



THE CURIOSITY OF BIG BANG AND THE UNIVERSE'S ORIGIN

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Abstract: The theory of existence (theism) is the school of thought, and the school of thought deals with the random chance of evolution (atheism) concerning the nature of the cosmos and the origin of life. The theism has no empirical facts and credible evidence in the race of proof of the theory, on the other hand, atheism based on scientific observational evidence. Big Bang's new hypothesis of the origin of the universe is more credible and confirmed by some empirical facts, such as the influence of Doppler on light, the discovery of Hubble and the result of the expansion of the universe and the observation of cosmic microwave radiation (CMBR). This paper briefly discusses the origin of the universe and the Big Bang.

Keywords: Universe, CMBR, Big bang, radiation, microwave, theism, atheism, etc.

Introduction:

We exist on the planet that is part of the solar system, which is part of the Milky Way Galaxy and the galaxy is the universe's main feature. The universe consists of galaxies, nebulae, cosmic microwave background radiation, dark-matter, etc. Questions now arise as to when and where the cosmos and our planet originated. When I was a young boy about 10 years old, because of our deep belief, answers to any difficult task and question converged either to the king or to the god/divine, then to the king and the unknown god to solve the unanswered problems and mysteries. Still there is a lively discussion about God's presence and the answer to the question of the origin of the world, our earth, and the origin of human civilization. Here, our human society is divided into two main groups on these topics across each situation.

Objective: To find out about The new look: Big Bang, origin of the life and Hypothesis and their development.

The new look: Big Bang

The Hubble observations announced the universe is expanding (i.e., the distance between the galaxies is increasing), if so when we reverse the time and motion of the universe back then the galaxies approaching each other and ultimately they should all have been piled up and concentrated into a very dense hot-point having infinite space-time curvature and temperature at some moment between ten to twenty billion years ago. This early universe hot spot, at where the



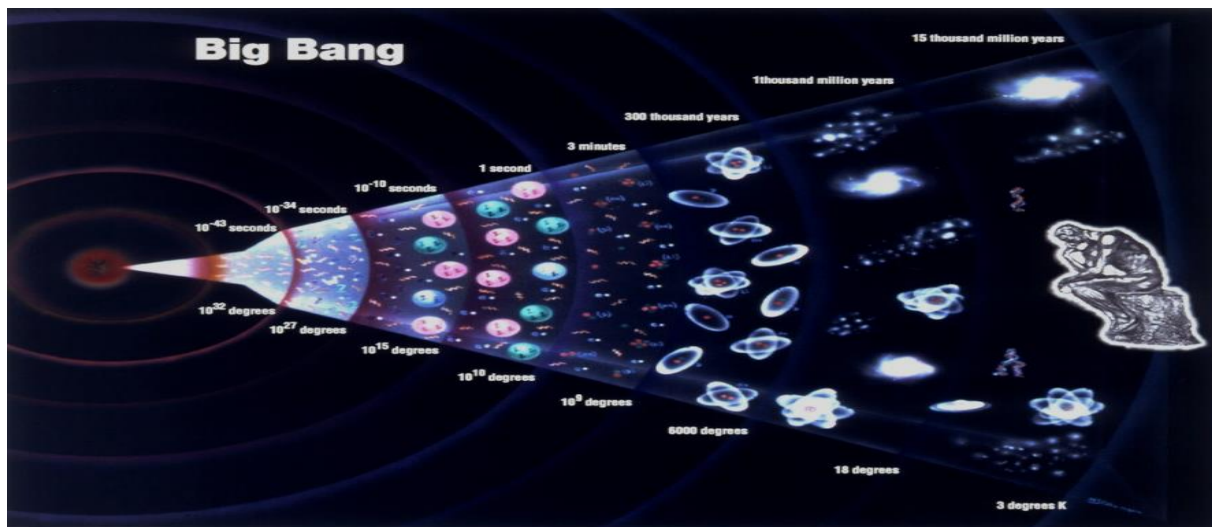
universe was centred and engaged, is considered a primordial fireball. It erupted about 13.7 billion years ago, and under these scenarios, Big Bang will tear up all existing scientific rules. After this case, the primordial fire ball fragments were broken and cooled down in all ways. The Big Bang is now known as the cause / start of the universe and of the time. The concept of Big Bang is based on an account of the origin of stars, galaxies and the earth.

