Was The Space Creation Of The Big Bang?

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Abstract--- The purpose of the paper is to investigate the relationship between the Big Bang and the non- proton-neutron based material universe i.e. non-material Space and also identify the medium in which the Big Bang may have taken place and where the resulting material universe has been expanding into. The methodology identifies the significant factors which contradict current inflation theories pertaining to non-material Space and offer viable alternate solutions for their resolution which in turn also help resolve the aforementioned issues surrounding the Big Bang. The results of the analysis prove that simple but credible explanations for issues such as the invariance of the density of dark energy and strength of gravity, Uniformity of CBMR etc. require that non-material Space be non-inflationary. The primary conclusion is that the Big Bang took place in an already existing non-inflationary Space and that the only product of the Big Bang was the proton-neutron based material universe which inflates in the non-inflationary Space.

Index terms--- Big Bang, Density of dark energy, Space, Inflation theories, Strength of gravity, Uniformity of CBMR

1. INTRODUCTION

The Big Bang theory is widely accepted as the basis for the creation of our universe. All the research thus far has been aimed at understanding the evolution of events and the reactions which took place from the time of its "actual" occurrence. The Big Bang and it's after effects and processes have been mostly amenable to logical and scientific inquiry and analysis. But very little thought or research, if any, went into understanding the medium in which the Big Bang may have taken place. Some argue that it came out of "nothing" and some imply it was the work of God and so on. There seems to be a common belief that it would be next to impossible to bring the pre- Big Bang environment under scientific scrutiny because of widely held but unshakable belief that there are no remnants from pre- Big Bang era to facilitate such scrutiny and that everything in our universe owes its existence to the Big Bang.

Common sense would suggest that the Big Bang must have taken place in some kind of medium which probably was there prior to its occurrence and it may still be there. Studies suggest that our universe has been expanding ever since the Big Bang. What is it that it has been expanding into? In the absence of any evidence to the contrary it would be logical to assume that it has been expanding into the same medium in which the big bang took place. Let us name the medium the Super Space to avoid confusion with the Space we usually refer to. Then what is the likely composition of the Super Space? We can safely say that it consists of forces and some sort of quantum and sub-atomic like particles necessary to affect and facilitate Big Bangs of varying scope and sizes when certain conditions are met. But we do not know what these conditions are. The scientific community seems to have taken little interest in exploring it. It is simply amazing that astrophysicists do not ask the question "What is the nature of the medium into which our universe expanding?" and develop some plausible scenarios.

The Big Bang theory cannot be considered accurate and complete without developing an acceptable thesis on the nature and the characteristics of the medium in which the Big Bang took place and the resulting universe has been expanding into since. It could have significant bearing on some key aspects of the Big Bang theory, for example, inflation theories.

Astrophysicists from the beginning assumed space was created by the Big Bang along with various energy fields, and subsequently sub-atomic particles, etc. Evidence so far confirms that it has indeed produced energy fields and sub-atomic particles leading to the formation of our material universe, however no proof was ever presented that it has also given birth to the Space. Yet the scientific community continues to behave as if it is self- evident that it did. Thus far no one seems to have questioned the assumption although

not one iota of evidence has ever been generated to support it.

2. ANALYSIS

Astrophysicists have concluded that the universe is expanding at an accelerating rate. This conclusion is based on the red shift measurements of the farthest quasars, supernovae and galaxies and various other celestial bodies. Those measurements are simply the velocities and accelerations of those measured objects themselves i.e. the various celestial bodies. It is a giant leap of faith to conclude that the Space is also expanding at the same velocities and accelerations as those material objects have been. It is like measuring velocity and acceleration of a farthest moving boat in the middle of an ocean and then concluding the ocean is also expanding at the same velocity and acceleration as the boat. No evidence was ever presented to prove that the Space itself is expanding. The assumption has always been the farthest edge of farthest celestial body was also the edge of the Space, as well. The presumption is both edges move in tandem and thus they are treated as one and the same.

Cosmic Microwave Background Radiation, or CMBR is the holy grail for the Big Bang advocates. Dr. Lawrence Krauss writes in his recently published book (2): "The CBMR is nothing less than the afterglow of the Big Bang. It provides another piece of direct evidence, in case any is needed, that the Big Bang really happened, because it allows us to look back directly and detect the nature of the very young, hot universe from which all the structures we see today later emerged". Obviously "all the structures" include the Space, however, as was pointed out earlier, no direct or indirect evidence was ever presented to prove the Space was also created from the "hot universe".

