



What is the Universe made of? And how it works?

From the point of view of CPH theory

Hossein Javadi

Independent researcher and founder of CPH theory, Tehran, Iran

Javadi_hossein@hotmail.com

February 4, 2019

Abstract:

At present, the greatest problem in theoretical physics is combining the general relativity with quantum mechanics. Physicists are trying to solve this problem in the context of modern physics or to think the beyond of the modern physics, while they have not cared classical physics. In all of these efforts, the classical physics has been ignored, while nature is unique and all physical phenomena, from the microscopic or the macroscopic ones are obeying the same law. CPH theory is based on the magnitude speed of energy to matter and vice versa can be generalized. CPH theory (Creative particles of Higgs Theory) is based on the magnitude speed of energy to matter and vice versa can be generalized.

Keywords: virtual photon, graviton, bosons birthplace, black hole, explosion

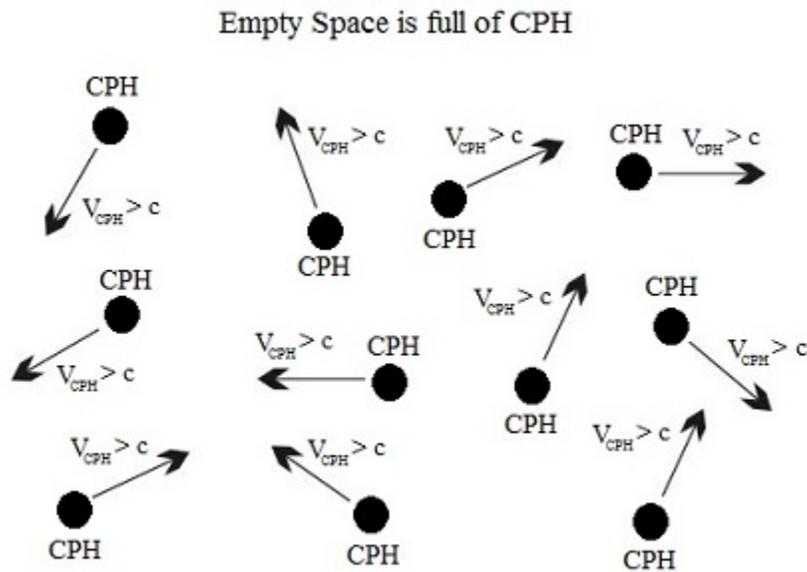
What is the Universe made of? And how it works?

From the point of view of CPH theory

What is a vacuum?

In contrast to classical mechanics, in quantum mechanics, the vacuum is not empty and it has energy. A quantum fluctuation is the temporary change in the amount of energy in a point in space, as explained in Werner Heisenberg's uncertainty principle. [1]

A vacuum is full of CPHs. A CPH has invariable mass m_{CPH} and moves with constant amount speed V_{CPH} : CPHs move in all directions with the amount of speed V_{CPH} in space. (Figure1)

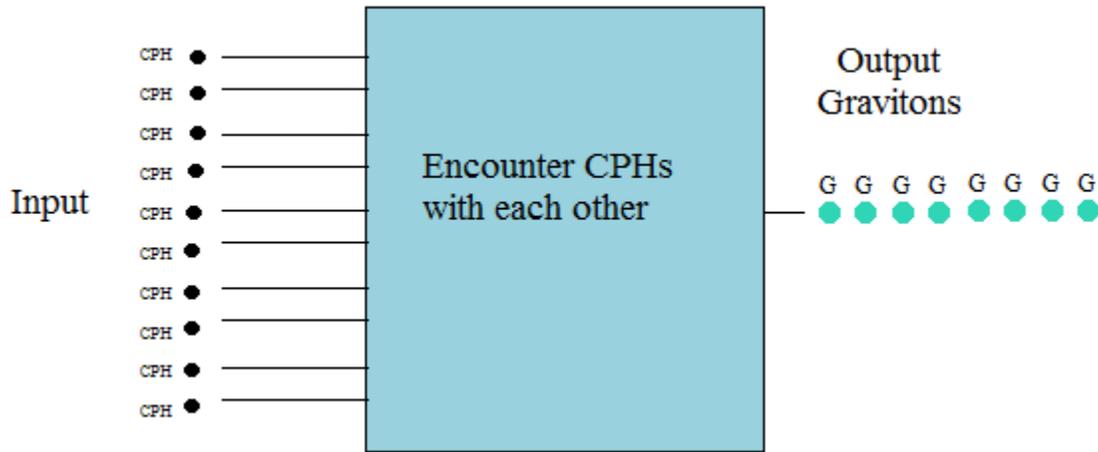


CPHs interact to each other, take spin and convert to graviton G so that the total linear speed of graviton V_G and non-linear speed of graviton S_G is constant and equal V_{CPH} in all inertial reference frame:

$$V_G + S_G = V_{CPH} = \text{constant} \quad (1)$$

What is the Universe made of? And how it works?