The cosmos was at about 10^{32} Kelvin, with an amount of energy per particle of 10^{19} GeV after 10^{-43} seconds of Big Bang, and the time the epoch of the Theory of Everything (toe) was at. About ten to three months after the great blast, the universe was like a ball of hot soup of the quarks and the leptons (electron, neutrino, muon and tau) in which heavy and electroweak forces had been normal to the universe. Every single particle, we know, has anti-particle material like: proton antiproton, electron-positron, neutrino-antineutrino, etc. As during convergence time of power-electroweak powers (the GUT period), particles and anti-particles were produced and annihilated, such that the energy was emitted to photons while the baryon numbers were not maintained. Therefore the quarks are more than the anti-quarks at the end of this time. In periods 10^{-35} to 10^{-6} , it cools down and the universe is made up of the combination of quarks, leptons and mediator particles, such as gluons, photons, weak bosons w^+ and w^0 which can be observed in the duration between 10^{-35} and 10^{-6} . The cosmos cooled 10^{-6} s to 10^{13} K and particle energy was 1s GeV and intense forces joined the quarks and antiquarks to form protons, neutrons (both called nucleons) and their antiparticles. Nucleon and anti-nucleon have again been formed and annihilated, with massive amount of radiation (energy) emitted and a small rise in nucleons than anti nucleons has occurred. Since photon energy dropped just below its limit for pair production, the annihilation process was only in operation at 14 seconds, which contributed to the presence of more particles than either of the antimatter particles.

So at dawn of time 1s to 225s, the temperature at 10^{10} K was favorable, which leads to a reduction of neutron-proton ratio of free neutron (meaning 887s) and anti-neutron (β^-) and therefore of free neutron-proton ratio. By the end of this time, however the Universe had sufficiently cooled down so that the conditions were favorable to collide and stick protons and neutrons to form nuclei with a low mass of deuteron (H^2) capable of absorbing neutrons into Trion (H^3) by means of strong nuclear forces (He^4). He^3 and He^4 merge into a lithium nucleus (Li^7). This mechanism of nuclei production in a suitable environment is often also called nucleosynthesis by the mixture of protons and neutrons, including the fusion of lighter nuclei. In the fusion phase mass has been reduced and gradually becomes energy, according to the mass-energy equivalence ratio $E = mc^2$ of Einstein, where m during fusion is reduced in mass and c is light speed in vacuum. The cosmos thus at the time had enough of radiation but because of the hot broth of the lighter nuclei the light did not get through. The universe temperature was about

3000 K (approximately 0,380 million years) in 1013s, where the electrostatic power played a role to draw positive charged nuclei and electron that had negatively charged to the shape of neutral hydrogen and helium atoms. The force of gravity of the attraction pushed these neutral atoms together in order to form clouds of gas and eventually stars and star clusters known as galaxies. In one star, in the enough state, the ionized hydrogen atoms fused and produced enough energy to form the helium nucleus (He^4) at a high temperature that is one of the light and heat energy (radiation) sources of the star. This time the world was translucent and the neutral atoms were unable to absorb energy or photons, so the radiations left behind in any portion of the universe can still be used for a day as cosmic microwave background radiation (CMBR).

If the star is using its helium, internal gravity stress is heavier than external radiation and gases pressure, and the centre of the star continues to compress. Two helium nuclei fuse to form beryllium nucleus, which in turn is volatile, fuses with He^4 to form C^{12} nucleuses, with the required star mass providing enough energy and density. The O^{16} , Ne^{20} and Mg^{24} nuclei begin to be developed. Again C^{12} and O^{16} are fused to form heavier nuclei, and the stable Fe^{56} nucleus is in some cases the final result. With the emancipation of immense material, the mechanism of planetary formation began to form higher nuclei such that the massive star could ultimately erupt as a supernova. This blast introduced into the room more heavy elements, radiations and other debris. This waste was once more unified by the gravity pull to make stars and planets, asteroids etc. of second century. This is our sun, because since the supernova eruption, the solar system has originated.



Origin of the life:

There are indeed two schools of thought about the origin of life on earth. One part of this work is the creation of life in accordance with the Hindu (theism) faith by the wise god Brahma, which created, assisted and regulated the world and the live being. Another school of reasoning suggested that as planets were increasingly evolved and renewed to a favourable state for synthesising inorganic things into amino acids, protein and finally the basic life form. The basic life-shaped gradually developed / evolved into the life-diversities of the present day due to the influence of the climate, location and availability, which Darwin illustrated very well as natural selection and fittest survival in his famous theory of Darwinism. There is no equivalent condition to emerge from the inorganic problems into the basic mode of life, but we cannot now see/observe the creation of life through inorganic matters.



Hypothesis and their development:

Based on thinkers, philosophies and researchers' theories and arguments, the world and life on it are two major schools of thought. The world was created by a highly educated and knowledgeable creator named God/Divine according to the first category of thinking (theism). His will and artistic potential are planned, developed and worked. It needs no proofs, it suffices only to trust and believe in God. The second thought school is that the World was not formed by the Wise Creator, but simply evolved by a random chance, and then all objects and events are regulated by science rules. The S.W. Hawking. This is a question it is a little old: who first came, the chicken or the egg. The issue of the origin of the world. What agency made the universe? In many words? And what created the agency, or maybe the world, or the agency that created it, has already remained and has not been made. Yes, when was the god making the world, and where? Where has the designer planned and created the whole stuff? They have no appropriate response. Only the trust/belief in the deity is necessary and all of these occurrences must be trustworthy according it To his own.



