Rediscovering the Universe: the Beginning of the Final Revolution

Javed Jamil

The United States

Javedjamil@rediffmail.com; doctorforu123@yahoo.com

Abstract: The UTR is based on three main postulates: (1) The speed of light is not constant but rigid or stable, which will deprive light-speed of the status of the fastest achievable speed. (2) The universe is not expanding but rotating, a postulate that will make the universe a much-more-easy-to-understand, well-organised, well-knit unit; and (3) The gravity is an influence travelling with huge speed. [Nature and Science. 2006;4(1):1-22].

Introduction

The UTR is based on three main postulates: (1) The speed of light is not constant but rigid or stable, which will deprive light-speed of the status of the fastest achievable speed. (2) The universe is not expanding but rotating, a postulate that will make the universe a much-more-easy-to-understand, well-organised, well-knit unit; and (3) The gravity is an influence travelling with huge speed. This article describes the Philosophical Implications of the UTR.

1. Role of God

From time immemorial man has talked of God. Most of the humans have believed God created the universe and sustains it. A minuscule percentage of humans have argued that man created or invented God and their psychological and social needs sustain Him. In sciences too there have always been a huge controversy on the role of God in the creation and sustenance of the universe. The evolution of knowledge including natural sciences in the last two centuries has been under the influence of what I call Economic Fundamentalism. Industrial Revolution resulted in progressive strengthening of the grip of the industrialists over the world and the ideology they propagated. The impact of the economic fundamentalism on the growth and form of sciences has been one of the issues that I have discussed in my earlier works, "The Devil of Economic Fundamentalism" and "The Killer Sex". I feel it is worthwhile to reproduce parts of those discussions here:

"Science is the name given to the efforts for arriving at the truth and knowing the realities. It unfolds mysteries of nature and explains how scores of natural forces combine to maintain perfect harmonious equilibrium essential for the sustenance of the universe and the survival of all living beings. It teaches us how to avail ourselves materials and energies for different purposes. It would however be dangerous to presuppose that science is merely an informer and has nothing to do with our morals. What is incontrovertible is that science too, like religion, has been and is being misused by the vested interests. The dagger of blame falls not on science, but on those who misappropriate it. …….A general empathy towards religion that was the outcome of maledictory campaigns against it by the forces of economic fundamentalism influenced scientists too, who strove to present science as an antidote to religion. Religion had already been equated with orthodoxy and retrogression. It was therefore natural for the emerging edifice of science to maintain a safe distance from the faith. Hence, when science discovered that there exists a most wonderful equipoise in the universe that keeps life intact, that there seems to be a common cause of all the causes (or a common force behind all the forces), and the common cause has to be cognisant of the needs of all the creatures, scientists and philosophers named this common cause Nature. Had it been called God, the avowed antagonism of religion by science would have suffered a major setback. The acceptance of the One by science could have been a big boost for moralists. Materialists could have faced encumbrances in their naked pursuit of money. Thus, numerous laws governing the vast universe were labelled not as God's or Creator's Laws but the laws of Nature. The laws of gravitation and motion, for instance, were called Newton's Laws of Gravitation and Motion rather than the Creator's Laws, as if Newton created these laws, who in fact only tried to elucidate them. Despite all these attempts to banish God from the realm of science, the truth is that science cannot move an inch without assuming the presence of a being who is all-seeing, all-knowing, all-powerful, eternal, wise, calculating and all-pervading. It has only tried to infatuate itself by calling this omnipotent, omnipresent and omniscient being as Nature. Can science enlighten us how particles, or space, or waves forming "Nature"

possess faculties of intelligence and wisdom? Can it explain why all the physical laws remain the same everywhere in the universe. (Einstein's theory of relativity postulates that physical laws are the same in all co-ordinate frames all over the universe.) Science claims itself to be the truth and nothing but the truth, or an effort to arrive at the truth. But its signal failure has been its inability to recognise the greatest truth of the universe. It is not that science transformed its exponents into atheists. In fact, the greatest scientists of the world including Einstein, Darwin and Newton had an unshakeable belief in the presence of the One. But what their hearts were cognisant of, their pens could not describe in a scientific jargon. It was less perhaps because they found their belief scientifically untenable and more because they were scared of becoming targets of anti-religion elements that had a dominating presence in society. Both capitalism and socialism, the two great faces of economic fundamentalism had anathema for God whose fear and love created "unnecessary" impact on human morals."

The above was a part of a book written for the common people, and was not a work of Physics. The purpose of reproducing that is only to stress that the development of modern sciences has been in an environment of antipathy towards religion. It was therefore accepted as a fundamental principle by scientists all over the world that God has to be kept out of science at all costs. Heisenberg confirms this when he says:

"The mechanics of Newton and all the other parts of the classical physics constructed after its model started from the assumption that one can describe the world without speaking about God or ourselves. This possibility soon seemed almost a necessary condition for natural sciences to grow."

Why should natural sciences start on that assumption when there was no need to disprove God? Had God's existence been accepted, what bad could it have done to sciences? Still, sciences could have tried to understand "God's mind" and His creation and the laws that governed the universe. But this would have weakened the position of the economic fundamentalists against religion, which had belief in God as the foundation on which it rested. Religion posed huge risks to the advance of the economic designs of the forces of economic fundamentalism. Religion promoted morality, abstinence from certain practices like alcohol, gambling, extramarital sex and simplicity in life. All these things were seen as the foes of "development", and religion therefore was not acceptable. Faith in God and His punishment to the evildoers would greatly reduce the speed of the "growth". If scientists started confirming the existence of God, it would make life difficult for the big business. They will find it hard to promote consumerism and commercialize evils; there will be no place for bars, beaches, casinos, brothels, night-clubs and pornography in such a dispensation. The economic fundamentalists realised the huge commercial potential of human weaknesses, and would take every possible measure to use them for multiplying their wealth. Steps were taken at every level. At the legal level, the concept of Fundamental Rights was advanced with an unparalleled aggression in the ideological history of the world. Absolute freedom will give men and women freedom of choice in even choosing harmful courses. This freedom would in effect help the big business use their weaknesses for promoting their trades. The scale and tone of punishment for crimes was reduced and the scope of crimes continued to contract. Sex outside marriage, gambling, betting, sexual perversions, etc ceased to be crimes. The biggest challenge to their plan was posed by religion. It was therefore imperative to banish religion from society. When there was a huge campaign against religion and God at the social and political level, how could scientists be allowed to talk of God? The on-going battle between Church on the one hand and the Political, Economic, and Scientific community on the other further distanced sciences from God.

In spite of the general antipathy in the scientific community towards religion and God, sciences could never get free of God altogether. Top scientists couldn't keep away from talking of God. Einstein and Bohr had constant debates about the role of God in the formation and functioning of the universe. In response to the idea of uncertainty that Quantum Mechanics advanced, Einstein, in the now famous duel with Bohr, remarked, "God does not play dice". To this Bohr retorted, "Don't try to tell God what to do!" While discussing the laws of science as we see today without talking of God was not unavoidable, the creation of the universe automatically warranted such discussion. Let us try to sum up the position of the current Physics about the role of God.

Scientists have always wondered the beauty of the universe, especially how it has led to the creation or evolution of intelligent beings like us. There is a certain beauty in the underlying plan. John Polkinghorne says:

"…the universe, in its rationale, beauty and transparency, looks like a world shot through with signs of mind, and maybe, it's the "capital M" Mind of God we are seeing……..there is some deep-seated relationship between the reason within (the rationality of our minds - in this case mathematics) and the reason without (the rational order and structure of the physical world around us). The two fit together like a glove."

The laws all over the universe are the same. The Question arises why. In the theory of Big Bang, there

has not been an enough time for the distant regions to communicate with another, seeing that nothing can travel faster than the light, according to the theory of Relativity. Hawking says:

"Nevertheless, it leaves a number of questions unanswered: Why was the early universe so hot?

Why is the universe so uniform on a large scale? Why does it look the same at all points of space and in all directions? In particular, why is the temperature of the microwave background radiation so nearly the same when we look in different directions? It is a bit like asking a number of students an exam question. If they all give exactly the same answer, you can be pretty sure they have communicated with each other. Yet in the model described above, here would not have been time since the Big Bang for light to get from one distant region to another, even though the regions were close together in the early universe. According to the theory of relativity, if light cannot get from one region to another, no other information can. So there would be no way in which different regions in the early universe could have come to have had the same temperature as each other, unless for some unexplained reason that happened to start at the same temperature."

Hawking has progressively grown into an agnostic as far as the role of God is concerned. He has been busy finding solutions in which the universe could be thought to have had no beginning. In the above writing, he has raised an interesting example of students solving the same question with the same answer. If they have responded with exactly the same answer, there can be two reasons. First reason has been given by Hawking that is they must have had communicated with one another. But if there can be a surety that they could not communicate with one another, then what? There still remains a possibility, and that possibility is that they might have received the dictation from the same source.

In the Big Bang models based on the General Theory of Relativity, singularity was unavoidable. Penrose-Hawking Theorem proved that singularity at time zero is inevitable and that time-space fabric would break down at the singularity. The Big Bang could not have occurred, it was argued, without the creation by God. But this position has not been acceptable to those who do not want the existence of God within the realm of sciences. So, efforts have been on led by Hawking to find solutions where we can have a no-boundary situation for the universe. Hartle and Hawking proposed a situation where the dimension of time becomes fuzzy turning into a fourth spatial dimension as we approach towards singularity. At that point, time becomes meaningless. And that makes Hawking swell with confidence, which made him remark, "So long as the universe had a beginning, we could suppose it had a creator. But if the universe is really completely self-contained, having no boundary or edge, it would have neither beginning nor end: it would simply be. What place then, for a creator?"