From the point of view of CPH theory



When CPH has spin, it calls graviton

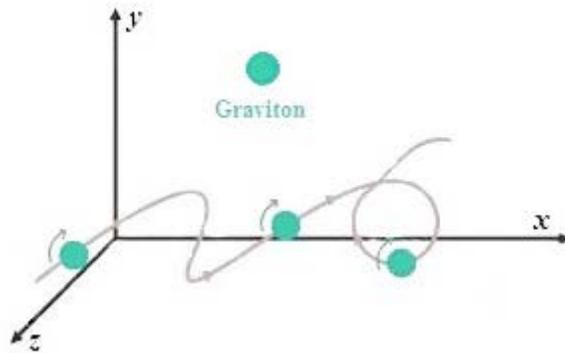


Fig1; Hypothetical path of a graviton in the Cartesian coordinate system

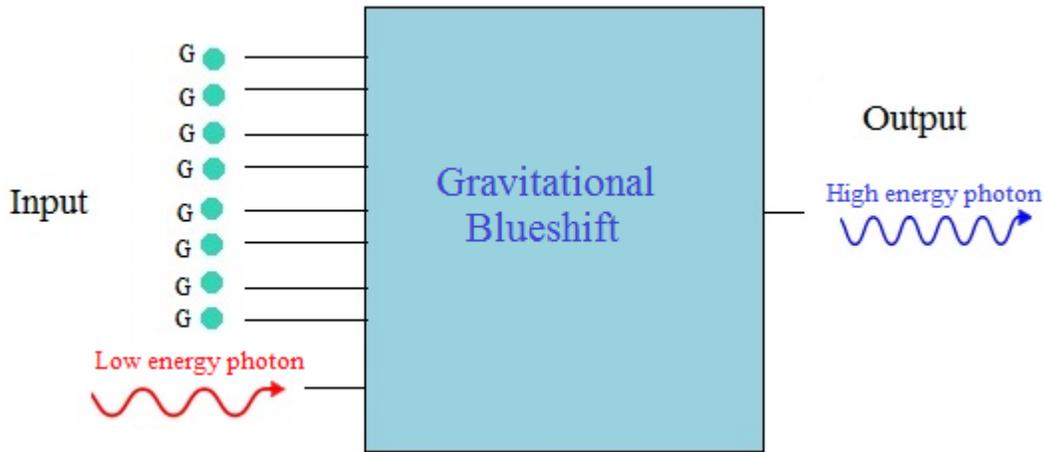
Related articles [2]

Gravitational blue-shift (and red-shift)

When a photon falls in gravitational field its energy (also frequency) increases that is called gravitaional blue-shift;

What is the Universe made of? And how it works?

From the point of view of CPH theory



Gravity force converts to electromagnetic energy.

Related articles [3]

In the CPH Theory, gravitons have properties that when gravity works on the photon, can alter the intensity of electric and magnetic fields of the photon. This attitude led to the terms color-charge and magnetic-color in which they have used to define gravitons. In other words, the identity of graviton changes without any change in its energy.

Photon is carrying two perpendicular electric field and magnetic field. The photon is electrically neutral and particles forming the electric field must neutralize each other. There are two groups, positive and negative color-charges in structure of photon that form photon's electric field and neutralize each other. Because these electric fields are moving, they create magnetic fields around themselves. Simultaneously by producing positive and negative electric fields, two magnetic fields are produced around the electric fields do form. Therefore, it will be made two groups of magnetic-colors.

According to the above expression, we are now able to define the structure of photon. A photon contains some positive color-charges G^+ , negative color-charges G^- , right rotation color-magnetic G_m^+ and left rotation color-magnetic G_m^- as shown in figure 2. Related articles [3]

Speed of graviton

Photon is made up of color-charges and magnetic-color that have linear speed equal c with photon motion and nonlinear speed in the structure of photon, so they move faster than light speed. Therefore, the amount of passed path per unit of time is not equal c and it is greater than c , in the other word graviton moves faster than light speed. It is important that we note the speed of graviton (also color-charge and magnetic-color) that is given with V_G and as explained before, is faster than light speed, so $V_G > c$, that V_G is the total speed of transmission speed V_{GT} and non-transmission speed V_{GS} of graviton or color-charge and magnetic-color (figure 2).