The Wilkinson Microwave Anisotropy Probe (WMAP) produced what is considered to be an excellent plot of CMBR all across the universe. It clearly showed that the background radiation was surprisingly uniform given the fact that the material components of the universe account for 10% to 20% of the known universe. It is as if the density and quantity of the material universe has no impact on CBMR. Dr. Martin Rees in his book(1) asks "Why does our universe have the overall uniformity that makes cosmology tractable, while nonetheless allowing the formation of galaxies, clusters, and super clusters." Similarly, Lawrence Krauss in his aforementioned book (2) while discussing CBMR states: "The universe is, therefore, on large scales, incredibly uniform! How could this be?" A prominent particle physicist named Alan Guth (2)(4) hypothesized that the uniformity was the result of a "phase transition" which presumably occurred when the universe was cooling following the Big Bang- a highly speculative and somewhat complex hypothesis. There must be much simpler explanation than that.

Another milestone in astrophysics has been the discovery of dark matter and dark energy which are independent of proton-neutron based material universe. Thus far, there has been no evidence that they are products of the Big Bang. One of t most relevant and interesting property of dark energy is that its density does not dilute as the universe expands. The amount of dark energy remains constant at about one hundred-millionth of an erg per cubic centimeter. How can this be explained? Dr. Sean Carroll(3), a noted astrophysicist suggests that it may be a feature of space itself. That is hardly an explanation. Alan Guth(2)(4) explains that the density remains constant by gravity rebalancing negative and positive energies in the Space which results in creation of extra energy out of nothing, as the universe expands which he calls it ultimate "free lunch". It is a very complicated and magic-like explanation requiring a lot of faith for its acceptance. Also, it is in clear violation of the principle of energy conservation. Perhaps a much simpler but more plausible explanation would be that the non-material Space itself does not expand. Only the material universe expands in stationary and non-expansive Space. That could be the reason why dark energy density remains constant while material universe expands. Can this be corroborated by any other evidence?

An important characteristic of space is gravity. If the space has been expanding since the Big Bang, then the strength of gravity must have been declining. There is hardly any evidence to prove that is the case. Strength of gravity has remained constant since the Big Bang. How is that possible? Again, the only credible and simple explanation would have to be that the Space has not been expanding while the material universe has been which would be possible only if the Space is not a product of the Big Bang and its (Space's) existence is independent of it.

3. CONCLUSIONS

In summary, the invariance of neither the density of dark energy nor the strength of gravity can be satisfactorily explained so long as it is believed that the Space was a creation of the Big Bang and that it has been expanding in concert with the material universe. On the other hand, if we assume that the Space is an independent entity, meaning that it is not part of the Big Bang construct, and that it is non-inflationary the foregoing issues can be explained in a logical and satisfactory manner. It would also mean that the product of the Big Bang is only the proton-neutron based material universe which inflates in an already existing non-inflationary Space.

The foregoing conclusion that the Space is independent of the Big Bang would also mean that CMBR is not a product of the Big Bang. It is simply the radiation emanated by the Space itself. One could disagree and argue that it is still the result of the Big Bang because when it occurred it raised the temperature of the Space in its vicinity and it has been cooling ever since. If that were the case then what could be the reason for uniformity of radiation across the Space? It follows that the Big Bang has no relevance to CBMR which would mean CBMR cannot be used as a proof that the Big Bang has or has not happened. This would perhaps come as a rude shock to the scientific community!!

Uniformity, dark matter, dark energy and gravity are major characteristics of the Space. These are not a part of the Big Bang construct. Space hosts our material universe and it has to be infinitely large and static. The reason being that our material universe is expanding at close to speed of light and hence the Space will have to be infinitely large to accommodate such expansion. It has to be static because an infinitely large Space cannot expand any further. (Albert Einstein's original conclusion that Space was static was correct indeed. Removal of cosmological constant from his original equations to facilitate expansion of the Space will prove to be the biggest blunder not the other way around.) This is the Super Space that was mentioned earlier which proved to be the same as the Space that we usually refer to. Our proton-neutron based universe probably occupies only a miniscule part of it. The Space is likely the common infrastructure shared by several different material universes.

How do Big Bangs take place in the Space? We can only speculate. One possibility is that on occasion some material universe, like ours, becomes unstable and collapses into a massive black hole and all its matter and energy fields get compressed into a singularity which eventually explodes (Big Bang) when the pressures reach beyond a certain limit.

In summary, what we have uncovered here is a simple concept that the Space is infinitely large, non-inflationary and independent of the Big Bang and that the Big Bang took place in the vastness of the Space and that the resulting material universe, thus created, has been inflating in it ever since. This also explains several nagging issues such as uniformity, invariance of density of dark energy and strength of gravity etc. in a simple and elegant manner without violating the principle of energy conservation.

It would be instructive here for us to review some Occam's razor principles:

1. The explanation requiring the fewest assumptions is most likely to be correct.
2. When you have two competing theories that make exactly the same predictions, the simpler one is better.
3. The simplest explanation for some phenomenon is more likely to be accurate than more complicated explanations.

The conclusions presented in this paper are based on simple theories with fewest assumptions.

Obviously, observational proof is required to confirm that the Space is static. Hopefully someone will soon conduct such observational research and confirm that the non-material Space is indeed static and non-inflationary.

The author received Ph.D from University of Iowa, USA in 1966.

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