

# GOD & UNIVERSE

## INTRODUCTION:

We see around us this beautiful & vast universe of many galaxies, stars & planets with deep mysteries. Whenever we gaze with curiosity at the starlit night sky, the beauty & mysteries of the universe have held a special fascination upon us & we wonder at the expanse of the universe! Whenever we look around this beautiful nature of mountains, seas, trees, & innumerable living beings of this earth planet, we ask our selves with great wonder & curiosity that 'Who is the creator of this world? From where all these come?', 'Who is the artist of this universe?'

From the ancient times many religionists have spend their whole life in search of the creator - God & the mysteries of his creation; but they could not found Him. In their holy scripts they conclude that 'God is the ultimate creator of this universe! These nature is an art of God & the universe is running by the power of God!'. But if we see by scientific way then God is not doing all the acts or processes of this universe, because universe is a self sustaining eternal system. All processes or actions of this universe are interactions between fundamental particles & forces. Human beings consider the mysteries of nature as one form of God, so they thought that God is omnipresent .

But there appears a big missing link in human understanding, because nature has motion, but not emotion. Nature have its own forces , powers to interact, but it doesn't have the power to reverse its own entropy from higher level to zero level stage at the end of kalpa. Her comes the act of God to rejuvenate the universe from its iron stage( Higher entropy ) to golden stage( Zero entropy). But How & by Which process dose God reverse the entropy of the universe? We can understand this subtle acts of God in a way by a theory called "**Theory of Everything**"(TOE), which I am going to discuss here in this article. The author of this small article has only elementary knowledge in the field of science & has absolutely no claim to any in depth understanding of many advance theories of science & formulation of mathematics. Extracts from various sources are also presented here which are linked by thoughts of the author. He may be wrong in following pages; hence request to knowledgeable readers to give their worthy suggestion.

## THEORY OF EVERYTHING (TOE):

To most people it is obvious that the universe is an organized unity. Whenever we look, from the innermost recesses of the atom to the far-flung galaxies, we encounter harmony & order of eternal cosmic laws. Today we know this mysterious universe governed by many well defined physical ,chemical & biological laws; but there are many other deep & fundamental laws of universe which we don't know or it may be beyond our understanding, because the knowledge of universe, it's structure & operation is like an ocean. That's why Isaac Asimove say that '**What we know is the drop, what we don't know is ocean!**'

But curiosity is one of the great virtues of human being which enables it to always ask questions to itself about this reality pertaining to universe, it's creation & operation ; we think about it & get lost in never ending quest! Today many physicists & cosmologists around the world are doing the research to find out the ultimate mysteries of universe. In our present state of knowledge nature's varied phenomena required a multiplicity of different descriptions - a theory of gravitation, a theory of electromagnetism & so on. Many theoretical physicists believe, however, that underlying this multiplicity is a unified description of nature - a Theory of Everything. If we possess such a theory, then all natural phenomena would be seen to flow form a single fundamental "superlaw", a simple, all embracing mathematical principle! It is an idea that is as compelling as it is elusive. The last few years have seen dramatic progress in the quest for a Theory of Everything & some theorists are optimistic that they may have the complete theory worked out in near future. Theory of Everything

is a product of Particle Physics & Cosmology.

## **FROM QUARKS TO COSMOS:**

The ancient Greek philosophers Leucippus & Democritus asserted that all matter is ultimately composed of elementary particles. These "atoms" were supposed to be truly fundamental, in the sense of being indestructible & indivisible. What we today call an atom is not an elementary particle any more, but a composite body consisting of nucleus surrounded by a swarm of electrons. The nucleus is in turn composed of protons & neutrons. In addition, large numbers of other subatomic particles, not found in ordinary matter, have been discovered in cosmic rays or produced in the laboratory by colliding protons or electrons at high energy. Hundreds of different kinds have been catalogued. A single small drop of water contains how many nos. of atoms ? If all peoples of the world counts one atom per second, per person, then whole mankind required 1000 years to counts all the atoms of one single small drop of water! & this one single atom consists of many hundreds of sub-atomic particles ! How deep these mystery of universe which is beyond our imagination ! The sub-atomic world is as Einstein said like an unopenable watch where we can see the pointer move on the dial but can never know the exact mechanism underneath.