What is the Universe made of? And how it works?

From the point of view of CPH theory

$$|V_G| = |V_{GT}| + |V_{GS}| > |c| \quad (2)$$

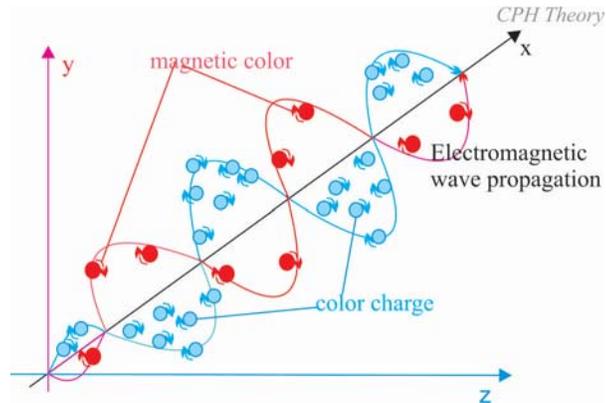


Fig 2; paths of gravitons in photon structure, color-charges and magnetic-color have spin and curvature speed

The best way to recognize and understand electric and magnetic fields dependent on photon is reviewing the gravitational blueshift and redshift in a verified experiment, figure 3.

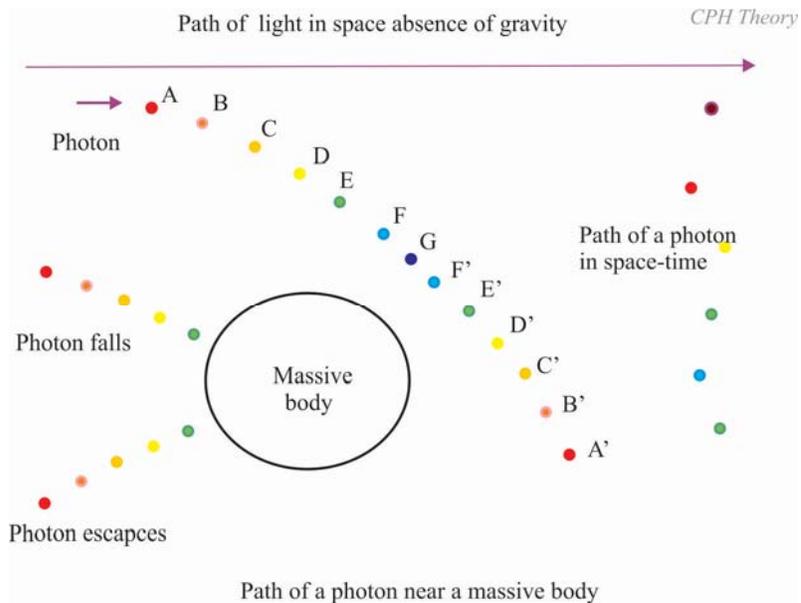


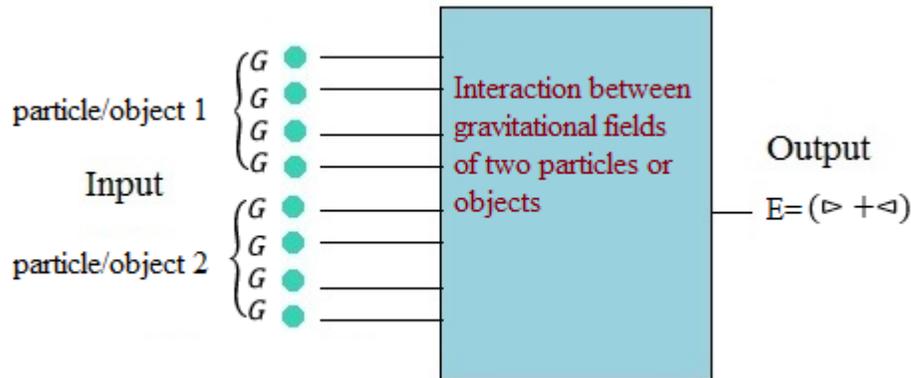
Fig 3: Paths of photons in space-time

Gravity force

When two particles/object stay on each other gravitational field, their gravitons combine together and become energy and pulls them toward each other.

