore, for a dynamic system with a single parent object and $1K_g$ moving target object, the velocity and direction of the moving $1K_g$ target object can affect the intensity of dynamic gravitational field and subsequently changes all the properties of the $1K_g$ target object. Similarly, in a dynamic system with a single parent object and a moving target object, the relative moving velocity and direction between parent object and target object can change all the properties such as dimension, duration, velocity, acceleration, wavelength [1], light speed [1] and time dilation [8][9] of the target object.

VIII. Graviton Bombardment

According to Wu's Spacetime Shrinkage Theory [10], Wu's Unit Length and Wu's Unit Time of Wu's Pairs (building blocks of the universe) become bigger at massive gravitational field. Here the gravitational field means the total intensities of all gravitational fields $\sum F_{gs} + \sum F_{gd}$ applied on a unit mass $1K_g$, which is different from the intensity of the vector of total gravitational field $/\sum \mathbf{F_{gT}}/$ applied on a unit mass $1K_g$. For better clarification, Graviton Bombardment Strength Q_g is used for the total intensities of all gravitational fields on a unit mass $1K_g$.

Since the total intensities of all gravitational fields is the contact interactions caused by the total intensities of all graviton fluxes on a unit mass $1K_g$, therefore graviton bombardment strength as the total intensities of all gravitational fields is proportional to the total intensities of all graviton fluxes applied on a unit mass $1K_g$. Therefore,

$Q_g = \sum F_{gs} + \sum F_{gd} = 1K_g\, q\, (\sum i_s + \sum i_d)$

$Q_g \propto (\sum i_s + \sum i_d)$

Where Q_g is graviton bombardment strength.

IX. Wu's Spacetime Shrinkage Theory

Under both thermal equilibrium at a constant temperature and pressure, and subatomic equilibrium at a constant gravitational field (constant graviton bombardment strength) 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 the object or event. This is known as Principle of Equilibrium [11].

In addition, an object or event at a massive gravitational field (massive graviton bombardment strength) 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 gravitonal field (graviton bombardment strength) or in a later stage aging of the universe. This is known as Wu's Spacetime Shrinkage Theory which 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.

X. Experiments On Anisotropy Of EM Wave

In Rene Steinhauer's experiments [1], with the use of a Lecher line and a standing electromagnetic wave, the experimenter can measure changes in wavelength by measuring electrical output at an assigned position on a Lecher line. Results of this experiment demonstrated an obvious and experimentally repeatable phase change associated with direction of the Lecher line. This phase change was demonstrated by a change in electrical output measured at the assigned location on the Lecher line. This experiment was repeated using various frequencies and voltage inputs into the Lecher line with obvious results that demonstrated an anisotropic difference. Further experiments were completed attempting to find an alternative hypothesis for the phase change noted in the original experiment, but these experiments were unable to identify an alternative cause of the phase change and consequently support the hypothesis that the phase change was directly related to anisotropy secondary to a change in the measured wavelength of the electromagnetic wave. Based upon the logical conclusions associated with this experiment and the results obtained, this experiment appears to demonstrate variable speed light. Furthermore, this discovery brings into question the theory that electromagnetic propagation though space is at the constant of c.

XI. Sound Explanation

As illustrated in Fig. 3, when an object travels in different directions from that of the gravitational force vertical to the surface of earth, it interacts with various amounts of dynamic graviton fluxes subject to the directions. This interaction according to Wu's Spacetime Shrinkage Theory can change Wu's Unit Length and Wu's Unit Time of the subatomic particles in the object, and subsequently change all the properties of the object such as dimension, duration, velocity and acceleration, as well as wavelength, light speed and time

dilation. Because of this reason, in Rene Steinhauer experiment, as electromagnetic wave travels in different directions from that of the gravitational force vertical to the surface of earth, its wavelength and speed can also be different.

XII. Conclusion

Recently Rene Steinhauer did an experiment on the wavelength of standing waves of the same radio frequency by Lecher Line, and has found out an anisotropic difference on wavelength and light speed in various directions. These results can be explained reasonably well by dynamic gravitational flux and Wu's Spacetime Shrinkage Theory. When an object travels in different directions from that of the gravitational force vertical to the surface of earth, it interacts with various amounts of dynamic graviton fluxes subject to the directions. This interaction according to Wu's Spacetime Shrinkage Theory can change Wu's Unit Length and Wu's Unit Time of the subatomic particles in the object, and subsequently change all the properties of the object such as dimension, duration, velocity and acceleration, as well as wavelength, light speed and time dilation. Because of this reason, in Rene Steinhauer experiment, as electromagnetic wave travels in different directions from that of the gravitational force vertical to the surface of earth, its wavelength and speed can also be different. This experiment also gives an indirect proof to the existence of static and dynamic graviton fluxes based on Yangton and Yington Theory.

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