But the truth remains that even this proposition does not abandon the concept of the beginning of the universe altogether. Because there again is an event where time becomes meaningful from a meaningless situation and the universe can be considered to have begun when the time becomes meaningful. The position of scientists regarding the beginning of the universe due to Divine creation has been conceded in an article written to counter the more popular belief. The article captioned "Theism, Atheism and the Big Bang Cosmology" by Quantum Smith, published in Australian Journal of Philosophy, March 1001 says:

"The idea that the big bang theory allows us to infer that the universe began to exist about 15 billion years ago has attracted the attention of many theists. This theory seemed to confirm or at least lend support to the theological doctrine of creation ex nihilo. Indeed, the suggestion of a divine creation seemed so compelling that the notion that 'God created the big bang' has taken a hold on popular consciousness and become a staple in the theistic component of 'educated common sense'. By contrast, the response of atheists and agnostics to this development has been comparatively lame. Whereas the theistic interpretation of the big bang has received both popular endorsement and serious philosophical defence (most notably by William Lane Craig and John Leslie, the nontheistic interpretation remains largely undeveloped and unpromulgated."

Another important discussion is centred about the Anthropic Principle. Before the 16th Century, the general understanding of man's position in the universe was based mainly on theological and other ancient concepts, which were represented by Ptolemic principle. This principle states that we have a privileged position, perhaps in the centre of the universe. Galilee and Copernicus countered this and went on to pronounce that we have no privileged position in the universe. They argued that the part of universe we are living in was like any other part of the universe. But the 20th century cosmology again led to a visible transformation in thinking. It was argued that we ourselves are in fact the products of the evolution of the universe, and had we not been there, there would have been none to appreciate the beauty of the universe. This position is represented by three principles called Anthropic Principles. These three are Trivial, Weak and Strong. Trivial principle regards the existence of human beings as nothing but a mere datum and does not give it any other significance. The Weak and Strong

Anthropic principles are based on the acceptance that the existence of human beings is extraordinary. The creation of the human being depends upon a series of striking coincidences. Hawking says, "The remarkable fact is that the values of these numbers seem to have been very finely adjusted to make possible the development of life." The striking coincidences that led to the formation of intelligent life have been briefly summed up on a website, "St John in Wilderness: Physics and Faith":

"Elements up to Lithium-7 were produced in the Big Bang. All heavier elements were made later inside stars. Hence all of us are "star-stuff". Most of the molecules making up our bodies using elements manufactured in an earlier generation of stars that enriched the interstellar medium through their stellar winds or when they died in supernovae. Our own solar system then formed from this enriched interstellar medium, which contained the elements necessary for life…. However, the synthesis of the heavier elements is difficult -- the only reason they are produced at all is the extraordinary coincidence that carbon has an energy level that is nearly the same as the energies of three alpha particles (helium nuclei) inside a star. This correspondence allows the reaction: three Helium-4 nuclei colliding to form one carbon-12 nuclei (3 4He ----------> 12C) to occur with a high enough probability that a reasonable amount of carbon can be made, and from carbon, still heavier elements. (Physicists say the "cross-section" for the process is resonant, which is a consequence of the matching of the energy levels).

"Paul Dirac (1902-1984), one of the founders of quantum mechanics, noted that very large dimensionless numbers often arise in particle physics and cosmology. For example, ratio electrostatic force/gravitational force between a proton and electron=0.23x1040; ratio of cosmological distance horizon ("radius of the universe") and "classic electron radius"=3.7x1040. It can be shown from the physics of stars that these large ratios are required for the lifetime of the average star to be in the range of billions of years. The rate of expansion of the universe is to be such that several generations of stars have time to age that is, the laws of physics and the initial conditions of the universe seemed "tuned" to allowing several generations of stars to live and die (a requirement for the production and dissemination of the heavier elements). The lifetime of an average star has to be sufficiently long to potentially allow a process such as the evolution of life to occur."

Hawking describes the extraordinary combination of coincidences as follows:

"… For example, if the electric charge of the electron had been very slightly different, stars either would have been unable to burn Hydrogen and Helium or else would not have exploded. Of course, there might be other forms of intelligent life, not dreamed of even by writers of science fiction, that did not require the light of star like the Sun or the heavier chemical elements that are made in stars and are flying back into space when the stars explode. Nevertheless, it seems clear that there are relatively less ranges of values for the numbers that would allow the development of any form of intelligent life. Most sets of values would give rise to universes that, although they might be very beautiful, would contain no one able to wonder at that beauty. One can take this either as evidence of a divine purpose in Creation and the choices of the laws of science or as support of the strong Anthropic principle."

But even the arguments of strong and weak Anthropic principle have been dismissed by those who do not want to see any Designer behind all this design. They try to explain this on the basis of random selections. For example, the same website ("St John in Wilderness: Physics and Faith") counters this on the basis of Execution Parable. L:

"A perspective on the explanations of "many universes" or "many domains" (Weak Anthropic Principle) versus a Designer (Strong Anthropic Principle) is offered by the Execution Parable of philosopher John Leslie….. You are blindfolded and about to be executed by ten expert marksmen aiming at your chest. The officer gives the order to fire the shots ring out, and you find you are still alive, unscathed! What is the rational explanation for your survival? Leslie suggests there are only two rational explanations: there were an enormous number of executions that day. Occasionally even the most expert marksman will miss, and you happened to be in the one execution where all the marksmen missed, (and second that) your survival was intended and the marksmen missed by design."

This is difficult to understand however why there is insistence on finding a solution without God when a solution with God deals problems much easily. For example, scientists try to argue that coincidences and accidents, random selections can occur repeatedly in a way that it can lead to evolution of a better and more intelligent life. But they are not ready to accept that more than the probability of finding innumerable number of such coincidences in a way that they lead to what is desirable, the more probable is the presence of a Being who is designing this. This is like assuming numerous coincidences that led to the making of car rather than accepting that it has been designed and manufactured by a company.

It is also entirely incomprehensible why Occam's Razor is also disregarded while discussing the role of God. According to the well known scientific principle, "Pluralitas non est ponenda sine neccesitate". This

means the number of entities required for explaining anything must be kept at minimum. If there are many ways to explain something, the easiest and straightest one should be preferred. If there are many roads to reach a specific point, the straightest one should be used. This principle was described by a mediaeval philosopher, Occam of Razor, and is still regarded a strong principle in all sciences. Why then is this principle forgotten when we find that the easiest way to describe the creation and evolution of the universe and intelligent life within it is to accept the presence of an All-Knowing, All-Powerful, Wise God.

2. The UTR and God

Though even based on the knowledge of the universe we have till this date, it is easier to accept than not accept God, the UTR can prove to play a decisive role in arriving at the truth. The UTR says that the universe as a whole rotates on its axis. It is this rotation, which has led to the creation and sustenance of the universe, and is responsible for all the properties of the universe as a whole and its parts. Now, the rotation requires regular supply of energy from outside. Thus the universe exists because it is rotating due to an incessant supply of energy from outside the universe, and would cease to function as soon as this supply is discontinued. As the supply of energy is stopped, the Uniglobe will stop rotating and all its components will lose their individual and collective properties. The universe will be dead. The rotation of the universe as a whole thus leads to two fundamental conclusions. First, if the Uniglobe is rotating, it must be rotating relative to a preferential frame of reference that surrounds it on all sides. Second, the universe is having an uninterrupted supply of energy from that external source. That external source can be none other than God.

The UTR completely and dramatically changes the relationship between the universe and God. While all the theories of Physics describe the parts of the universe, their properties, their motions, etc, the UTR in addition describes the universe as a whole (Uniglobe). The universe becomes an entity in itself, which can be seen separately from its components. Its relationship with the Creator becomes more profound and subtler. The universe does not merely remain a container of matrices and forces that it is, in accordance with the present theories, but becomes an existence in itself that bows to God, by rotating itself relative to Him, in response to the supply of provision to it. The universe and God become intimately connected. The former becomes a well-organised state and the later its majestic king. The role of Creator is not limited to somehow cause the beginning of the universe or the Big Bang, after which the universe takes control of itself and the role of God ends forever. In the aftermath of the UTR, it can be seen that the role of God becomes permanent. It ceases not for an iota of time anywhere in the universe. He makes the universe rotate and creates it. He keeps rotating it by continuous supply of the provision for its existence. If the laws in the universe are regularly in force and the energy and mass retain their status, it is on the account of the continuous rotation of the universe at God ‘s behest. Ultimately, He may choose the time of its death and preside over its demise by deciding to abruptly suspend or terminate the supply of energy causing the rotation of the universe to stop within no time. The universe will not die because the entropy would ultimately become universal, as demanded by the second law of thermodynamics. It will also not die because, due to long, continuous burning of fuel, stars will lose their lustre. Finally also not because, due to freezing of the planet, animals and planets including human beings will be deprived of the source of their life. The universe will take its last breath because God may decide enough is enough. He may think of replacing it with another kind of the universe with another set of laws and principles. Or He may want to resuscitate the world to see what they did in the previous world.

According to the current theories based mainly on General theory of Relativity, the universe even when it began had certain properties that were not well defined though, because they were infinite, mathematically. But the universe existed as a singularity, which had infinite mass-energy. How can it be called a non-existing universe? It was in fact existing from an infinite time. It can be argued that time did not start at the Big Bang but started its ticking in a way that it could then onwards be measured. The universe then existed at the singularity; the Big Bang only led to its huge expansion. That was no creation of the universe itself, but the beginning of the creation of the components of the universe. In a way, it can be said that the universe ceased to exist as a single body after the Big Bang, and instead transferred its life to its individual components. The Big Bang, in a way, was not the birth of the universe but its death. In the UTR instead, the universe had real birth, and the time had real beginning. The universe before had no structural or functional existence, and time had no existence at all. The process of the birth began as son as the universe began to rotate. The process of creation of the universe had three main stages: Pre-(Big) Burst stage, Big Burst and Post-Burst stage. Pre-Burst stage can be regarded as the foetal stage, and at the Big-Burst, the universe was delivered. Then followed the growth of the universe.