What is the Universe made of? And how it works?

From the point of view of CPH theory



Gravitons convert to electromagnetic energy

Positive Sub Quantum Energy (SQE^+): The positive sub quantum energy is a set of positive color-charges with its affiliates magnetic-color that is shown by right wedge \triangleright .

Negative Sub Quantum Energy (SQE^-): The negative sub quantum energy is a set of negative color-charges with its affiliates magnetic-color that is shown by left wedge \triangleleft .

In face \triangleright and \triangleleft are gravity forces, when they combine a quantum energy (gravitational energy) forms. It is explainable by $F = -dU/dx$.

In quantum electrodynamics, charged particles (for example electron and positron) have interaction with each other through propagation and absorption of a photon (particles that carry electromagnetic force) and these interactions are justified by Uncertainty Principle. Even Feynman diagrams is a representation to describe physical processes. While by using sub-quantum energies and positive and negative virtual photons, the interaction between charged particles is explainable as physical analysis and mathematical computations. Related articles [4]

Photon and virtual photons

Virtual photons: There are two types of virtual photons, positive virtual photon γ^+ and negative virtual photon γ^- that each of them is formed of number same-sign sub quantum energies, which is defined as follows:

$$\text{Positive virtual photon; } k \triangleright = \gamma^+ \quad (3)$$

$$\text{Negative virtual photon; } k \triangleleft = \gamma^- \quad (4)$$

Photon: A real photon is formed of a positive virtual photon and a negative virtual photon:

$$\gamma^+ + \gamma^- = \gamma \quad (5)$$

What is the Universe made of? And how it works?

From the point of view of CPH theory

$$(n \triangleright + n \triangleleft) = n(\triangleright + \triangleleft) \text{ or } n|\triangleright\rangle + n|\triangleleft\rangle = \gamma \quad (6)$$

Where, n and k are natural numbers. The Standard Model of particle physics describes the universe in terms of Matter (fermions) and Force (bosons). Particles of matter transfer discrete amounts of energy by exchanging bosons with each other. [5] So to generalize the relation between bosons and energy, we started with gravity which is the weakest fundamental forces.

Graviton Principle

Graviton is the most minuscule unit of energy with constant NR-particle mass m_G that moves with a constant magnitude of speed so that $|V_G| > |c|$, in all inertial reference frames. Any interaction between graviton and other existing particles represents a moment of inertia I where the magnitude of V_G remains constant and never changes. Therefore;

$$\nabla V_G = 0, \text{ in all inertial reference frame and any space} \quad (7)$$

Based on the principle of graviton, a graviton carries two types of energy generated by its movement in inertial reference frame, one is transmission energy E_{GT} and the other one is non-transmission energy E_{GS} , we can write:

$$E_G = E_{GT} + E_{GS} = \text{constant} \quad (8)$$

As the graviton mass and speed is constant, its energy remains constant and can only its transmission energy changes to non-transmission energy and vice versa.

Sub-Quantum Energy Principle

One SQE is a very small energy with *NR-particle* mass m_{SQE} that moves with speed greater than c , $|V_{SQE}| > |c|$ relative to inertial reference frame and in every interaction between $SQEs$ with other particles or fields the amount speed of SQE remains constant; as in every physical condition we have;

$$\nabla V_{SQE} = 0, \text{ in all inertial reference frames and any space} \quad (9)$$

SQE principle (equation 1- 37) shows that in every condition the mass, energy and the amount speed of SQE remains constant, and only the transmission speed V_{SQET} and energy E_{SQET} of SQE convert to its non-transmission speed V_{SQES} and energy E_{SQES} , and vice versa. So, we have;

$$|V_{SQE}| = |V_{SQET}| + |V_{SQES}| = \text{constant} \quad (10)$$

$$|E_{SQE}| = |E_{SQET}| + |E_{SQES}| = \text{constant} \quad (11)$$

What is the Universe made of? And how it works?

From the point of view of CPH theory

Speed of light

Also, the linear speed of virtual photons in a vacuum is the same amount of c . Let's in generally, show the speed of photons as v_{light} , it changes from one medium to another one and in a vacuum is c , it means the speed of light in vacuum also is $v_{light} = c$. So that:

$$\nabla v_{light} = 0 \quad (12)$$

Thus, the linear speed of photon depends to medium conditions. Same as gravitons and sub quantum energy, but the total amount of transmission speed v_{lightT} and non-transmission speed v_{lightS} of photon is constant and it is equal to $|v_{light}|$, by changing the medium conditions, such as photon enters to water, a part of its linear speed converts to non-linear speed and in this case we have $v_{lightT} < c$.

