

Creation and End of the Universe

It will not be an exaggeration to say that very few people are aware of the reality of our universe. One can say with total confidence that its creation and dimensions remain inexplicable even in these modern times. A universal consensus does exist as far as the definitions, terminology and explanations are concerned but the logic offered to explain substantial aspects still remain controversial. Most of the views are hypothetical and based on visual experiments. A variable array of theories has emerged to offer solutions for a single problem.

It is generally believed that universe is that part of the space where matter exists in any form. Beyond it any part that is devoid of the matter is not included in it. Some thinkers believe it to exist within certain boundaries and limits. Strangely enough, despite terming it to be limited, its vastness has not been determined or measured. Marvel or enigmatic character of a thing in no way qualifies it to be ignored or refuted. With a little change of perception and adoption of Islamic outlook starts solving the riddles and things begin fitting into their slots. Everything that exists in the universe is a creation of Allah Almighty, coming into being because He had willed it to happen (Kun). Possibly Allah Almighty has permitted a part of it to be visible and the remaining has been denied. Arrangements were provided by Him to witness what He has desired to be seen and the rest is oblivion because He has desired it not to be seen.

It is essential for us to define the shape of the universe. Till recently it was considered to be three dimensional and all the laws of geometry were applicable. Distances were considered to be measurable in conformity with the short distances on the earth. This methodology and hypothesis, however, failed to resolve certain intricate issues and a rethinking became necessary. Albert Einstein is the pioneer of the changed thought. Refuting the old theory of tri dimensional universe, he added another dimension to it i.e. time. Elucidating his theory, he professed that changes keep occurring in the universe. Any incident that takes place has to be judged in relation to time and space which otherwise make it impossible to explain.

Comprehension of the concept of time and space is arbitrarily difficult because in our lives we do not come across many things of this nature. It can, however, be explained with an example from our surroundings. Volume of a solid object is measured in cubical units. A cubical unit has three dimensions i.e. length, width and thickness. Volume of a certain quantity of water in fluid form can be only calculated when it is static. But when the same water is flowing in a drain or a canal then to measure the flow of water at a certain point, time dimension has to be added to it i.e. amount of flow/ discharge of water at a point in a certain time unit. The fourth dimension of time in this situation is

added to quantify it. The term cubic feet per second (cusecs) is used by engineers. This example in the context of the universe may not be very apt, yet it can help to understand the concept of four dimensions. The universe comprising of matter is in motion. Einstein had concluded in his research work that because of the simultaneous application of gravitational laws and laws of repulsion, the universe is expanding and shrinking. It can be termed as limitless because of the process of expansion and limited because of it shrinking. So it can be said that it is in perpetual motion, expanding sometime and then shrinking. Edwin Powel Hubble, the American astronomer using the Doppler's Law and Hooker telescope changed the prevailing view of the cosmos that the galaxies are moving at rapid speed. This led to the theory of the metric expansion of space. Hubble's Law lays down that all objects observed in deep space (interstellar space) are found to have a Doppler shift observable relative velocity to Earth, *and* to each other; and secondly that this Doppler-shift-measured velocity, of various galaxies receding from the Earth, is proportional to their distance from the Earth and all other interstellar bodies. In effect, the space-time volume of the observable universe is expanding and Hubble's law is the direct physical observation of this process. It is considered the first observational basis for the expanding space paradigm. According to the expanding space paradigm, the speed in km/s of a galaxy is 1 mega parsec (3.09×10^{19} km) away i.e. other galaxies are moving away at a speed of 50 to 100 kilo meter mega parsec. If the distance of our galaxy i.e. Milky Way is one mega parsec from the earth then its speed is 50 to 100 kilo meters. Drift of the other cosmos should be looked at like an expanding balloon when every point in relation to the other seems to be running away when air is being blown into it.