It is interesting to see how the UTR blends physics and metaphysics together. It establishes a lasting,

never-ending relation between God and the universe. God supplies the universe the provision for its existence and the universe thanks Him by rotating relative to Him, which is its bowing or prostration to God. The UTR has proposed that every particle tries to achieve the highest speed possible and goes towards the periphery of the universe; this speed is slowed by its own weight and the effect of the surroundings on it. Metaphysically, as soon as God started distributing the provision, all particles speeded to receive their shares, and thanked God by rotating individually and collectively relative to Him. It is this combination of providing by God and thanking by the creatures that sustains the universe.

What was the purpose of the creation? Why did God create the human being? These are questions that again lead to the overlapping of physics and metaphysics. Some take the existence of the human being as the sign of God, others the result of Strong Anthropic principle. The UTR takes this to new heights. Before the beginning of the rotation of the universe, God was alone. There was none to recognise Him, to describe His creative designs, His bounties and His powers. He made a plan so that he would be recognised. First he created the universe, which recognised Him by prostrating to Him and by following the Laws He decreed. Every single particle and portion of space would rotate with the rotation of the universe relative to Him, which in a way meant submitting to Him. Their submission, however, was of lesser quality, as they submitted not out of their free will but by their inherent nature.

God's plan would ultimately lead to the creation of an intelligent being who would have the free

will to submit or not submit to the commands of God. All the particles that formed man would still submit to the Creator by rotating along with the rotation of the universe, individually and collectively with its group. But at the social and personal level, he would be free to work in accordance with the demands of God or those of his own wishes. This would give him a privileged position. He would be bestowed upon the intelligence to appreciate the beauty of the creation, to study how it works, to try to know how it was formed and to comprehend his own nature and his relationship with the universe and its creator. Thus the UTR would combine temporal with spiritual and physical with metaphysical.

Another interesting combination of physical and metaphysical is the fact that there is a relationship between God and the components of the universe based on the principle of collective existence. Atom has a nucleus at the centre, which can be described as the leader of the atomic world. The stars are the leaders of the stellar systems, and stars form galaxies, galaxies clusters and clusters super clusters. Superclusters or even larger structures like the proposed Megagalaxy form the universe. So every particle is submitting to the God individually as well as collectively in various groups. The Uniglobe submits to Him with all its constituents. God may choose in the next universe a principle by which every individual particle rotates separately relative to God.

God does not play dice nor He needs to be told what to do. He knows what He wants, and how this has to be done. He makes man exist. He provides him the means to survive-- to admire the beauty of His creation, to ponder over the mysteries of His Empire and to endeavour to know His Mind. God has programmed man's life but has given the keyboard and the mouse to him to let him function with sufficient freedom.

3. Time

Time is the vehicle in which everything that exists has to travel. It is the grinder that breaks, forms and reforms everything and every event. It is an experience, which every conscious individual does realise and every particle does undergo through. The human behaviour turns time not only into an objective observation but also a subjective feeling, which differs from individual to individual. The same period of time can be expressed differently by different individuals; and differently at different times even by the same individual. For humans, time laughs and cries; time runs, crawls or stops; time brings new hopes or new fears; and time sleeps or awakens. Time may even rule our lives or submit to our dictates. For most, at times time blossoms and at times it withers. Whether one is capable of defining it or not, every living and nonliving thing except the dead perhaps knows what time is. Depending upon its magnitude, it becomes moments, hours, days, weeks, months, years, centuries and eras. When time indicates developments without any pattern, it becomes history; when it represents transformation with a visible pattern, it is called evolution. The history of the evolution of the knowledge of time is interesting.

In terms of physics, time is an entity that gives us an idea about the rapidity of the change of an event or events and the position of an object or objects. Time was considered absolute in Newtonian Mechanics. With the transformation of the three-dimensional space into a four-dimensional one, time lost its absoluteness with the beginning of the era of Relativity. Here we shall discuss what impact the UTR will have on time and the Arrow of Time.

The first question arises: When did the time begin? The current theories based mainly on the Einsteinian ideas of General relativity and Hubble's idea of the expanding universe describe the initiation of Big Bang

as the initiation of time. At singularity, there was no time, which as explained before, in fact meant that time was not measurable. It is argued that time-space continuum had broken at the singularity so that no laws of nature could be perceived. It will therefore be safer to conclude that, according to the Big Bang models, time was already there but was moving with zero speed, that is, it had temporarily stopped moving or was moving with an immeasurably slow rate. At the Big Bang, the clock of time started ticking; the time became measurable. It became a part of the time-space continuum, and has since then been moving. Now, it leaves two questions unanswered:

First, whether time was at any time in the past measurable before the Big Bang or not. Was singularity a result of the collapse of an earlier universe? In that case, time did never in fact die, but only collapsed as a measurable property, measurable through the means that now exist in the universe.

Second, is there any universal time as such? We know from Einstein's theory that time is not absolute but relative, with its value being different in different co-ordinate frames depending upon their speeds. The faster the speed the slower the clock ticks. There is no scope for considering a universal time, which can regard time as a universal phenomenon, related to the state of the universe as a whole.

The UTR answers the questions in an entirely different conceptual framework. It has proved that the universe is rotating as a single body (Uniglobe) on its axis. This rotation of the Uniglobe is responsible for the existence of the different components of the universe individually and collectively and the universe as a whole. There was a time when the Uniglobe had not started rotating yet. It was a non-living, non-moving container having in it a haze of matter without properties. Then the universe was given a switch-on signal, and it started rotating. The process of the birth of the universe commenced, and with it commenced time. Thus, unlike the Big Bang theory in which time existed at singularity but was moving with zero speed, in the UTR, time had no existence at all. Space was there but it had no property. With the rotation of the universe, not only did the time begin but also the space become alive; then this combined birth of space and time combined them together into a four-dimensional universe.

Secondly, the UTR visualises the universe not as mere container of the huge number of parts, but also as a single body, which has its own properties apart from the priorities of its parts. There is therefore a universal time as well apart from the times of individual components. This universal time determines the progress of the existence of the universe.

Relative time too assumes a novel proposition in the Universal Theory of Relativity. Einstein's theory describes time only as dilating with the speed. In the UTR, as the universe rotates, different zones of the universe rotate with different speeds. The zones that are away from the axis rotate much faster than the zones that are nearer to the axis. In the areas closer to the periphery of the universe, the time runs much slower than the areas closer to the axis. It leads to interesting results. Our zone may be in a position, relative to which there are certain zones moving faster and others moving slower. So if somebody is able to somehow reach a zone with higher speed, his age will pass more slowly than on the earth. If he wishes to make sure his attending the wedding of his grandson, he can go to a planet in the faster zone, and after passing a few years there, he may come back. While his own age in that period might have passed only a few years, the age of his grandson, would have increased several fold. It will be possible for him to see events and meet persons, which would not have been possible for him had he continued to live on the earth. He has another option, if he does not want to travel. He may send his grandson to a planet lying in the slower zone for a few years. When he comes back, he would have grown by several years compared to a situation if he had passed all his life on the earth. Christians and Muslims may rest assured that Jesus is living in a place lying somewhere in the faster zone, and at the time of his Second Advent, he will still be young enough to show to the world the light of hope.

It is also interesting to note that the subconscious mind of the human beings experiences time to be moving much more slowly than does the conscious mind. Whenever one wakes after a deep sleep, one is often amazed to see the clock; one finds it difficult to realise that one has slept for so long. This may be explained by the UTR in an interesting way. Our conscious mind is accustomed of seeing objects, which are moving very slowly. The zone of the universe in which our planet moves is rotating at the speed of about 420,000 kms/hr. When we fall asleep or unconscious, our subconscious mind starts experiencing the effects due to the extremely fast speed of our zone. One therefore feels time to be passing at much lesser speed than when one is awake and conscious. The same effect takes over when one is too much engrossed in some activity of one's choice.

4. Arrow of Time

The events observed in the universe can be mainly of two categories: reversible and irreversible. Irreversible events are described by what is known as Arrow of Time. This indicates that the time flows in a particular direction. Reversible events are common in the universe, such as the motion of planets around the

Sun, changes of season, events observed in Newtonian, Einsteinian and Quantum mechanics. Time is not considered important, as the events can be reversed. Irreversibility on the other hand is a notion, where the time makes the event change only in one direction. If a cup is broken, the cup cannot be brought back to its former position, if the milk is soured, it cannot be reversed to its original taste and transfer of heat cannot be from the cooler to the hotter body. All the chemical reactions are examples of irreversible processes. Similarly, Hubble's Law is considered an example of irreversible processes. There are many types of the arrows of time such as Thermodynamic, Psychological, Social, Biological and cosmological. In Physics, usually three of them are discussed: Thermodynamic Arrow of Time, Psychological Arrow of Time, and Cosmological Arrow of Time.

The larger part of the universe is considered by Thermodynamic Arrow, which is based on the second law of thermodynamics. This means the entropy of the universe always increases with time. There is always an irreversible flow from Order to Chaos. This is considered now to be a fundamental property of the universe.

Psychological Arrow of Time is the one, which makes it possible for us only to remember the past and not the future. This means we cannot know of an event before it has occurred, though we can predict a future event on the basis of the knowledge we have of the past events.

The Cosmological Arrow of Time tells us that the universe is expanding and not contracting. Events of the universe can be understood only in the expanding phase. All celestial objects are going away from each other; and it is because of this property of the universe that life has evolved.