Particle Physicists have divided all sub-atomic particles, according to their masses, into three main categories. Light-weight particles are leptons & medium-weight particles mesons & heavy - weight particles are baryons. In spite of this proliferation, the organization of the subatomic world is actually quite simple once it is realized that all the nuclear particles the proton & neutron & the many other particles associated with them are composed of smaller units called quarks. The quarks account for all the known nuclear particles ,There are 18 (6 flavours time 3 colours) different varieties of quarks. They are given the whimsical names up, down, strange, charm, top, & bottom with three colour red, green & blue.

All other particles are apparently elementary in their own right, & are not made of quarks. These generally lighter particles are the electron & two heavier particles that resemble it, & three species of so called neutrinos. Collectively they are known as leptons ("light ones"). There are thus six varieties of leptons to go with the 18 varieties of quarks. (In addition, for each variety of particle there is a corresponding antiparticle in which all its qualities except mass are reversed). Most theorists believe that these 24 particles are the basic building blocks of all matter- the elementary particles of the ancient Greeks.(see fig. 1) These fundamental particles are configured in different combination to form various objects, man, planets, stars, galaxies & right upto the COSMOS.

## **FUNDAMENTAL FORCES OF UNIVERSE:**

Matter in its own is inert. To activate it, forces must act between the particle. There are many forces in nature such as frictional forces, chemical forces, elastic forces etc., but in spite of the extraordinary richness of natural phenomena, all known forces can be reduced to just four basic types: gravitation, electromagnetism & two nuclear forces known simply as weak & strong. Gravity keeps our feet on the ground & keeps the Earth in orbit round the Sun. It is the universal cosmic cohesive force, binding planet to star, star to galaxy & galaxy to galaxy. Electromagnetism accounts for all other forces that we encounter in the everyday world. In particular it binds & objects around us.

The weak nuclear force is rather inconspicuous. It causes certain radioactive decay processes (such as beta decay), but once in a while it produces a truly spectacular event. One such was witnessed on February 26, 1987, when a star was seen to explode in the Large Magellanic Cloud. The event was a so-called supernova, in which the core of an aging star collapses catastrophically ,releasing a huge pulse of neutrinos. With only the weak force at their disposal, these neutrinos

blast the outer layers of the star into the surrounding space, wrecking it completely & producing a burst of luminosity. The activities of the strong nuclear force are apparent to us every day in the form of the heat & light that come from the Sun. The core of the Sun is a nuclear furnace, wherein reactions driven by the strong force liberate large quantities of energy. It is the same energy that is released during nuclear explosions.

Not all particles feel all the forces. The quarks do, but all the leptons are impervious to the strong force. Among the leptons, the neutrinos are not subject to the electromagnetic force either. All 24 quarks & leptons feel the weak & gravitational forces. The weak force has three different messenger particles, called  $W^+$ ,  $W^-$ , &  $Z$ . The  $Z$  particle is identical to the photon, except that it has an enormous mass (the photon is massless). The two  $W$  particles are also massive, & they carry electric charge. The strong force acts between quarks. Because quarks can combine together in threes, the strong force is a three-body force (rather than a two-body force as with the other). This makes matters more complicated still, & it is necessary for there to be eight different messenger particles, collectively known as gluons.

Electromagnetic force has one messenger particle called 'photon' & gravity force also has one messenger particle called 'graviton'. The strong & weak forces are effective at very short distance i.e.  $10^{-15}$  to  $10^{-17}$  m; whereas electromagnetic & gravity force acts in infinite range. The relative strength of all forces are shown in fig. 2. In this gravity force is extremely weak than other forces, but it works infinite range in universe! The constituents of Hydrogen atom attract with strong force about  $10^{40}$  times more strongly than gravity, if hydrogen were bound together by gravity, then cohesion would be so feeble that the smallest size of the atom would be larger than the observable universe! Until now we discussed about fundamental particles & forces of universe, physicists are now in search of that 'superforce' theory which underlies in the deep ocean of mathematics.

### **IN THE SEARCH OF SUPERFORCE THEORY:**

The problem of TOE theory is easy to understand but difficult to solve. The above cosmic forces can be expressed by mathematical equations, such as :

$$\text{Gravity force } F = \frac{Gmm'}{d^2}, \text{ Electric force } F = \frac{Cqq'}{d^2} \text{ \& Magnetic force } F = \frac{KMM'}{d^2}$$

Comparing these three equations, we will find that there are two important conclusions. First, the three equations are identical in form & second is that gravitational force is only attractive force, but electric & magnetic force are both attractive & repulsive force. The attempt to derive these equations from more fundamental theory comprise one particular aspect of the TOE theory.