Sub Quantum electrodynamics

Here according to the sub quantum energies \triangleright and \triangleleft , the mechanism for generating electric fields.

It has already been explained that a gravity force carrier is generated, using this method the electromagnetic force and nuclear forces can also be explained. There are three areas around each charged particle:

In area 3, gravitational force is produced.

In area 2, the electromagnetic force is generated.

In the intersection the area 2 of two charged particles, strong nuclear force is produced.

At the boundary between the site of production of two electromagnetic and strong nuclear forces, weak nuclear force is produced, figure 4.

What is the Universe made of? And how it works?

From the point of view of CPH theory

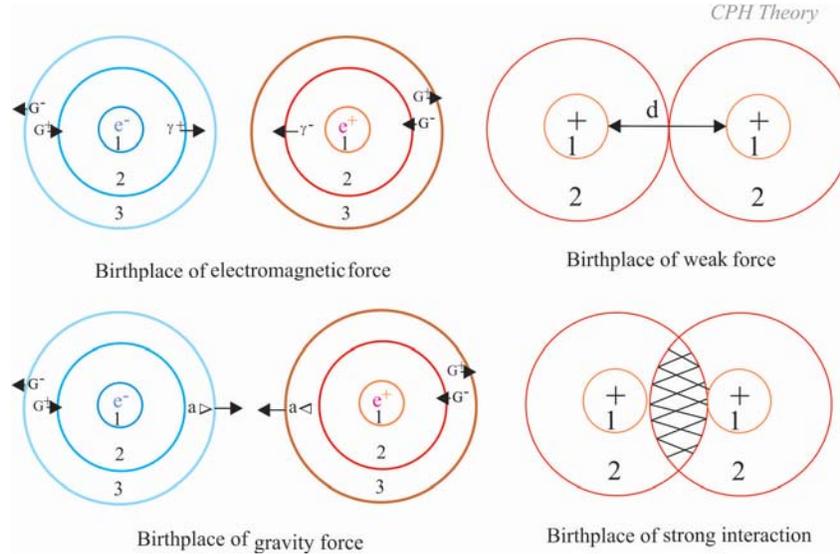
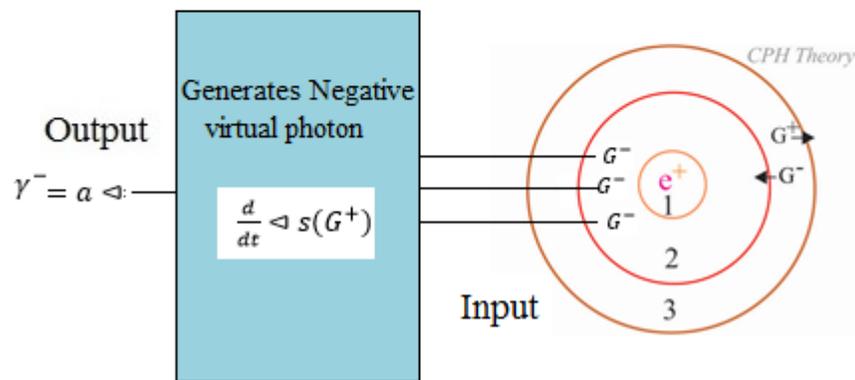
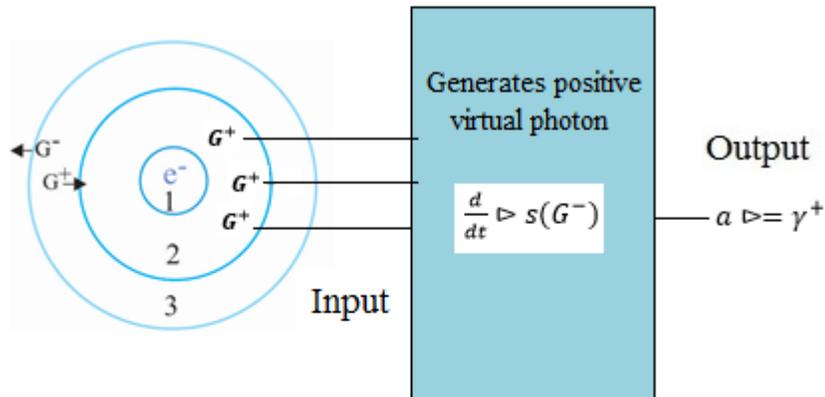