In the UTR, the universe has stopped expanding after the big burst or is expanding slowly, and is at the same time rotating around its axis, which and not the expansion is its chief characteristic. It can therefore be said that the Cosmological Arrow of Time is in fact rotating and not moving in the linear direction. It is this rotation, which in fact makes it possible for events to be reversible and irreversible. All arrows of time are related to the rotating cosmological Arrow of Time. Even irreversible processes show a kind of recycling. For example, the matter keeps circulating in the living bodies. In terms of space-time, nothing is in fact reversible, because if the process is repeated, it can be reversed in appearance but the position of the event relative to the other parts of the universe has changed, due to the various motions.

It can be argued that all the arrows of time have their origin in the cosmological Arrow of Time. As has been stated above, the cosmological Arrow of Time in the UTR is different from the Big Bang physics. In the Big Bang cosmology, the universe is expanding, in the UTR cosmology rotating. How would an expanding universe give rise to a universe in which every body and every group of bodies is rotating? How could in an expanding universe anything other than thermodynamic arrow occur, which only increases Disorder? Disorder is bound to increase, as there is nothing that can help the universe avoid it. In UTR, on the other hand, the on-going entropy will be resisted by the continuous supply of energy that passes through the rotation of the universe from outside to the innermost inhabitants of the universe. Thus the rotating universe gives rise to another arrow of time, which can be called Spiritual Arrow of Time. The universe thus has mainly two arrows of time, one is Cosmological Arrow of Time, and the second is Spiritual Arrow of Time, which are opposite to another. The former is due to the change in position due to the rotation of the universe, and the second is due to the energy supplied through it, which tries to maintain order in the universe at every level. Had the universe not been rotating or starts rotating at a decreasing rate, the disorder will proceed much faster than it is proceeding now, and the entropy would have by now reached a very high level. Furthermore, if the Spiritual Arrow of Time had not been there, the evolution of the conditions for the evolution and survival of living beings would not have been possible. Furthermore, it is the Spiritual Arrow of Time that keeps the living beings survive till the ageing process takes over them, and then when they have died, it recycles the matter into new lives. It is this arrow that allows living beings to reproduce and sustain their species despite the fact that the total matter forming them does never change in amount in the earth. This arrow is also responsible for the social behaviour of man, which is also influenced by Thermodynamic Arrow of Time. The latter tries to bring disorder into human life by trying to mix all things, while the former tries to bring order by distancing the harmful and useful things from one another.

This can be argued that the change in the state and not the reversibility or irreversibility is the fundamental property of universe. Change may be from Order to Disorder and from Disorder to Order. Even the so-called reversible processes represent change because, while with the passage of time, they can appear to have come back to the previous state, the truth is that the state has changed, on the account of the fact that position and time both have changed.

Thus while Thermodynamic Arrow of Time is one of the fundamental properties of the universe, the new Spiritual Arrow of Time will be an even more

fundamental property, which impedes the increase in entropy. This is also responsible for the uninterrupted, undiluted and incessant enforcement of the laws of nature and incessant possession of properties like mass and energy by the constituents of the universe.

Another question arises here: did the universe originate from a highly disordered state or highly ordered one. Though, both possibilities have been proposed in the Big Bang theories, the beginning from an ordered state has been stressed as a greater possibility. If the universe had begun at a disordered state, then the entropy, according to the second law of thermodynamics would have increased more or at least remained the same. The present relatively low-entropy state of the universe would then have become incomprehensible. In the UTR, this question again assumes a different status. The creation of the universe with its stages from pre-Burst to post-Burst stage would surely increase the Order and decrease the entropy. But then the entropy started to take over. The order came first and then did the entropy, and not the vice versa.

What requires explanation, is not the movement of the universe towards higher entropy towards an increasingly probable state of disordered state, but why the entropy today is so low, and why the universe is at present in such an unlikely state. It will be worthwhile to quote from "Quantum Physics: The Nodal Theory" by Hector C Parr:

"……..We decided that the temporal asymmetry was not due to any of nature's fundamental laws, but rather to the very special state of the universe, at the present time, a state of low entropy, with significant temperature differences and gravitational instability. This state of affairs must ultimately be due to boundary conditions existing immediately after the Big Bang, conditions, which, until we know their underlying reasons, seem highly unexpected. If the universe had started out in what seems to us, a more reasonable state of randomness and disorder, then long ago it would have reached a state of equilibrium, with all the matter condensed into one gigantic mass or black hole, or with everything at the same temperature so that nothing of any significance could ever happen."

We cannot offer this explanation assuming that energy cannot be created or destroyed. If the entropy has remained low, the UTR presents an easy answer. The world by itself is sure to increase in entropy unless there is a regular process of sustenance. With the universe continuously in an accelerated state owing to its rotation made possible by an uninterrupted supply of energy from outside, there is a process of Sustenance (represented in the UTR by the Spiritual Arrow of Time). This maintains the universe in a low entropy state. While the entropy leads to decay, Sustenance leads to the maintenance and rebirth of the decaying material. It will be worthwhile to also quote from an article by M. Waldrop here. He says:

"A laser is a self-organising system in which particles of light, photons, can spontaneously group themselves into a single powerful beam that has every photon moving in lockstep. A hurricane is a self-organising system powered by the steady stream of energy coming in from the sun, which drives the winds and draws rainwater from the oceans. A living cell—although much too complicated to analyse mathematically—is a self-organising system that survives by taking in energy in the form of food and excreting energy in the form of heat and waste…….

"The second law asserts that all of nature is on a one-way ticket to disorder and decay. Yet this does not square with the general patterns we observe in nature. The very concept of "entropy," outside the strict limits of thermodynamics, is a problematic one.

"Thoughtful physicists concerned with the workings of thermodynamics realise how disturbing is the question of, as one put it, 'how a purposeless flow of energy can wash life and consciousness into the world.' Compounding the trouble is the slippery notion of entropy, reasonably well defined for thermodynamic purposes in terms of heat and temperature, but devilishly hard to pin down as a measure of disorder. Physicists have trouble enough measuring the degree of order in water, forming crystalline structures in the transition to ice, energy bleeding away all the while. But thermodynamic entropy fails miserably as a measure of the changing degree of form and formlessness in the creation of amino acids, of micro-organisms, of self-reproducing plants and animals, of complex information systems like the brain. Certainly these evolving islands of order must obey the second law. The important laws, the creative laws, lie elsewhere."

It cannot be overemphasised that the UTR will prove to be an important chapter in the book of energy. It will help understand all the intricacies of the natural processes involved in the survival and flow of energy.

5. Quantum Mechanics

Apart from Classical Mechanics and Relativity, Quantum Mechanics is the third important branch of Physics, which has proved most successful in practical terms but equally controversial in the philosophical arena. Quantum Mechanics deal mainly with the matter and radiation at the atomic level. The development of Quantum mechanics
has led to several fundamental concepts. The most important of them are:

discreteness of energy

the wave-particle duality of light and matter, and Heisenberg's Uncertainty Principle.

The spectrum of light emitted from energetic atoms is composed of individual lines of colour. It is not continuous. These individual lines represent the discrete energy levels of the electrons in those excited atoms. When an electron in a high-energy state jumps down to a lower one, the atom emits a photon of light, which corresponds to the exact energy difference of those two levels. Thus energy is not released as continuous emission, but in certain bundles called quanta. When an electron jumps from one higher state to the lower-energy state, a photon is released having the energy equal to the difference between those two states. It is this principle, which has given the name Quantum Mechanics to the study of the atomic particles and radiation. It is also the fact that electrons can only exist in some discrete energy states that prevents them falling in the nucleus.

The second important component of the Quantum mechanics is the duality of electromagnetic radiation. In 1923, Loui De Broglie hypothesised that a material particle could also exhibit wave-like properties. In 1927, Davisson and Germer showed that electrons could behave as waves indeed. On the other hand, light was also exhibiting particle like behaviour. It necessitated the duality of light, which sometimes behaved as wave and sometimes as particle, It was argued that light actually acts as a particle and the wave in fact represents only the probability of finding it at a certain position.

The third important constituent of the QM is the Heisenberg's uncertainty principle, which states that the position and momentum of a particle cannot be measured simultaneously with precision. This was because, at least one photon was required for measurements, and that photon would change the position and velocity of the particle. If we shorten the wavelength, the measurement of position becomes more precise and that of momentum less precise, and vice versa.

Quantum Mechanics led to huge debates, as it challenged many of the previously held philosophical views. Uncertainty principle was presented as representative of the objective uncertainty of nature. It was advocated that one cannot know the truth of nature, as uncertainty is inherent in nature. This and the wave-function-collapse, the formulation of Bell's inequalities and subsequent evidences that they are violated caused an enormous controversy over determinism. It was argued that Quantum Mechanics proved the indeterministic nature of nature, a position that was aggressively opposed by a number of scientists, led by Einstein. He once wrote to Born,

"The quantum theory provokes in me quite similar sensations as in you. One ought really to be ashamed of the successes, as they are obtained with the help of the Jesuitic rule: 'One hand must not know what the other does.'"

The great debate reached a flash point in Copenhagen Interoperation with Bohr being its chief architect. Describing the basic premises of the Interoperation, Darrell Rowbottom says:

"….there are certainly salient characteristic features that most physicists would understand as being 'Copenhagen' in origin:

It is assumed that the wave-function is a complete description of the quantum mechanical state of an individual system or an ensemble of systems prepared in the same fashion. …..To be more direct, this is a statement that any parameters in addition to the wave-function, which would further specify a quantum mechanical state, are not necessary. Feyerabend agrees, in his description of this interpretation 'A quantum system does not possess any properties over and above those that are derivable from its wave function description.'