The first step on the road to a unified theory was taken in the mid-19th century by the British scientists Michael Faraday (1791-1867) & James Clerk Maxwell (1831-1879), who demonstrated that electricity & magnetism are not independent forces, but parts of a unified electromagnetic force. Faraday suspected a link with gravity too, but his experiments to look for electrical effects in falling bodies were without success. It was not until 1920 that the idea of linking electromagnetism & gravity resurfaced. At that time a new theory of gravitation had been proposed by Albert Einstein (1879-1955) called the general theory of relativity. It was a replacement of Newton's theory, which had stood unchallenged since 1687. Although Einstein was the first dreamer of modern TOE theory, after his discovery of Relativity theory, he had spent 25 years of his remaining life to discover the field equation of TOE theory. In 1953, Einstein announced the results of his search for the ideal field theory. He believed that we had succeeded in uniting the phenomena of gravitation & electromagnetism into a single theory. Unfortunately, the set of equations his theory generates has an infinite number of solutions & there is no way of determining which solution is correct & applied to our universe of none has yet been found to verify the theory experimentally. After then, in 1979 an 'Electro-weak Theory' search by three physicists named as Glashow, Weinberg & Salam was carried out, in which they unified weak force & electromagnetic force into 'Electroweak force'.

Inspired by Einstein's work, a young German mathematician named Theodore Kaluza was seized by a curious idea. The theory of relativity links space & time together to form a four-dimensional space-time continuum. What would happen, if general relativity were formulated in five rather than four dimensions? This is what Kaluza did, & to everyone's astonishment in five dimensional gravity as well as Maxwell's laws for the electromagnetic field. In other words, gravitation & electromagnetism are automatically unified in five dimensions, where electromagnetism is merely a component of gravity!

The only drawback of the theory concerns the fifth dimension of universe. Where this extra dimension? Why don't we see it? Physicists say that this extra dimension is very small ( $10^{-33}$  cm) dimension less than atom size! But it is difficult to understand this extra dimension of universe in physical reality. In spite of these bizarre overtones, it seems probable that in future a "theory of everything" will make use of the idea of unseen higher dimensions. Another vital strand in the unification program which will play a central role in the search for a theory of everything is an appeal to symmetry. Symmetry is familiar in art & architecture, & in natural objects such as snowflakes. Physicists are increasingly finding that certain deep & abstract mathematical symmetries underlie the work of subatomic particles & the forces that act on them. Further they found that the unification of all cosmic forces required a ten dimensional mathematical model of super symmetry & super string theory which underlies in the deep ocean of mathematics. This is very difficult work to find the field equations of TOE theory. Some physicists say that 'if God exist, then He must be the Great Mathematician!'

For unification of all above cosmic force into a single superforce also requires an extra high energy level which is shown in Fig. 3. Atomic weak force & electromagnetic force are unified at energy level of 100 Gev. (1 Gev =1 Billion electron volts). Further atomic strong force unified with Electroweak force at energy level of  $10^{15}$  Gev & at energy level of  $10^{19}$  Gev all cosmic forces unified into single unified 'superforce'. But the energy level at this stage is very tremendous; which is not in reach of physicists; because the temperature at this energy level will be  $10^4$  billions times the inside temperature of Sun! It also required  $50^{14}$  miles long particle accelerator, which is impossible to construct for experiment. That's why physicists would only be able to find out the mathematical equations of TOE theory in near future, but wouldn't be able to confirm it experimentally.

From our above discussion, we find that for unification of all cosmic force into a single superforce happens only in ten dimensional universe at ultra-high energy level. But where does ten dimensional universe exists? How the 10- dimensional equation acts on 4 dimensional universe? From where will such a high energy level be brought or found? Science can't give the answer of these questions, here it can take help from spirituality, because **Where science stops , spirituality began!** This give an indirect indication to the acts of God with universe at the end of kalpa.

## **GOD & UNIVERSE:**

Stephen Hawking, famous theoretical physicists of Cambridge University , England said in one of his interview that 'what we are trying to find out is whether there is some bigger law from which all other laws can be derived. I think you can ask me a question whether or not you believe in God' Einstein's theory of Relativity also postulate that the ultimate source of all physical energy of the universe is deemed to be a point source of energy outside the universe. From the above discussion, if somebody says that God is ultimate source of energy or superforce by which all forces creates & he operates the universe. Then it will be totally wrong. Because God is not operator of universe but only Controller of universe.