With the acceptance of the reality of a four dimensional space/ universe, laws of geometry are no longer applicable there. Its limits cannot be measured with straight lines but crooked curves have to be used to delineate its limits. To illustrate it, let's consider the example of a three dimensional sphere with a lean curved surface. This sphere is actually a finite body with its limits yet its ends are not discernable. It will therefore be considered limitless. Any terrestrial body in the universe is considered to be spherical with the addition of time dimension. This vividly shows how complex is our universe. It is therefore not wrong to say that the universe despite being finite has no limits. Spread of the universe is difficult to determine notwithstanding it being finite. Use of huge modern telescopes has broadened the field of vision yet the maximum distance attained so far is two billion light years. The scientists believe that ultimately a limit shall be reached beyond which even a very powerful telescope may not be able to observe and man would never be able to know the end. Based on this conclusion the space has been divided into two parts; one that can be observed with powerful instruments (Hoyle thinks this too may not be possible) called the Observable Universe and the second part is beyond it that cannot be observed. The famous astronomer Fred Hoyle writes at page 108 of his book **'Dimensions of the Universe'**, "*Presently we are only able to see up to*

half the distance of the expected limits. Even a telescope million times powerful than the Mount Plummer Telescope will not be to double our depth of vision.....This part will be called the Observable Universe.”

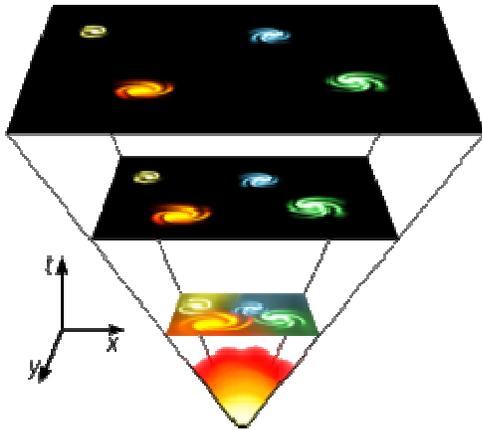
It is beyond human imagination to gauge/understand the complexities of our existence and intricate happenings of the universe. In the vast spread of time and space there exist millions of galaxies and cosmos with a multitude of nebulas, planets and stars. Many amorphous nebula of matter are afloat in its vastness. These celestial bodies are interfiled with interstellar dust, gases, frozen ice particles and what not. Capacity of the human mind is too restrictive to fathom the perplexing puzzle of the nature. Our solar system is like a speck of dust floating in this amazing universal expanse. Human mind is dumbfound to gauge the enigmatic labyrinthine created by Allah Almighty.

Understanding of creation of the universe is far more complex and variegated than to comprehend its limits and spread. Human mind has ever since been struggling to decipher the time of its beginning and the various stages of evolution that it took to reach the present stage. Scholars, thinkers and scientists have strived to find suitable answers to the multitude of these questions. Depending on their research and comprehension a number of theories mostly hypothetical based have been formulated. Nonetheless no one is yet sure about reality and a certain answer. A probable sequence of events has though been charted but it does not provide an authenticated final answer. The underlying base of these theories is that all the physical events of the past were similar to those occurring today. In the absence of this hypothetical basis the whole discussion will become a mere guess work and an imaginary fabrication totally detaching it from the realm of prudent knowledge.

Modern research indicates that the earth formed approximately 4.54 billion years ago by accretion from the solar nebula. The sun is approximately eight billion years old. Difference between the near and distant parts of the universe has an estimated beginning of some 12- 18 billion years . Some of the stars have been emitting light for the last ten billion years and some began to do so just a ten million years ago. The spiral parts of some of the galaxies were born between ten million to hundred million years ago. These are not the final figures and are being contested by the experts. However no figures go beyond twenty billion years which may be the time frame of the beginning of the universe. The huge planets and spiral galaxies are relatively new.

Many theories have been propounded about creation of the universe. Basically only two of them are significant, while the rest are their variants. The first theory is named as 'Universal Atom or the Big Bang Theory' and the other is called 'Constant Matter or **Stellar Nucleosynthesis** Theory'.

The German scientist assuming the universe to be vacant applied Albert Einstein's general theory of relativity. The Russian scientist Friedmann adding the role of density proffered that with the increase in density the universe shrinks and expands with its reduction. Belgian scientist A B Le Meyer presented the idea of a universal atom where the matter was stored. In it electrons, neutrons and protons were all present in a jumbled form in one of its parts where the temperature, pressure and density were amazingly high. A time came that that the matter started expanding with a bang and spread into the space.