Fig4: the birthplaces of fundamental interactions

Electron has continuous spinning state that can create an electric field that is formed of moving color-charges, then magnetic-colors are produced and then conditions are prepared to produce sub quantum energies. Positive color-charges are absorbed towards electron, but magnetic field around it is repellent of positive color-charges. By spinning movement of electron, a number of positive color charges are compacted and converted to positive virtual photon γ^+ and are repelled by its surrounding magnetic field. As the same way, positron absorbs negative color-charges and its surrounding magnetic field compacts negative color-charges and propagates it as negative virtual photon γ^- . Therefore, we can define an operator that expresses the process of producing positive virtual photons by electron. If we show this operator with $\triangleleft s$ that effects on electron and it is respect to time of γ^+ , it means that it creates the carrier of positive electromagnetic force, then we have:

What is the Universe made of? And how it works?

From the point of view of CPH theory



Charged particles as generators produce virtual photons

All fundamental forces are made up of electromagnetic energy.

Pair production and decay

The structure of photon and new approach on Dirac equation help us to understand and describe particle – antiparticle phenomena deeper than before. In fact, this is useful key to open new windows on hidden parts of physics problems. For example, in pair production and decay of "electron-positron", a high energy photon $E = k(\triangleright + \triangleleft)$ converts to e^+ and e^- that is given by; (figure 5)

$$E = k(\triangleright + \triangleleft) \rightarrow e^+ + e^- = (e^+ = k \triangleright) + (e^- = k \triangleleft) = k(\triangleright + \triangleleft) \quad (13)$$

What is the Universe made of? And how it works?

From the point of view of CPH theory

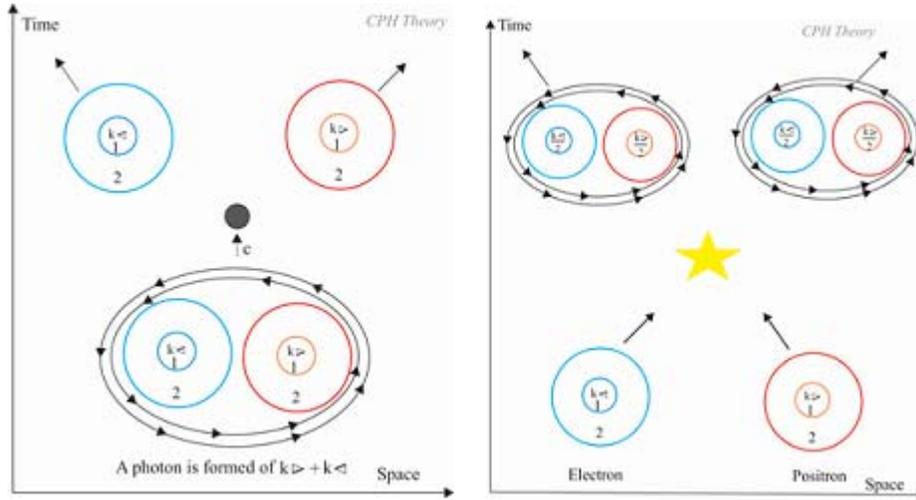


Fig5; pai production and decay

Related articles [4]

Note 1: According to the graviton principle, gravitons do not stick to each other, even in the subquantum energy structure. Due to the sub-quantum energy principle, sub-quantum energies do not stick together, even in the structure of the photon or particles and antiparticles.

Note 2: Gravitons do not experience the "passing time". But other particles, even photons, experience the "passing time". Related articles [6]

Sub quantum Divergence: if a particle/object falls in the gravitational toward a massive body, and the linear speed of its *SQES* will be V_{SQET} , we say that the object has sub quantum divergence (figure 6). There is $V_{SQE} = V_{SQET}$ in the sub quantum divergence. So;

$$\text{Sub quantum Divergence; } V_{SQET} = V_{SQE} \Leftrightarrow V_{SQES} = 0 \quad (14)$$

Sub quantum Convergence: if total transmission speeds *SQES* of a particle/object go to zero, $V_{SQET} \rightarrow 0$, we say that the object has sub quantum convergence (figure 6). There is $V_{SQES} \rightarrow V_{SQE}$ in the sub quantum convergence. So;

$$\text{Sub quantum Convergence: } V_{SQES} \rightarrow V_{SQE} \Leftrightarrow V_{SQET} \rightarrow 0 \quad (15)$$

Definition of an absolute black hole: If a particle/object falls down into the absolute black hole, it will be involved in sub quantum divergence before reaching the surface of the absolute black hole.