In Bhagavadgita, God says that -

Na ca matsthani bhutani pasya me yogamaisvaram

Bhutabhrrna ca bhutastho mamatma bhutabhavanah !! 9-5 !!

It means that the elements of nature are not created by me, but I have so much energy that I can control them without involving in them. These cosmic forces of universe are product of it's

interaction of own fundamental particles, because universe is self perpetuating eternal system. Just as positive charges particles & negative charges particles attract each other & same charges particles repulse each other. Now, why electrons have negative charge & photons have positive charge & why is there difference in their mass. It is because that is how they are; that is their nature. So they behave in a particular way in the cosmic set up in which they are. Science can't really explain electricity, similarly science can't explain what magnetism or gravitation are. Scientists can measure & predict their effects but of their ultimate nature, no one knows any thing.

**These all cosmic forces are created by own fundamental nature of all fundamental particles of universe. If there are only a single fundamental particle exists, from which all other particles were created then, we can say that universe has only one nature; but we find that there are at present 24 fundamental particles of universe with their own charges & nature. That's why God is not The operator of this universe.** If this universe is operated by God then it will never reach to it's high entropy stage, because God has always Zero entropy stage with high ultra-energy. In the end of every kalpa God acts on this universe with his ultra energy to intervene to reverse the entropy of universe & restore the original conditions of moral & material perfection, so that the process begins once again. He is the controller of universe in this sense. In Bhagavadgita God says that -

Mayadhyaksena prakrtih suyate sacaracaram

Hetunanena kaunteya jagadviparivartate !! 9-10 !!

It means "Under my supervision Nature gives birth to the moving & not moving objects, by reason of this the world turns round." The process of creation & destruction of things going continuously due to the Laws of Nature. So it is clear that God is not the operator of universe but he is only the controller. Because universe doesn't have the power to reverse it's own high entropy level to Zero entropy level at the end of kalpa.

We seen that for unification of all four cosmic forces required a ten dimensional universe & a very ultra-high energy ( $10^{19}$  GeV). Here we can say that paramdham - a multi dimensional universe beyond the cosmos will satisfy to serve as a model for TOE theory & many other mathematical theories which required higher dimension. This physical universe is a subspace of paramdham & the almighty God Shiva embedded in this Golden red universe with infinite level of energy in subtle forms. In this connection, we find one statement of God in Bhagavadgita that -

Divi suryasahasrasya bhavedyugapad-utthita

Yadi bhah sadrsi sa syad-bhasatasya mahatmanah !! 10-12!!

"If thousands of Suns were to rise at once in the Sky, then the light of these all suns will be very a small part of light of almighty Lord'. That's why God is the ocean of energy ! But his all energy are in subtle forms & purity is one of the highest power or energy of God by which he rejuvenate the universe from iron stage to Golden stage. Purity is one of the greatest spiritual subtle power which controls the gravity of cosmos because there is a very deep subtle relation of purity force & gravity force in rejuvenation process of universe. We will now try to understand this vast process in brief :

## **REJUVENATION OF UNIVERSE :**

This universe which is self sustaining system of particles & forces always moves into a cyclic pattern from its Golden age stage to Iron age stage. But today due to linear time concept, scientists considering the process of universe towards dissolution. They say that sun is slowly burning out, the stars are dying embers & everywhere in cosmos heat is turning to cold, matter is dissolving into radiation & energy is being dissipated into empty space. The universe, according to these scientists, is thus progressing towards an ultimate "heat death" or "maximum entropy stage." As the entropy of universe is increasing, expansion of universe is going on.

Painting this gloomy picture of future, these scientists assert that there is no way of avoiding this accident. But entropy is not containment to dynamics of the universe. It is a duty of God to reverse the entropy of universe at every end of kalpa. Thermodynamic arrow of time has been shown to be linked to expansion of universe by Stephen Hawking. In an accompanying

paper Don Page has shown that entropy of contracting universe decreases. Expansion or contraction of universe depends upon the value of cosmological constant. A positive value gives a shrinking universe & zero value gives an expanding universe. The value of cosmological constant in turn depends on energy density of vacuum. Creation of virtual particles pairs, because of uncertainty principle gives vacuum a non-zero energy density. Eccles, in order to explain mind-body interaction has evoked the hypothesis that mental events affects physical events by changing quantum mechanical probability fields of their occurrence without violation of principle of energy conservation. There is also one point to be noted that as per Entropy Law, an increasing entropy of a closed system can't be reversed without increasing energy concentration from outside of the closed system.