According to the Big Bang model, the Universe expanded from an extremely dense and hot state and continues to expand today. A common analogy explains that space itself is expanding, carrying galaxies with it, like spots on an inflating balloon. The graphic scheme above is an artist's concept illustrating the expansion of a portion of a flat universe.

During the process of expansion the temperature dropped so low that the electrons, neutrons and protons got arranged and emerged as atoms. With the advent of matter formation of elements commenced. It is probable that the ratio of lighter elements was more than the heavier ones. Then galaxies started forming and started drifting away. Expansion and spread of the matter shall continue for an indefinite period and the galaxies will be disconnected from each other. This will ultimately usher in end of the universe. In this concept, the most difficult question is from where the universal atom came? Was it created at a specified moment or did it exist before hand.

The other theory rejecting the 'Big Bang Theory' was conceived by the Sir Fred Hoyle an English astronomer along with Bendy and Gold. This theory is called the **Theory of Stellar Nucleosynthesis**. The concept of nucleosynthesis in stars was first established by Hoyle in 1946. This provided a way to explain the existence of elements heavier than helium in the universe, basically by showing that critical elements such as carbon

could be generated in stars and then incorporated in other stars and planets when that star "dies". The new stars formed now start off with these heavier elements and even heavier elements are formed from them. Hoyle theorized that other rarer elements could be explained by supernovas, the giant explosions which occasionally occur throughout the universe, whose temperatures and pressures would be required to create such elements. Simply put it theorises that matter is being created continuously in a gradual form from ever. This logic has however been criticized by the proponents of big bang theory. They feel that the discovery of 'Quasars' (quasi-stellar radio source), has proved that the universe was never static but kept on changing.



Artist's rendering of ULAS J1120+0641, a very distant quasar powered by a black hole with a mass two billion times that of the Sun.

Light from the quasars that reached the earth after twelve billion years, show an old picture of the universe. Being totally different it points to the change, which negates the Theory of Stellar Nucleosynthesis. The other factor negating it is the discovery of certain areas where the temperature is in conformity with the Big Bang Theory.
(Encyclopaedia Encarta)

Many scientists find it is easier to reconcile to the idea of a continuous and gradual growth of the universe than to believe in the sudden big bang.

Fred Hoyle responding to his critics writes, " *The most important question being asked about the continuous creation is where from the matter is coming? It comes from no where but it is being created. Some critics argue that concept of perpetual creation has added an astonishing hypothesis to the realm of sciences. I do not agree with this contention of it being an absurd hypothesis. Notwithstanding it being a fresh concept it has only substituted another theory which contends the all the matter was produced by*

a big bang in the distant past. Rationale scientific reasoning supporting the big bang theory looks less logical being an irrational process that can not be explained in scientific terms.”
(Dimensions of the Universe Pages 112-113)

Though it is difficult to offer a sure shot reason for all the happenings in our stellar universe but either of the above two theories conclusively indicate that the matter gave birth to large interstellar gas and dust nebulae which exist even today. Later the stars were created through condensation at extremely low temperature.

After the end of this prolonged discussion, the question arises that is the whole process of conversion of matter into nebulae, stars and galaxies self generated or is it being created and regulated by someone? In the holy Quran Allah Almighty says:-

Do not the Unbelievers see that the heavens and the earth were joined together (as one unit of Creation), before We clove them asunder? We made from water every living thing. Will they not then believe? Al Anbia – 30

This clearly indicates that the universe was all one entity and then Allah Almighty chose to create seven earths and heavens from it. Did it all happen simultaneously or was it a gradual process? Our religion shuns any explanation but aptly confirms the all the creation were master minded by a Creator. Apparently religious belief may seem to be in discord with the scientific logic. However rising above prejudices, rationale of a Creator is more reasonable and logical.

When scientific concepts are based on assumptions then to suppose existence of a Creator is fairly logical. One who created the matter and the universe? The One being, who is wisest, beyond any limits and bounds and the most powerful. He has been there ever since and shall remain for ever.