Complementarity between particles and waves is introduced; a quantum entity is described as either a particle, or a wave, depending upon the circumstances. ....My favourite definition of 'wave-particle duality', put forward by Tipler, is: 'Everything propagates like a wave and exchanges energy like a particle'. Bohr's definition, however, was not nearly so precise; he made no reference to situations other than interference experiments in his discussions and furthermore, as Jammer notes: 'Bohr never gave a clear-cut explicit definition of the term "complementarity".' It is important to emphasise that Bohr, himself, did not necessarily believe that it was correct to refer to a quantum mechanical entity as being either a wave or a particle, but rather it was the best way to discuss them in terms of established classical concepts: 'The quantum theory is characterised by the acknowledgement of a fundamental limitation in the classical physical ideas when applied to atomic phenomena. The situation thus created is of a peculiar nature, since our interpretation of the experimental material rests essentially on the classical concepts.' …Nonetheless, it should be noted that the two classical concepts of 'wave' and 'particle', in the sense which complementarity employs them, are considered to be mutually exclusive. But why should we try to explain quantum mechanical entities in terms of just these classical ideas? This is an arbitrary decision, which proves to be restrictive. As Home correctly points

out: 'It is… possible to go beyond Bohr's wave particle complementarity by not adhering to classical pictures but still retaining visualisability in terms of wave and particle amenable to an event-by-event realist description.

Any apparent interpretation problems that are based on classical thought are dismissed as being 'wrong'. Squires elucidates, 'If we abandon them then we will have no problems. Thus questions which can only be asked using classical concepts are not permitted.' This statement should not be seen to imply that classical physics cannot be considered, in principle, to be a 'special case' of the quantum mechanical theory. No explicit attempt is made to say that the correspondence principle is invalid; thus we are still permitted to expect that the results of quantum mechanics will reduce to those of classical mechanics at a certain parameter limit. The foremost analogy of such a 'classical limit' is the reduction of special relativity to Newtonian Mechanics in the limit of velocities, which are a small fraction of the speed of light, such as those experienced in daily life on Earth.

An anti-realist stance is adopted, and the results of measurements are taken to be the only valid concern in quantum mechanics. In fact, a broader statement is implied, that physical theories should only be concerned with predicting reproducible results that can be empirically tested; this approach mirrors that of the logical positivist 'Vienna Circle', which was very philosophically active in this period. In the words of Bohr: 'The entire quantum formalism is to be considered as a tool for deriving predictions.' …No direct comment is made regarding the physical reality of fundamental particles, or their properties such as mass, charge, or spin. On the contrary, as Home explains, it is assumed that there is 'no physical reality to dynamic properties (position, velocity, energy) of a quantum system, unless they are measured'.

The act of measurement itself is conveniently ignored; no credible explanation of what constitutes a measurement is included. Bohr himself relied on the explanation that the measuring apparatus was 'classical'… 'The essentially new feature in the analysis of quantum phenomena is… the introduction of a fundamental distinction between the measuring apparatus and the object under investigation. This is a direct consequence of the necessity of accounting for the functions of the measuring instruments in purely classical terms.'

In the Copenhagen Interpretation, it can be argued that Quantum Mechanics is considered completely separate. Copenhagen Interoperation was in fact a work of the ideology of Bohr, who went on to say:

"'There is no quantum world. There is only abstract quantum physical description. It is wrong to think that the task of physics is to find out how nature is. Physics concerns what we can say about nature.'

Einstein was a great opponent of Bohr's ideas. Describing their debate over the issues related to Quantum formalism, Home sums it up:

"Bohr's pragmatist thesis was too anthropocentric for Einstein. Einstein held that the primary aim of physics is to construct theories that "approximate as closely as possible to the truth of physical reality." For Bohr however the main task of physics is to enable us to make sense out of our empirical or perceptual experience. He did not contest that our experience is of an independently existing physical world, but unlike Einstein, Bohr was reconciled to a non-realist and acausal representation of quantum events in terms of a self-consistent, mathematical formalism.' Darell Rowbottom says, "Like it or not, the aggressive tone with which I refer to both Bohr, and his vain 'interpretative' attempt, is unashamedly intentional. The Copenhagen interpretation is not really an 'interpretation' at all, in any meaningful sense of the word. It is simply not acceptable to say 'Do not ask that question', and give no logical reason why the question cannot be asked; this is the behaviour that one would expect of an irate secondary school teacher. Deception and illusion, smoke and mirrors, these are the tools that are employed by the anti-realists in this curious intellectual game. If Bohr and his cohorts truly believed that the purpose of physics is only to gain predictive power, then why bother wasting time in adopting an 'interpretation'? Merely to satisfy the 'ignorant'? Is it not indicative of the dishonest nature of this entire process that, rather than make a clear 'Copenhagen Dictum', which would presumably have stated 'Get on and do the maths', the adherents to this orthodoxy instead entered into a misleading discourse designed to 'comfort' its victims? This wasteful exercise in 'swings and roundabouts' only served to convince scores of intelligent people that it was simply safer to toe the line than it was to question High Priest Bohr, or his flock."

Einstein was disillusioned with Quantum Mechanics, as he did not like the idea of abandoning the Locality, Causality and Determinism. He also tried to support his ideas through an experiment, called EPR Paradox. But the idea of locality was constantly troubling the quantum physics. Bell's theorem, published in 1964, braved a very strong challenge to the locality. Bell proved that the idea of locality was not compatible with the Quantum Mechanics, as there seems to be a faster than light influence on very distant events. Rowbottom says,

"With the realist approach that I advocate, it should be of no surprise to the reader that I find these

results, which are widely accepted as being correct, to be of serious concern. They could be perceived to be an indication that we must abandon not only the concept of locality, but perhaps ultimately determinism or causality, in our pursuit of a description of physical reality. For, furthermore, this type of non-locality is independent of the distance between the particles involved; it implies that a physically real description of quantum entanglement would involve a potentially 'faster than light' connection between the entangled bodies."

It is clear from the above that Quantum Mechanics produces several problems, two most important of which are that it challenges the concept of locality and that it talks of uncertainty, which like a black cloud shrouds the great concepts of classical physics, causality and determinism.

Let us now try to evaluate the situation after the UTR proposed in this work. The UTR is based on three basic concepts: (1) that light-speed is not the maximum speed present in the universe, and there may be faster modes of the communication of influence; (2) that the universe as one single body (Uniglobe) is also rotating on its axis with speeds in a significantly large zone of the universe much, much greater than that of light; and (3) that the propagation of gravity takes place at a huge speed, in the range of the square of the speed of light.

This theory immediately sets in to have a huge influence on Quantum Mechanics. This instantly slaughters the Bohr's view that classical and quantum mechanics are independent of one another. This is because the extraordinary speed of the rotation of the universe would create a massive impact on the particles inside the atoms in contrast to the slow speeds of the earth or galaxy. The UTR sees the Universe as a single entity apart from the collection of its constituents. Quantum Mechanics can therefore not be separated from the classical one. Both will remain very much parts of the greater picture, which in the UTR comprises four, not three, important constituents: Rotation of the Universe, Classical Mechanics, Relativity and Quantum Mechanics. The rotation of the universe will have more pronounced effect on the atomic particles because of the ability of some of them to move very fast, and spin, their miniature sizes and their microscopic orbits. The macroscopic objects, like the earth, have very large size and their deviation (due to the gravitational effects of the Sun) from theirs running along with the rotation of the universe are very slow. But the microscopic particles move very fast, and their directions change extremely rapidly. The fundamental property of the particles to move as fast as possible will not allow them to fall into the nucleus. This effect may be the only reason or the additional one apart from the commonly understood reason, which is the iscrete nature of energy that stops electrons from spiralling to the nucleus. This hidden movement of the particles along with the rotation of the universe may be responsible for certain uncertainties. It is possible that when this is worked out in detail, the uncertainty will be found diminishing.

The relationship between the universe as a whole, and its components, with the microscopic world is extremely important, not incomprehensible as some Quantum theorists led by Bohr thought. The universe may be compared with the world with the atoms being the unit houses. The way the social and geographical world is composed of regions, countries, provinces, cities, colonies and houses, the universe of physics consists of the Magagalaxy/s, superclusters, clusters, galaxies, star systems, planets, molecules and atoms. Every component has its own unique system in addition to the one that prevails everywhere. Thus the universe has a federal kind of system. But the universe as a whole retains several significant powers. Atoms and the particles within them cannot be separated or isolated from the universe; they may have their unique system of forces, but they are also influenced by the universal forces like the gravity and electromagnetic radiation. There may be other forces that may not have been explored so far. The rotation of the Uniglobe requires a close connection between all the constituents, which alone can make the rotation of such a huge body possible.

It may shock some readers but I have to say that the universe comprises small particles rather than that the universe is composed of the particles. One may fail to immediately appreciate the difference between the two. But when one ponders it with a little deeper contemplation, one can note the difference. The difference is the same as between saying that "He is their father" and "they are his sons". Both may sound to mean the same, but from a chronological or historical point of view, the former is more correct than the latter, because, he was present before them, and it is he who fathered them, rather than they who chose him as their father. It can be argued though that he too had no authority in choosing his children. But this is another question that belongs to a different field. However, in terms of Quantum Mechanics, it is to be understood that the universe started functioning as an entity before the microscopic world started making its appearance within the universe. Repeating the above-mentioned example, it will be more correct to say that "the children are like the father" rather than that "the father is like the children." The QM is the product of the universe; its particles gained energy and mass and all other properties due to the rotation of the universe; and therefore, the rotation of the Uniglobe has to be taken

into account to understand the mysteries of the Quantum world.