As per the above discussion, we find that for contraction of universe (Decreasing entropy) required creation of virtual particles in vacuum which turns to be an energy concentration process in vacuum from the outside of the closed system. Just like soul-consciousness stage in which we come out of our body & make the concentration form outside to reverse our own high entropy to zero level (satopradhan stage). Creation of virtual particles is nothing but the particles of our purity power or thoughts. As mind affects the matter by its thoughts in the same way pure thoughts or "puritrons" of God & other pure souls works as an virtual particles in cosmos by which energy density of cosmos increases which turns to energy concentration process in universe. This may make cosmological constant positive & cause universe to shrink rapidly for a small amount of time. Thus, the entropy of universe may be decreased to zero level. Due to high energy concentration in universe the diffused energy may be converted into matter as per Einstein's principle of equivalence of mass & energy i.e.  $E=mc^2$ , which may be then combined to form larger units, by their own gravitation influence into nebulas, stars etc. & thus the cycle of the universe may be repeated for all eternity. In Holy Kuran God says that 'on the day of Kayamat (destruction) the skies will be in my grip'. Thus the materials for the creation process comes from an annihilation process. In this way God may rejuvenate the universe by his ultra high energy level of purity from the outside of the universe at the end of every kalpa.

For this acts of God ,he says in Bhagavadgita that -  
Sarvabhutani Kaunteya praktrim yanti mamikam  
Kalpaksaye punasthani kalpadau visrjamyaham !! 9-7 !!

Praktrim svamavastabhya visrjami punah punah  
Bhutagramamimam krtsnamavasam praktrivasat !! 9-8 !!

It means, In the end of every kalpa, I create again & again resorting to the entire mass of nature without their will ,by the power of my nature.

## **GOLDEN AGE - AN UNIFIED WORLD OF SCIENCE & SPIRITUALITY :**

After this vast & mysterious process of rejuvenation of universe, God will create a new beautiful & divine world on this Earth, that is Golden age - an unified world of science & spirituality. The entropy of universe will be become zero, so there will be an equilibrium in the five elements of nature. There will a golden harmony between the nature & soul. The nature & all aspects of matter will be in the highest state of beauty. There will be airplanes which will fly by the power of nuclear energy & controlled by thoughts! This mysterious paradise will be ruled by deities, because God says "who rule on his sense-organs & subtle nature he will rule the world". So in this confluence age, the God is teaching us Rajyoga, by which human can rule over him-self by the power of meditation & spiritual knowledge. **This spiritual knowledge by itself is the highest kind of science.**

Without spirituality science can't control the powers of nature. Today we saw the world full of violence, corruption, sorrows, suffering. The harmony between man & nature is totally collapsed. Today's restless human society plagued by civil wars & communal clashes can be traced to the peacelessness in the minds of human beings. Albert Einstein said "**Science without religion is blind & the religion without science is lame.** If two could become partners & play complementary roles, humanity would get closer to the ultimate goal of peace both individually & collectively."

At present God is doing a unification of science & spirituality for creation of Golden Age world. Science & spirituality are two sides of one coin only. That's why in recent years there is a feeling that science & spirituality are in autogonism, but in the present trend spiritualists do recognize the great contribution of science & technology towards the means of comfort & general welfare of mankind. For the past few years eminent scientists also have been pointing to the importance of spirituality & the need to understand & recognize the reality of the metaphysical self & supreme being.

## **CONCLUSIONS:**

In conclusions, I would like to say that spiritual concepts of realms existing beyond space-time is a subject worthy of study using physical & mathematical models. This is also an area of co-operation in which respective understanding of scientists & spiritualists will have a synergetic effect & create a better understanding of the ultimate mysteries of God & universe. If some scientists of such 'psycho-physico-mathematical framework' comes in near future, then it may so happen that we can understand this ultimate mysteries of creation. But presently what we see around the world is that, physicists are in the search of fundamental theory of nature. The religionists are in the search of God & on other hand, The supreme being, the almighty controller of a universe God Shiva is establishing a new era of Golden age in the beautiful nature of Mount Abu, on the Aravali hills of Rajasthan. **The artist of universe painting the Golden reality ! Which will be known to the whole world in the near future.**

***Om Shanti.***

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