If the Deity or the Divine has been the real creator of the world and its elements we have to thank the God for His complete, total and precious creation, where everything important is created and methods for running the universe and life are introduced. However there is no clear and compelling proof to trust this flawless creation. All and natural events in the cosmos are currently, without question, regulated by empirical rules but certain unresolved questions are still the puzzles and controlled by laws which have not been foreseen or projected. Thus in human culture, either creation is the smart creator (theism) or the possibility for world evolution is the problem concerning the creation of the earth (atheism).

The world was formed by the divine in the very recent past some six thousand years ago, Christians, Islamic faiths and western beliefs have projected. However the Hindu religion and Eastern religion claim that around 2860,000 (= 2,86 billion) years ago, almost the age of life was founded. However, science has discovered the Earth formed 4540,000 (=4,54 billion) years ago to today and is far from the estimated age of religion. The view or version of the existence of the world (theism) is not also consistent, since it is only logic and theory which does not depend on science.

The Greek philosopher Aristotle claimed that it had existed and it would still exist, but he felt the cosmos did not fall into being. In 1781 a monumental philosopher Immanuel Kant wrote, concluding that similarly compelling reasons exist for both the conviction and belief that the world was starting. Either it has been formed in its current state or it has existed for ever, as it is in now, guaranteed that the world is stable and unchanging in time. In truth, Newton and Einstein have pledged the static model of the universe to add the so-called cosmological constant. Einstein said later: the worst error of my life was my cosmological constant.

Edwin Hubble in the 1920s had Doppler's light effects and measurements that the remote galaxies were leaving us where the recession's pace was almost commensurate with their distances to us. In other terms, the galaxy size grows over time and now we can assume that the earth does not statically exist or the universe extends. This proof involves a complete alteration of the previous universe principles, following the discovery by Hubble.

Conclusion:

The origin of the Universe and the origin of life are two schools of thought. In terms of first thinking, theism, they presented their opinions, logic, hypothesis and even lengthy and interesting storeys to reinforce their hypothesis of the divine creationist viewpoint. Their belief in the invisible God who designed and created things that exist today, does not require scientific observations or evidence, because the trust is sufficient to prove their theory. Theory of



evolution, on the other hand is based on some empirical findings and evidence such as lighting effects from Doppler, Hubble observations and conclusions regarding the expansion of the Universe, but think our Earth is expansion and the remarks made by the radiation astronomers Arno Penzias and Robert Wilson in 1964 about cosmic microwave background radiation. These two remarks are in the real sense the great proof or evaluation of the Big Bang model of the universe's origin. In 1985, at a science conference with a firm confidence in the Big Bang, Georges Lemaitre, a Belgian scientist, remarked that the cosmos had started out with a Big Bang about 15 billion years ago when it was the Earth went all around the Sun. All the proof is not the evidence itself but we know that the evidence helps us infer. Therefore most ideas and explanations on the universe's creation and life's origins have no clear demonstration and empirical evidence of the reasoning and philosophy that the Big Bang centred on the experimental discoveries and evidence, rendering the hypothesis the most trustworthy identified up to now. Thus the world was created/developed with a Big Bang and with that Big Bang also the count was began. Before the Big Bang there was no time or space, for there was no world.

References:

- ★ Batovski, D. A. (2012). Book Review A Review of Some Updates in the 13 th Edition of “Sears and Zemansky’s University Physics with Modern Physics”(Authors: Hugh D. Young and Roger A. Freedman; contributing author, A. Lewis Ford; 2012).
- ★ Einfeldt, P., &Pettersson, A. (2013). Experimental Demonstrator of the Uncertainty Principle.
- ★ Garner, R., & Gillingham, M. G. (1991). Topic knowledge, cognitive interest, and text recall: A microanalysis. *The Journal of Experimental Education*, 59(4), 310-319.
- ★ Halliday, D., Resnick, R., & Walker, J. (1997). *Fundamentals of Physics Extended Fifth Edition*. John Wiley & Sons.
- ★ Hawking, S. (1996). *The illustrated a brief history of time*. Bantam.
- ★ Hawking, S. (2001). *The universe in a nutshell*. Bantam.
- ★ Hawking, S. W., &Reall, H. S. (1999). Charged and rotating AdS black holes and their CFT duals. *Physical Review D*, 61(2), 024014.
- ★ Hecht, E. (2019). Understanding energy as a subtle concept: A model for teaching and learning energy. *American Journal of Physics*, 87(7), 495-503.
- ★ Martinez-Perdiguero, J. (2019). On a common mistake in the description of the photoelectric effect. *The Physics Teacher*, 57(8), 536-537.
- ★ Mlodinow, L., & Hawking, S. (2010). *The grand design*. Random House.
- ★ Young, H. D., Freedman, R. A., &Bhathal, R. (2010). *University physics: Australian edition*. Pearson Higher Education AU.