The other important question in the QM is that of locality. In the UTR, locality too will acquire a new meaning and status. The UTR says that there can be and there are many influences travelling much faster than light, but instantaneously acting forces are prohibited. We are therefore midway between locality and nonlocality. Nonlocality in terms of the Einstein's theories of Special and General Relativity will have to be abandoned forever in favour of the Universal Superlocality introduced as one of the implications of the UTR. If Einstein's locality breaks down in Quantum mechanics, it is because Einstein's theories put a bar on the highest possible speed of any information, which cannot travel faster than light. There is no such bar in the UTR, which proposes that the speed of gravity is as high as of the order of the square of the speed of light. Thus, the electrons can know about each other almost instantaneously (not absolutely instantaneously) about distant electrons. This would explain the breakdown of locality, but there will be no breakdown of universal superlocality. Locality is a constant thorn in the flesh of QM, and many believe the two are not compatible with each other. Rowbottom says:

"So which of the two remaining options is it that I propose to take? Well, as I have already explained, the successes of the formalism imply that is should be altered only as a last resort; such alterations are, moreover, outside the scope of this dissertation's title. It would seem, then, clear that I should agree with option (b), and 'accept that a realist model of quantum mechanics must be non-local'. Indeed, my conclusion is the same, but with one important proviso." Prof. Home agrees with him, "You are correct in saying that what I meant to imply (perhaps I was not very clear)… is that in order to reconcile with the observed violations of Bell-type inequalities one needs to give up one of the "macroscopic" or "classical" prejudices." Then Rowbottom remarks:

"The choice to abandon locality, which I indeed support, is based upon 'weighing up' the relative advantages of each macroscopic prejudice, respectively, and reaching the conclusion that locality will require the least intuitive effort to sacrifice. Non-locality is also the most appealing choice because of the work which has already been done in this direction, by de Broglie-Bohm."

It is therefore the most feasible option that locality must be abandoned and Superlocality must be introduced so that instantaneous actions do not become possible at any level within the universe. The UTR will thus prove to be a philosophical saviour of Quantum Mechanics. The UTR has made it automatically possible to preserve most of the classical "prejudices" including causality and determinism, and has only given a new status to locality.

It is clear that Bohemian ontological interpretation is much better than the Copenhagen Interpretation. Asserting this position, Rowbottom says,

"I believe that the Bohemian ontological interpretation, combined with environment-induced decoherence, is decidedly superior to the Copenhagen Interpretation. At a small, but necessary cost, namely the sacrifice of locality, we can obtain a real description of quantum mechanics that will serve to satisfy our intuitive needs, and allow us to relate our experience in the macroscopic world to that which occurs in the microscopic domain.

"The other supposed 'price' is the adoption of a 'quantum potential', but I contend that this is entirely acceptable in the circumstances. My 'practical realism' speaks of introducing 'supplementary concepts…, (which) answer more philosophical, and physical, questions than they ask'. In this case, we have managed to retain the objective reality of position and velocity, the principle of determinism, and the principle of causality. As I mentioned, towards the beginning of this dissertation, physicists were willing, for hundreds of years, to accept Newtonian gravity's implied 'action at a distance'; is the 'quantum potential', then, really any different? Is it not possible that this 'apparent problem' will be resolved, in times to come?"

Bohm rightly took the view that the abandonment of causality had been too hasty:

"…..it is quite possible that while the quantum theory, and with it the indeterminacy principle, are valid to a very high degree of approximation in a certain domain, they both cease to have relevance in new domains below that in which the current theory is applicable. Thus, the conclusion that there is no deeper level of causally determined motion is just a piece of circular reasoning, since it will follow only if we assume beforehand that no such level exists."

Furthermore, the uncertainty principle implies that a particle can never be at rest, but is subject to constant fluctuations even when no measurement is taking place, and these fluctuations are assumed to have no causes at all. This is clearly understandable in the UTR. The UTR has declared it as the most fundamental property of any particle that it cannot exist at rest, and tries to achieve the maximum speed possible to move along with the rotation of the universe. The particle therefore tries to move out towards the periphery of the universe, and its movements are impeded only by its own weight and the influence of the bodies around it. The influences on the

particles in the atom are too great to let it break that barrier in order to travel independently with the rotation of the inverse. But it is free enough to fluctuate inside the atom. These fluctuations are not independent of any external influences as the standard quantum theory believes, but are definitely due to the rotation of the Uniglobe.

Uncertainty Principle says that the position and momentum of a particle cannot be measured simultaneously with precision. For example, there is no guarantee where a positron or electron will be in the orbit or which direction will it adopt if it moves in a straight line. Let us examine some facts:

The Universe is moving as a whole. So the zone in which we lie is also moving with tremendous speed. 420000 kms/sec) in more or less a straight line owing to the vast size of the universe. Now in 24 hours, the earth rotates 360 degree. That means, in one hour, it rotates 15 degree, and in one minute, 1/4 degree. Now if an electron is experimentally moved in one direction, say at 6.00 AM, due to the motion of the universe in a specific direction, it will tend to move in that direction. Now, if the same experiment is performed at 8.00 PM, within two hours the earth is rotated about 30 degree. It means, the direction of the motion of the universe is now 30 degree different from the previous position. So, the electron can now move in a direction about 30 degree away from the previous one. Not only the direction of the electron will keep changing, the direction of photon that would measure it may change a little. In the macroscopic world too, this would happen, but the larger gravitational attraction between the earth and the objects will not let the change be pronounced. Also, the macroscopic objects have much smaller speed than the microscopic particles. Therefore the speed of the zone plus the speed of the macroscopic object will not change much. The speed of the zone plus the speed of the particle on the other hand will cause much larger effects in different directions.

The Quantum Mechanics strengthens the case of the UTR, as it talks of two possibilities, both of which can be explained only by the second postulate of the rotation of the Uniglobe. One of them is Bohm's Implicate Order. Bohm rejects the assumption that wave-function collapse gives the most complete picture, and avoids the notion of the collapse altogether. Bohm's ontological interpretation assumes the existence of real particles, which are complex structures, and are always accompanied by a quantum field. It argues that these particles are not only acted upon by the electromagnetic forces but also by what is called the Quantum Potential. It is this potential that carries the information and provides nonlocal connections. It corresponds to the Implicate Order, which is like a vast ocean of energy on which the physical world is just like a ripple. The Standard Quantum theory, on the other hand, points to a universal quantum field—the quantum vacuum or zero point field--underlying the material world. The energy density of this quantum vacuum is estimated to be about 10-108 J/cm2. The rotation of the Uniglobe will help in better understanding, which of the two seems to be the better approach.

There cannot be a more preposterous logic than that the Quantum Mechanics demonstrates a detachment between the microscopic and the macroscopic worlds. The crossroads where the present physics seems to be stuck at the moment leaves an unmistakable impression that the two are separate indeed. If the Quantum Mechanics were accepted as different from the macroscopic world, it would only mean that our world has two faces; the outer and greater picture is entirely different from the inner and smaller picture. This is like saying that a living being is totally different from its cells. The problems we face today in reconciling the two is basically the result of the philosophically unfounded principle of locality, which has outlived its utility as a genuine limiting principle in the physical world. Light cannot be allowed to adorn divinity, which turns its small speed into an infinite one for all practical purposes. Light-speed barrier is an artificial barrier erected by Einstein's mind. Physicists have unfortunately turned this barrier into a wall that cannot be scaled. This is despite the accumulating evidences at the microscopic as well as the macroscopic level pointing to the brittle nature of the foundation of this wall. To talk of light-speed as the fastest possible speed is as to talk in the tenth century of the speed of the horse being the fastest achievable speed on the earth. Furthermore, the set of laws in the larger world cannot be different from the set of laws governing the inside of its constituents. This is another matter that the significance of different laws assumes different proportions at different levels. The genes functioning within the cells have no parallel in the macroscopic world. But this does not make cells a different world from the world of living beings. Bohm's endeavours to bring in the two closer, is admirable, but he has not succeeded in presenting a plausible ground for his ideas of Quantum Potential and Implicate Order. What brings this Implicate Order into action? The Universal Theory of Relativity will
not only make the microscopic and macroscopic worlds as inseparable parts of the same system, but will also give a plausible ground to this organisation. The universe will not remain a passive container where the constituents are fleeing away, as if they are scared of the presence of one another. The constituents and the constituents (microscopic particles) of the constituents

(macroscopic structures) will not remain unaware of the properties and characteristics of one another. The Universal theory of Relativity will make everyone indispensable for the gigantic system. They will become inseparable parts of the universe, each of them significantly contributing within its own domain to the overall organization and functioning of the Great Empire. The Uniglobe will have an axis, the axis that will make it an enviable Kingdom, worthy for all of us to follow in our social world.

6. Determinism

Determinism denotes the world is governed by laws, and the future can be predicted on the basis of events in the past. This means what the world is today had in fact been determined much earlier; to be more precise just when the universe began to make its appearance. Under the assumption of determinism, one might say that given the way things have gone in the past, all future events that will in fact happen are already destined to occur. According to Laplace, "We ought to regard the present state of the universe as the effect of its antecedent state and as the cause of the state that is to follow. An intelligence knowing all the forces acting in nature at a given instant, as well as the momentary positions of all things in the universe, would be able to comprehend in one single formula the motions of the largest bodies as well as the lightest atoms in the world, provided that its intellect were sufficiently powerful to subject all data to analysis; to it nothing would be uncertain, the future as well as the past would be present to its eyes. The perfection that the human mind has been able to give to astronomy affords but a feeble outline of such intelligence."

Determinism in Physics has very well established roots. This is one of the major principles of Classical as well as Relativity physics, and is sometimes referred to as one of the classical "prejudices" along with causality and locality. In QM, probabilistic outcomes play a major role, and future events cannot be predicted precisely. However, Bohemian Quantum Mechanics has clearly established that, if locality can be abandoned, QM can become deterministic in nature. Even otherwise, probability should not be viewed as the opposite of determinism. If a certain
outcome is more probable than others, it indicates a certain amount of certainty. The outcome is not wholly, at random. If it can be predicted that the probability of finding an electron at a certain place is greater than at other places, it clearly shows a preference. If a formula can be derived to indicate this preference, this must obviously have a reason. If we know the reason, we can become more certain. The Universal Theory of Relativity may help in finding that cause because it has added several new dimensions to the theory of Physics. I am not a mathematician and I don't intend to involve myself into it. But I am confident that the new features of the UTR will help reduce that uncertainty to a remarkably low level. The rotation of the universe has to play an important part in the events occurring at the quantum level also.