Looking at the issues in hand; two questions logically emerge. Is the matter an accidental creation or an endless process which is unceasing? A little contemplation shows that basically these two are just one question. If the matter is considered to be a creation then it has a basis for occurrence. So one has to subscribe to either existence of the universe from ever to ever or linked to the will and desire of the Creator. The 'Ever option' if adopted ceases at one stage to answer, how did the matter come into being? Law of Entropy defines that everything seeks disorder and scatter until and unless controlled and regulated by an outside force. How has the order been brought in? Definitely there is someone exercising the power to regulate the whole process. Who else can it be except the Creator himself. Creation is more difficult than its subsequent maintenance and continuity. To understand this phenomenon is beyond the capacity of the human mind. Man being a creation can never gauge how the Creator

functions. Allah Almighty is a non matter like energy. Any other assumption will involve us into an imprudent discussion about Allah Almighty taking us to same ambiguity as being resolved about the universe.



Ice melting in a warm room is a common example of increasing entropy described in 1862 by Rudolf Clausius as an increase in the disgregation of the water molecules in ice.

One can be led to believe that energy being a non matter formed the basis for creation of the matter. Here a question arises as to how it could have happened on its own because energy lacked consciousness and ability to act. Secondly why did it choose to convert into matter only twenty billion years ago despite being there ever since? These anomalies surface when we accept energy to have existed form ever. Any deviation will take us astray to the same unending debate about its creation. All issues start to resolve the moment it is accepted that the Wisest of all and the most Powerful created it all, at His will and desire. Energy was created with the capability to convert into matter. This phenomenon will continue till He desires it and shall then end at His will. To obviate any doubts about His creations, one will have to accept that He has been there since ever and that no one created Him. In nut shell, acceptance of a powerful, wise, limitless and perpetual being as the creator of our universe provides answers to all doubts and anomalies. As far as the mystery of the universe is concerned, the holy Quran aptly states:-

Surely, in the creation of the heavens and the earth, and in the alternation of night and day, there are signs for the people of wisdom, Who remember Allah standing

and sitting, and (lying) on their sides, and ponder on the creation of the heavens and the earth (and say) “Our Lord, You have not created all this in vain. We proclaim Your purity. So, save us from the punishment of Fire. Ale Imran 190-191.

A Muslim with a firm and unflinching belief in Allah Almighty requires no theories like 'Big Bang' etc to learn as to how the universe was created. These become secondary to his conviction that everything was created at His will and desire and that nothing can happen on its own. That being so, we have to accept that He has the capability to create matter in one go or gradually or any other arrangement that He chooses. This is beyond the capacity of the human mind to fathom. In this complete discourse there is only one salient aspect that the Devil attempts to obscure from us by indulging us into trivial non issues which is the presence of our Lord and Creator Allah Almighty. The above quoted verses were revealed to set right such misgivings.

The last issue being debated about the universe is that whether it is static or dynamic. Observations have proven that the concept of a static universe is absurd. A glean into the galaxies show that they are not stationary but dynamic and are drifting apart at a tremendous speed. Our universe is like an inflating balloon being filled with air. Fred Hoyle has stated that every passing moment fresh matter is being created which converts into nebulas and pushes outward the earlier galaxies and nebulas to create space for itself. The motion is so rapid that it is incomparable with any speed that we experience or comprehend except that of light. The fastest moving nebula observed so far is drifting at an amazing speed of 140000 kilometres per second (88000 miles/second) thus attaining 46% of speed of light. This is not the ultimate because the universe is spread far and beyond. It can be assumed that the nebulas in the deep space are moving at a much greater speed along with other elements moving at the speed of the light. Those nebulas that are moving at the speed of light can be observed with telescopes stronger than the Mount Plummer Telescope but those faster than this remain invisible. Rays from a body moving at a speed higher than light will never reach us and it will never be seen. To explain this phenomenon, Fred Hoyle writes,

“Those nebulas at twice the distance from the farthest galaxies can be seen with Mount Plummer Telescope because they are moving away at the speed of light. Those beyond and moving faster than light will remain unseen. Some of the people get irritated who see the phenomenon in the light of Albert Einstein’s theory of relativity, which states that a body comprising of matter can not attain a speed higher than light. This is only true when applied in its ordinary context to objects belonging to a simple system of time and space. Our universe is a complex place and explanations have to be based in terms of the common theory. To explain it further, it can be said that that farther a galaxy from us, its distance is constantly increasing disallowing its light from reaching the earth. Now light from a galaxy too far will never reach us because it is traversing its opposite path

simultaneously with an increasing speed than the speed of light. No one from our galaxy will ever be able to see them irrespective of the strength of the viewing devices.”

