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GPBG Theory of Universe Formation

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Abstract: **GPBG (Gluon- Photon- Boson- Graviton) theory is a new proposed concept for universe formation in the field of particle physics. The four fundamental forces of nature – the strong force, the electromagnetic force, the weak force and the gravitational force are the governing forces of these four particles gluon, photon, boson and graviton respectively. The previous concept of universe formation is a single particle concept whereas this theory projects a four particle presentation of the early universe. This theory is based on the fact that the early primitive space has only four particles. This was followed by their mutual attraction by some unknown hypothetical X force and the four fundamental particles coalesce to form a new entity named- The primitive particle. This primitive particle dissociates to form new particles protons, antiprotons, electrons, positron etc. and appearance of gravitational force amongst them. These newer particles then further gets further combined and first atoms appear in the space. This theory is a quadruple approach and collision of particles is supported rather than the abrupt explosion of a single entity. The paper will also discuss the detailed approach of this quadruple concept and a possible mathematical relation between the four fundamental particles. The mathematical relation will be sufficient in a way to support the fact of GPBG theory.**

1. INTRODUCTION

Big Bang theory is what the most basic and the most prevalent theory of universe creation. The concept is a singularity based approach. The explosion of a miniature particle in the early universe is what the Big Bang is based upon. It provides the scientific community with assistance in solving the answers of the primitive space. Similarly Hubble space telescope solidifies the fact of Big Bang approach. Recently experiments of Higgs Boson in Large hadron collider, comes out handy in explaining the creation of universe from singularity approach. Quadruple approach in this arena is a totally new concept. The concept is designed from the four fundamental forces of nature. This four fundamental forces- Strong force, electromagnetic force, weak force and the gravitational force and their interactions are the fundamental principle behind this concept. This forces have their own mediators namely gluon, photon, boson and graviton. GPBG is the way of looking the previous universe. Some hypothetical force which may have caused a disturbance leads to the collision of these mediator particles. The interaction of these particles can be supported by a mathematical expression. It is true that graviton is still hypothetical but the present concept becomes lame if gravitational force is not taken into account.

2. GPBG MODEL OF EARLY UNIVERSE

The early universe consists of four mediator particles which are gluon, photon, boson and graviton. Following is the proposed timeline in which the events get into play according to the GPBG Model.

- Presence of four subatomic particles in the early space.
- Their movement is of circular fashion rotating about a common center.
- There interaction occurs with each other and they are attracted towards the center point by a hypothetical force X.
- Upon conjoining at the center point a small collision is observed due to the different nature of the mediator particles.
- These combination results into a singular entity named “The primitive particle”.
- This primitive particle is short lived and as a result of its internal disturbance it explode/ transformed into heavier subatomic particles namely protons, electrons etc. Antiparticles are also formed in these events.
- The heavier subatomic particles again coalesce to form the first atoms of the Universe. It is worth mentioning here that gravitational force appeared at the very beginning of the collapse of the mediator particles due to the presence of graviton.
- The atoms are further combined and the process of new Chemical environment begins in the early universe.

As far as concerned the particles interaction is often theorized to be hasty. GPBG has a preferential order in which they get combined with each other. This preferential order is somewhat similar to the CKM Matrix (Cabibbo-Kobayashi-Maskawa). The matrix used in this model is theorized as “Mediator Matrix”. The name is used as because of the interaction of the

mediator particles amongst them. According to this matrix the expression for the decay of GPBG follows an order given as-

$$\begin{bmatrix} [V_{g\square}] & [V_{gw}] & [V_{gG}] & [V_{gg}] \\ [V_{\square w}] & [V_{\square G}] & [V_{\square g}] & [V_{\square\square}] \\ [V_{wG}] & [V_{wg}] & [V_{w\square}] & [V_{ww}] \\ [V_{Gg}] & [V_{G\square}] & [V_{Gw}] & [V_{GG}] \end{bmatrix}$$

$$\begin{bmatrix} 0.974 & 0.225 & 0.003 & 0.999 \\ 0.225 & 0.973 & 0.041 & 0.999 \\ 0.009 & 0.040 & 0.999 & 0.999 \\ 0.444 & 0.266 & 0.244 & 0.999 \end{bmatrix}$$

The above matrix discusses a hypothesis as to determine the decay or combination preference amongst the four sub atomic particles. The matrix clearly indicates that when mediator particles are in the vicinity of their same family particles they tend to combine more. Bosonic particles discussed in this model are W boson. Since graviton and photons are also a type of boson there decay rate amongst them is quite high. Another notable point can be churned out that the order of appearance in the combination process matters the decay rate very much. For example gluon and photon combination is not similar to the photon and gluon combination. In gluon and photon combination the affinity of gluon to capture the center point of decay is high than photon. The interquark state in this kind of combination is high than photon- gluon combination. The quarks flavor also play an important role the mixing process. Out of the four mediator particles photon tends to combine with others in an efficient manner as the quarks incorporating the photon changes there flavor quickly. The color charge also changes in this subsequent process of mixing and decay.

According to a theorized concept the combination rate amongst the mediator particles in the space time t and assuming a miniature field of decay of circular span can be inferred as dependent on the mediator particle which comes into action first, then the second mediator, the decay or combination rate in the center and lastly the interquark states and color charge. Antiparticles of this mediator have the same matrix follow system as the Mediator matrix one. The combination results in a formation of a particle cloud or a primitive particle. The particle cloud has been termed as to hypothesize a presence of more than four mediator particles of same group. The particle cloud is more appropriate in considering the early space as it results in quick decay or production of heavier subatomic particles. In can be predicted from the model itself that a new origin of subatomic particles is obtained from the mediator particles only. Similarly the model churns out another important point of creation of particles or system from something valid. These mediator particles are there in universe from beginning and under the circumstances of the Hypothetical force x they tend to combine to form the heavier particles.

The above theory/model is a new work to view the early space in a different manner. The model is still raw as various cases are still assumption and needs an experimental observation to validate its originality. Even if its limitations of experimental evidence the theory is a fresh start to on look the universe creation in a new way and perhaps further detailed research can support the present material further.

3. ACKNOWLEGEMENT

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