Consider the absolute black hole swallowing more matter; its mass and thus its gravitational field intensity will be increase. By increasing the mass, volume is reducing, its constituent *SQES*

What is the Universe made of? And how it works?

From the point of view of CPH theory

is condensed and its transitional space will be limited. An absolute black hole eats its own gravity effect (gravitons) and nothing even gravitons cannot escape of an absolute black hole.

Definition of Singularity: An absolute black hole with very high density under two followed conditions reaches the singularity state:

1) constituent *SQEs* reach sub quantum convergence state i.e. $V_{SQES} \rightarrow V_{SQE}$. So the linear speed of everything on the surface of absolute black hole goes to zero, $V_{SQET} \rightarrow 0$

2) Due to the gravitational pressure, the average distance between *SQEs* of an absolute black hole goes to zero. Once the non-transmission speed of *SQEs* reach maximum, $V_{SQES} \rightarrow V_{SQE}$, the average distance between *SQEs* goes to zero due to intensive collision.

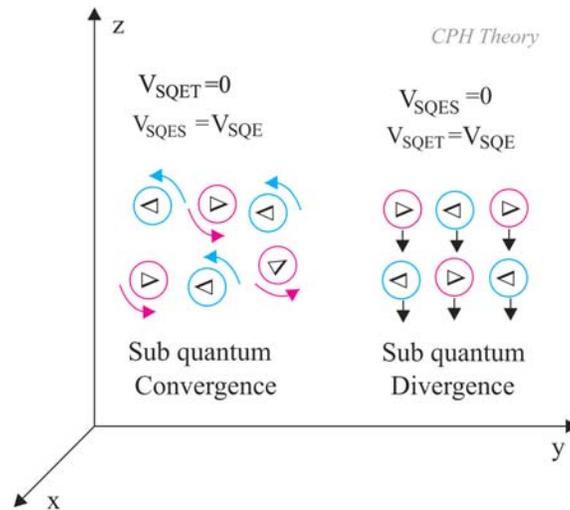


Fig6; Sub-quantum Divergence and Convergence

They are scattered around and these chain scattering are spread everywhere inside the absolute black hole and therefore the singularity is occurred. The density is very high in the singularity state, but not infinite. In addition, the volume does not reach to zero, but the average the distance between *SQEs* reach to zero. Given above descriptions can easily explain counteracting Newton's second law and gravity.

Explosion of an absolute black hole

Given the above themes, there are three basic limitations: transmission speed, non-transmission speed and density that they are the reason of creation the observable universe and all physical phenomena existing in it. Related articles [7]

What is the Universe made of? And how it works?

From the point of view of CPH theory

Fundamental forces have mass in a vacuum $v > c$	↔	Energy Has mass in a vacuum $v = c$	↔	Matter Antimatter in a vacuum $v < c$
--	---	--	---	---

Conclusion

By limiting the speed limit to the speed of light c and accepting relativistic mass at the beginning of the twentieth century, only one way seemed to be, assuming that the photon is massless. "After 1906 Einstein have derived the second postulate of special relativity the constancy of the speed of light by assuming that the light quanta that he proposed in 1905 were massless particles". [8]

A massless photon is only an assumption. But this assumption was not even consistent with Einstein's beliefs. [9] In addition, the massless photon is not compatible with empirical evidence and is imposed only by physics using mathematical equations. But in the CPH theory, not only photon has mass, even graviton is massive. It is not acceptable that a massless force can change the momentum and energy of the particles/bodies. By admitting the massive graviton, many physics problems are solved, and physics knowledge become out of mathematical mastery, and mathematics will be the only physics tool. Then understanding and explaining the physical phenomena can be simple and more realistic than the past.

References:

1 - Brandon West, "Vacuum Energy: Proof of Free Energy in the Space All Around Us" WakingTimes, 2014, <http://www.wakingtimes.com/2014/04/11/vacuum-energy-proof-free-energy-space-around-us/>

2 - Hossein Javadi, et, at. What is CPH Theory?

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6663>

https://www.researchgate.net/publication/309153372_What_is_CPH_Theory

Hossein Javadi, Do gravitons really exist?, 2017

https://www.researchgate.net/publication/315661428_Do_gravitons_really_exist

Review and analyzing the evidence of the existence of quantum fluctuations

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6762>

https://www.researchgate.net/publication/312586105_Review_and_analyzing_the_evidence_of_the_existence_of_quantum_fluctuations

Hossein Javadi, et, at. , Making up of Universe by Tiny Energy Including Unique Features, 2017

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6774>

What is the Universe made of? And how it works?