Dimensions of the Universe - Page 107

After observing speed of nebulas scientists are in doubt as to what is being seen is real or there are other elements in the atmosphere which are only creating illusions. They think that a beam of light which reaches us after billions of light years has to traverse through many mediums and matters enroute. So it is not certain that it reaches us in the original form. This ambiguity is keeping the scientists perplexed. No one denies the fact that nebulas are dynamic and are moving away rapidly resulting in continuous expansion of the universe. Another doubt that is still lingering in minds relates to the speed of expansion of the space. Is it more or less than what is seen or presumed? It is quite possible that soon it would become possible to grow out of hypotheses into the realm of reality. Some scientists believe that it will be possible to get real observations from surface of the moon which is totally devoid of **gravity and atmosphere**.

Having discussed creation of the universe one is tempted to ponder whether it will persist or end? Scientists keep on guessing about it. Being a matter of the future no clue can be found. Ancient Greek thinkers like Aristotle disbelieved in the Dooms day. They thought that the universe was permanent and would stay for eternity. Now the new astronomical research states that the universe being prone to accidents is not permanent and it shall end some day. They, however, cannot predict the end time and a scientific explanation to support their contentions. Destruction of the solar system and earth has particularly remained under discussion. The experts have outlined various eventualities of a partial end (Dooms day):-

- a. Solar system will be glaciated, freezing every living being to death. Our solar system is moving in one direction at a speed of eleven miles per second. It has to pass through hot and cold regions in the space. Mr. Maxwell writes that so far it has successfully passed four times through severely cold regions which caused extreme winters on the earth. Global experts think that the earth has so far covered one fourth of its journey of the last cold spell. This is why the areas of South Pole and Greenland are still covered in snow. It is plausible that the coming spell the journey may be severer in cold resulting in end of the life.
- b. The earth may collide with another planet or terrestrial body and the resulting havoc may end the life on the earth.
- c. Collusion of the sun with any other planet can bring about the destruction of whole of the solar system.
- d. The sun is rapidly expanding its hydrogen element being consumed as fuel. Burnt hydrogen is converted to helium. According to George Gimo, with burning of this fuel a stage will arrive when the sun will become very bright

and extremely hot. After ten billion years sun will become hundred times brighter. Temperatures on the earth shall cross the boiling point thus causing the oceans to evaporate. Life on the earth shall become extinct. The temperature of the sun shall start receding and its size will reduce. Reduction in its force of attraction will let the other planets loose and they shall drift away from the orbit of the sun.

Islamic View Point. Above were cited the views and conjecturing by the eminent scientists, who are solely focused on the causes; totally oblivious to the revealed words of Allah Almighty. All their postulations shall only end in an utter surprise and dismay. There are only a few fortunate ones who remain within the permissible limits ordained through the revelation. They always take a lead from the words of Allah Almighty.

When the earth will be trembled with its quake, and the earth will bring forth its burdens And man will say, "What has happened to it?" ***Zalzala 1-3***

When the sun will be folded up, and when the stars will swoop down and when the ten-month pregnant she-camels will be abandoned, and when the seas will be flared up. ***Al Takwir 1-6***

When the sky will split apart, and will listen to (the command of) its Lord, and it ought to, and when the earth will be stretched, and it will throw up whatever it contains, and will become empty.

Al Inshiqaq 1-4

When the sky will be cleft asunder, and when the stars will disperse, and when the seas will be burst forth. ***Al Infitar 1-3***

So, when the stars will be extinguished, and when the sky will be split, and when the mountains will be blown away as dust, And when the messengers will be assembled at the appointed time, (then all matters will be decided. Do you know) for which day has all this been delayed? For the Day of Decision! And what may let you know what the Day of Decision is? Woe that Day to the deniers!

Al Mursilat 8-14

All the above verse from the holy Quran vividly spell out that the end (Dooms Day) shall not be partial but will be final end of our universe. The sky will asunder into pieces. The sun shall be wound up terminating its own glow and that of the moon. Oceans shall turn into the seas of fire as if converted into the Hell. All the stellar bodies like the sun, the earth and the moon shall be destroyed. Our science can not say a word about the end of the sky because it is far beyond the limits of our observation.