Locality and determinism are also dependent on each other because if actions are instantaneous without any time lag in between, it cannot be determined, which caused which. Quantum Mechanics is now regarded as nonlocal. The UTR however makes it possible to preserve determinism by abandoning locality in Einsteinian terms and replacing it with superlocality. The UTR establishes that light speed is only rigid and not constant, and has given a formula for gamma that makes it possible for the matter to travel faster than light. The theory has also postulated that the Universe as a whole (Uniglobe) is rotating on its axis and a huge portion of the universe is rotating with a speed faster than light. Furthermore, according to the theory, gravity has to travel at much higher speeds than that of light to enable the world to continue with its existence. Thus, Quantum Mechanics becomes superlocal rather than nonlocal. The actions in one part of the world would continue to influence the actions in other parts, and the cause and effect will preserve their sanctity. But all these influences will become much faster than the current physics visualises. Determinism will become not only rapid but more meaningful. Because, in the present state of Physics, while the ability of the past events to affect the future is surely very much there, this ability becomes highly restricted on account of the slowness of the speed with which they can influence others. This also means, in reality, it is erroneous to assume that a certain event has happened in the past; for though it may have happened in the past, for practical purposes it will occur in the future for a distantly lying object. For example, what has happened on the Sun one minute before will actually happen for the earth after 7 more minutes.

By putting a bar on the speed of information or influence, which is a very slow speed in the backdrop of a huge universe, Einstein's theories have not strengthened but weakened determinism. What we see as its result is that, soon after the Big Bang, the portions of the universe start distancing from one another, not only in terms of their physical positions nut also on terms of their ability to influence one another. Soon, most of the components of the universe get so far from one another that it requires not minutes, hours, days or weeks but years for them to communicate with one another. There are huge regions, which require not tens or hundreds but thousands, even millions and billions of

years to know about their well being. Effectively, it can be said that if light-barrier is real, the universe's collective existence has no meaning at all; for objects only lying in close vicinity are physically capable of influencing one another, positively or negatively. The universe's status then becomes of the ancient human society when men and women belonging only to their village or tribe were in position to interact. The universe at a collective level will then emerge as a very backward organisation, where there is hardly any communication between various regions. This is an awkwardly unceremonious proposition to believe; for the universe then cannot even be called an organisation, as every organisation needs a regular communication between at least most of its members. If the news of the death of a star takes millions of years to reach the other stars who cannot even shed a few tears on the death of their fellows, the life of the universe loses the very foundation of collective existence. This makes Einstein's position ludicrous. On the one hand, he has an unshakeable faith in Determinism and is not ready to accept any theory as a complete theory if it violates it. On the other hand, he makes determinism lame by making it unable to move with a significant speed. As a natural corollary to that the principle of cause and effect lose its raison d'être. Theoretically, we can claim that one event is the cause of another event that preceded it. But practically, we delay the effect by drastically curtailing its velocity. The information or force or influence of any kind from the causing effect will only crawl at the speed of light before it reaches its destination changing it the way it wanted to, or the way the affected object wanted to be changed a long time back. What meaning would then causality have? The picture that emerges is of a universe in which a present event may have been determined a long time back in the path of its history, but hardly by events that lie outside the path of its history. In totality it can be said that the present state of the portions of the universe is only the effect of a tubular past leading to the Big Bang, and it has hardly any effect of what has been happening in the rest part of the history of the universe.

There is no time for others to take care of one another, or even say "hello," as this hello will take so much time that it would hardly reach the one for whom it was intended. The world thus becomes totally disorganised and individualistic; it is reduced to a mere container of selfish individuals with no desire or ability to communicate with one another. But is this the real universe, we know? The universe that stares us is far from that disorganised state of affairs. It seems to be well-organised and well-knit unit. Its constituent parts seem to be constantly in touch with one another. They do not appear to be unconscious of one another's presence; they seem to form a universe that seems to be in a perfect state of harmony, a harmony that cannot be there without mutual trust and knowledge of one another's' limitations and capabilities.

Compare this picture of an unsociable type of the universe with the image of the universe that emerges as a result of the application of the Universal Theory of Relativity. Determinism gains enormously in strength in the new theory, for the objects of the universe do not seem to be as far away from one another as in the GTR. The principle of causality is not as meaningless, and of little practical utility, as in the current physics. The distance between different constituents of the universe may still be the same in terms of kilometres. But their proximity is far greater in terms of their ability to communicate with one another; for there is no curb on the speed of information that is exchanged between them. They are not merely dependent on the tortoise of light; they also have the horse of the gravity, which runs hundreds of thousands times faster than the tortoise. And there is no bar on having even faster means of communication. Whether they really have any is a matter of speculation. For any event to affect another event it has not to wait for thousands of thousands of years; it can do the same within months or hundreds of years; even less if there is an unknown faster means of communication. The horizon of the ability to influence within one second increases hundreds of thousands of times, if the gravity is the means of communication; even more if there are other means hitherto unknown. It is not the tubular history of past events that would affect an event at present or in the future, but a more spherical and wider sum of histories. These histories, unlike the case in GTR, will not necessarily go back to 10-35 second just after the Big Bang, but to almost all the areas of the universe. The universe thus becomes a much better organised social and collective unit; it is not just the individuals that matter but the whole world that plays a role in its functioning. The universe is not merely a land having different tribes or villages
not connected to the outside world but a globe having a state like system.

It can be said that the causality and determinism in GTR are local, because nothing can be nonlocal; in the UTR they are not nonlocal but superlocal.

There is another remarkable feature that the Universal theory of Relativity presented in this book adds to the causality. Max Born (1949) stated three assumptions that dominated physics until the twentieth century:

"Causality postulates that there are laws by which the occurrence of an entity B of a certain class depends on the occurrence of an entity A of another class, where

the word entity means any physical object, phenomenon, situation, or event. A is called the cause, B the effect."

"Antecedence postulates that the cause must be prior to, or at least simultaneous with, the effect."

"Contiguity postulates that cause and effect must be in spatial contact or connected by a chain of intermediate things in contact."

What are laws? Aronson, Harré, and Way (1994) say:

"Laws are invariant relations between properties. We have argued that judgements of verisimilitude are based on similarity comparisons between the type of object referred to by a scientist and the actual type of the corresponding object in nature. The relative verisimilitude of laws can be thought of in the same way, namely as the degree to which the relationships between properties depicted in relevant theories resemble the actual relationships between properties in nature"

In the currently accepted version of Physics, causality the way it is understood has become geriatric. The ultimate cause was the Big Bang event, when the laws were already formed that will determine every single event in the future universe. The laws that hold today are the same laws without any change whatsoever. Despite such an old age, how they are surviving is not known. What causes them to maintain their sublimeness? Why does a law like the second law of thermodynamics not affect the life of the laws themselves? When everything else degenerates or gets recycled or undergoes evolution, why not the laws? If it is these laws that lead to the evolution and then degeneration and/or recycling within the universe, why do they not degenerate themselves? How come they did not undergo a phase of evolution themselves instead of appearing within an extremely minute fraction of the first second? Who made them, and who sustains them?

The UTR changes the whole picture in an entirely novel way. The properties of the matter and the laws governing them did not come into existence at a certain point, and then continued their existence on their own. It was not that God chose the laws at the time of the Big Bang, or laws appeared themselves, and then they would continue to exist as they were forever. The UTR informs that the whole universe rotates around its axis. It is this rotation that causes the universe to continuously exist. The properties and the laws of nature are ultimately all the result of the rotation of the Uniglobe. This position has a very interesting impact on the understanding of causality and determinism. If the present events are being caused by the events in the past, it is not merely due to that fact that the past events were responsible for the present. It is also because the continuing rotation of the universe has made it possible for the laws and the properties to survive between the past and the present. The causality and determinism are therefore continuous; they were not created once at the Big Bang, but are being safeguarded incessantly through the sustenance of the universe by its rotation. So, all causes are unified in one cause, and that one cause is being controlled by an external agency, the most Powerful, Greatest and Wisest God. If the determinism is real, it is on account of the specific properties of the space and time, such as mass (both gravitational and inertial), inertia, energy, etc, and laws such as laws of gravitation, electromagnetism and quantum mechanics. If the matter has mass and energy, and it is governed by certain laws, it is not because these are inherent in the matter or in the universe, or they had been created once in the past to exist forever. On the contrary, it is because they are the effects of the non-stop, smooth, orderly and regular rotation of the universe. Causality is therefore Continuous. As soon as the Final cause, that is the rotation of the universe will stop, at the behest of the Power that regulates it, all the effects will cease to happen. The matter will lose its properties, the laws will no longer be functional and energy will become unavailable. In short, the universe will become dead. Cause and effect will have no existence.

What is happening on the earth is not being resulted from a single cause. It is the combined effect of the numerous causes, and all these causes and effects are ultimately the result of One Cause: the rotation of the Uniglobe.

7. The Ultimate Picture

The landscape of the knowledge of the universe that emerges in the wake of the Universal Theory of Relativity is vastly more picturesque than what we have been enjoying till now. The universe viewed in the light of General Theory of Relativity and Big Bang Cosmology is a passive, clumsily stark looking collection of individual groups of matter. Quantum Mechanics makes it even more shambolic by shrouding it in the dark clouds of uncertainties. The universe itself appears to have hardly any dynamic existence. It seems to be a universe, which was in a highly excited state at the time of Big Bang, but has since then lost its virility; it has willy-nilly bequeathed all its properties to the material that it contains without retaining anything for itself. The sphere of the universe itself continues to expand without anything adding to it except an increasing emptiness in space. It is becoming more and more hollow with the ticking of the clock; its hollowness is making the components of the world strangers to one another with every passing moment of time, because galaxies are falling apart from one another.