From the point of view of CPH theory

https://www.researchgate.net/publication/313164950_Making_up_of_Universe_by_Tiny_Energy_Including_Unique_Features

3 - Photon-Graviton Interaction and CPH Theory

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6655>

https://www.researchgate.net/publication/308890409_Photon-Graviton_Interaction_and_CPH_Theory

Transferring momentum-energy to Replace Fundamental Forces

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6831>

https://www.researchgate.net/publication/315108425_Transferring_momentum-energy_to_Replace_Fundamental_Forces

4 - Generalization of the Dirac's Equation and Sea, 2016

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6552>

https://www.researchgate.net/publication/303988070_Generalization_of_the_Dirac's_Equation_and_Sea

Sub quantum space and interactions properties from photon structure to fermions and bosons

https://www.researchgate.net/publication/237009789_Sub_quantum_space_and_interactions_properties_from_photon_structure_to_fermions_and_bosons

Adaptive Review of Three Fundamental Questions in Physics

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6493>

https://www.researchgate.net/publication/302313653_Adaptive_Review_of_Three_Fundamental_Questions_in_Physics

5 - CERN, The Standard Model, <https://home.cern/about/physics/standard-model>

6 - Graviton: physical time and thermodynamics

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6125>

https://www.researchgate.net/publication/279531060_Graviton_physical_time_and_thermodynamics

Review the Physicists show EVERYTHING happens at the same time

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6711>

https://www.researchgate.net/publication/311427126_Review_the_Physicists_show_EVERYTHING_happens_at_the_same_time

Adaptive Review of Three Fundamental Questions in Physics

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6493>

https://www.researchgate.net/publication/302313653_Adaptive_Review_of_Three_Fundamental_Questions_in_Physics

What is the Universe made of? And how it works?

From the point of view of CPH theory

7 – Interactions Between Real and Virtual Spacetimes

[https://www.researchgate.net/publication/270339919 Interactions Between Real and Virtual Spacetimes](https://www.researchgate.net/publication/270339919)

Reviewing Friedmann Equation and Inflation Theory by Sub Quantum Energy

<http://gsjournal.net/Science-Journals/Research%20Papers/View/5534>

[https://www.researchgate.net/publication/263083376 Reviewing Friedmann Equation and Inflation Theory by Sub Quantum Energy](https://www.researchgate.net/publication/263083376)

Definition of singularity due to Newton's second law counteracting gravity

[https://www.researchgate.net/publication/307661609 Definition of singularity due to Newton's second law counteracting gravity](https://www.researchgate.net/publication/307661609)

Graviton and cosmology equations, before the Big Bang

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6120>

[https://www.researchgate.net/publication/279446746 Graviton and cosmology equations before the Big Bang](https://www.researchgate.net/publication/279446746)

Adaptive Review of Three Fundamental Questions in Physics

<http://gsjournal.net/Science-Journals/Research%20Papers/View/6493>

[https://www.researchgate.net/publication/302313653 Adaptive Review of Three Fundamental Questions in Physics](https://www.researchgate.net/publication/302313653)

8 - J.H.Field, Einstein and Planck on mass-energy equivalence in 1905-06: a modern perspective, arXiv:1407.8507v1, 2014

<https://arxiv.org/abs/1407.8507v1>

9 - A. EINSTEIN AND L. INFELD, THE EVOLUTION OF PHYSICS, Page 208

https://archive.org/stream/evolutionofphysi033254mbp/evolutionofphysi033254mbp_djvu.txt

The Greatest Unsolved Mystery in Physics

<http://gsjournal.net/Science-Journals/Research%20Papers/View/7620>

[https://www.researchgate.net/publication/330366766 The Greatest Unsolved Mystery in Physics](https://www.researchgate.net/publication/330366766)

Energy: theoretical and experimental incompatibility

<http://gsjournal.net/Science-Journals/Research%20Papers/View/7360>

[https://www.researchgate.net/publication/326247617 Energy theoretical and experimental incompatibility](https://www.researchgate.net/publication/326247617)

Are photons really massless?

<http://gsjournal.net/Science-Journals/Research%20Papers/View/7120>

[https://www.researchgate.net/publication/321589753 Are photons really massless](https://www.researchgate.net/publication/321589753)