The distance between all the parts of the universe is growing but the vehicle of communication, that is available to them, is limping with the same old velocity. The space is continuously growing, and growing fast; where it is coming from, nobody knows. The expansion of the universe is not expanding its wealth, resources and means; the communication is getting harder, the overall density is declining and the matter is huddling into ghettos. God has either been banished to a place from where He cannot regulate or control it, or has been converted into a nominal Head of a defunct State soon after the first tiny fraction of the second of the beginning of the creation. Even if He is there, He cannot play any discernible role. There are many, of course, who are not ready to assign anything or any role to God, in the past, present or future, declaring Him to be the creation rather than the creator of the creatures.

The Universal Theory of Relativity rescues the universe from this sorry state of affairs. This theory resuscitates it, as an entity in its own; it is excitingly lively and systematic. Its components are neither selfish individuals who do not want to connect with others, nor ignorant creatures that have no means of knowing about one another. They are individuals, but they also belong to different tiers of organisation, and ultimately they are the active citizens of an active State of Uniglobe, which has a unique King. They are the part and parcel of a fraternity that knows its aims and objectives. The Uniglobe provides them the raison d'être by rotating relative to a preferred frame of reference that surrounds it, and as grateful recipients they are ready to be the denizens of the universe significantly contributing in all its activities.

The chief foundations of the modern Physics comprise the two mutually contradicting theories of Relativity and Quantum Mechanics. One argues that there can be no communication faster than that of light, the other vehemently challenges it by apparently enabling particles to communicate at much higher velocity. Nevertheless, Einsteinanism rules. This is despite the fact that Einstein himself accepted that light constancy was logically difficult to explain but empirically proved by experiments. Ironically, in his development of the special and general theories, he depended on empirical facts, but did not accept the same logic in Quantum mechanics, where he insisted on refuting the experimental results on the basis of his idealism, founded on the empirical constancy of light. The question here is: can anything empirical be illogical? Whatever we observe as the results of experiments has to be based on certain laws, and even if our experiments or we differ from what is actual or real there has to be a basis of this difference. There was nothing diabolical with the empirical "constancy" of light-speed. The absurdity is the unexceptionable fascination Einstein developed for light, turning constancy into an absolute dogma that gives light a sheet anchor role. Taking a clue from Scriptures perhaps that often describe God as "Light", he too started believing light as divine. This resulted in his giving a kind of absoluteness to light that was only a prerogative of God. He had developed an unshakeable belief in his heart and mind that nothing can surpass light in attributes. This was evident in his total approach in the development of the infrastructure of physics. He made the light-speed constancy as the foundation stone of the edifice he wanted to construct. This, not his idea of cosmological constant described by him as "my greatest blunder", was in truth his greatest folly. There is no logical reason why a small speed like that of light—small in the backdrop of the gigantic universe—can be accepted as the maximum. It was perhaps his belief in the absoluteness of light that he devised a formula for gamma that had the stamp of divinity for light. It made impossible for anything to travel faster than the electromagnetic wave-particle. It positioned light as the Final Criterion relative to which all speeds would be measured and all the properties of the matter would change. This is also perhaps the reason that he used c2, instead of a numerical constant, in his famous mass-energy equation. Does that not mean that he might have believed everything was created ultimately of light? And as nothing has so far been proved beyond to travel faster than light, no physicist has dared challenge his ideas. The increasing likelihood of the nonlocality of quantum mechanics, the apparent faster than light speeds of quasars, the faster than light initial expansion of the universe—all these evidences have faded before Einstein's thunderous claim. Physicists have simply prostrated before the idol of Einstein.

But, how long? Einstein's dominance on physics continues because there have not emerged alternative ideas that can provide the philosophical basis for a new theory of Physics. The Universal theory of Relativity hopes to initiate filling of that vacuum by providing an alternative philosophical basis to Physics. Its postulates are logically easy to understand, and have experimental evidences to support them. These evidences will grow in quality and quantity when physicists would take a fresh look at the foundations of Physics in the aftermath of the presentation of this theory. The philosophical discussion will enter a new phase, where physics would ultimately stand on the same podium to express its viewpoint on which metaphysics stands. God will be recognised as the True Lord of the Universe, who holds the ultimate reins. The origin of the universe will

become a more interesting field of sciences, and the fate of the universe will be debated with a sense of purpose that seems to be currently missing. Knowledge itself will emerge as a new incarnation; it will be better equipped, healthier and stronger.

There are many questions that have to be answered. As the theory of Physics stands today, there is still doubt why the universe does not fallback in the centre because:

According to theories of gravity, mutual attraction between the particles would lead to the collapse of all the matter in the centre, and the Uncertainty Principle leads to the conclusion that even empty space is filled with pairs of virtual particles and antiparticles. These pairs would have an infinite amount of energy and therefore they would have an infinite amount of mass. That will curve the universe to an infinitely small size.

The Universal Theory of Relativity will solve these problems in a very simple way. Its postulates of the rotation of the Uniglobe and the principle that everything seeks to achieve the highest possible speed along with the rotation of the universe better explain why the matter does not collapse in the centre. And in the UTR, there is no admission to infinity; there cannot be infinite energy or infinite curvature of space-time in the centre.

The Universal Theory of Relativity remarkably strengthens the gravity so that it becomes a truly important performer in the affairs of the universe. Physicists have always realised the importance of gravity because of its ability to act at long distances and its unique nature of always being an attractive force. But they have not been convinced about the way in which it functions. Newton thought that gravity acted instantaneously, but Einstein made it paralysed by putting a bar on its speed, which cannot be more than that of light. But, due to its ability to influence the distant objects, Einstein had to take the help of Geometry to let it function without disturbing his self-created barrier of highest speed. The UTR has reactivated the gravity by providing it a faster vehicle to travel. It will now be
easier to understand the nature of gravity and the role it plays in the administration of the universe. Geometry may still be required to understand it but faster communication will make it easier to understand it as a force to reckon with.

It will also be noted that, while Einstein talked of relativity, there are no more than a few evidences in the current physics to observe the relativistic changes that his theory visualises. The relativistic speeds are not anywhere seen, except in the expansion of the universe itself in some areas, which is ironically regarded as the speed of the expansion of space and not that of matter; matter is only dragged with the space. Moreover, there seems to be very little practical utility of the relativistic changes in understanding the universe as a whole, as the relativistic effects become pronounced only when the speeds become very close to the light speed. The use of the relativistic changes in understanding the origin of the universe has in fact only further confounded it; it has produced singularities, which like their infinite nature pose infinite problems. The Universal Theory of Relativity, on the other hand, makes relativity an effective player, and without causing the infinite problems of infinities. This is a remarkable achievement indeed. The UTR does not challenge the idea of relativity that Einstein proposed but makes it more plausible by reinterpreting the empirical constancy of light. The Uniglobe is rotating with relativistic speeds, except perhaps in the innermost zones. There are areas where relativistic effects, in accordance with the new gamma rather than that presented by Einstein, must be noticeable. They will be seen as having considerably younger age. The Universal theory of Relativity will make it more understandable why the universe looks isotropic and homogeneous in all directions but not of the same age.

It has to be stressed here that physical laws are only qualitatively not quantitatively identical in all co-ordinate frames all over the universe. The velocity with which a man can throw a ball upwards is different for different planets and moons. The value of gravity keeps changing from one place to the other. The UTR tells us that time is moving with different speeds in different zones of the universe. Even the mass and energy related with particles differ from place to place, depending upon the distance from the axis. Chemical and biological laws may take different forms in different areas. Radioactivity may be lesser in faster moving zones. Elements having higher atomic numbers may form there. Chemistry may be more stable. The nuclear reactions in faster zones would produce more energy than the slower zones.

Dark Energy was a wild idea before but has now become an essential part of the discussion of the structure and function of the universe. Today's cosmologists and physicists are in agreement that almost 70 per cent of the universe are made up of dark energy and 30 per cent of dark matter. This means the observable matter and energy form very little of the universe. Einstein had first given this idea in the form of a cosmological constant. At that time he gave this concept to count for the reason why the matter does not fall back at one place due to gravitational attraction. Omega is the ratio of actual cosmic density to the critical cosmic density. If omega is less than one, the universe will continue to expand forever. If it is more

than one, the universe will expand to a point after which it will start contracting. An omega equal to one would keep the universe expanding with the ratio of actual density to critical density staying the same. Another important observation that led to the possibility of the dark energy being present is the fact that the outer portions of the galaxy are rotating as fast as the inner portions. This could be possible only, they inferred, if there is a dark energy present there.

After the presentation of the UTR, we will have to take a fresh look at the concept of the dark energy. A rotating universe with very high speeds especially in the outer regions would be having immense amount of energy. The rotation of the universe is enough to stop the fall of the universe to a single point. It will account for both the dark matter and dark energy present in the universe.

In short, the comparison between the modern understanding of the universe dominated by Einstein's ideas of relativity and Hubble's ideas of an expanding universe and the more vivid comprehension of the universe as the result of the Universal Theory of Relativity will show immensely striking differences. The comparison is based on three main foundations:

First, the current theories take light-speed as constant, and make it impossible for any matter, or influence to travel faster than light. The UTR describes light-speed not as constant but rigid with an inherent stabilising mechanism, making it possible for matter to achieve speeds much beyond that of light. Moreover, the current theories make matter passive mover along with the expanding space. The UTR makes matter dynamic by proposing that each and every particle tries to achieve the highest possible speed, which is opposed by its own weight and surrounding influences.

Second, the current theories talk of an expanding universe, while the UTR talks of a rotating universe. This brings a massive transformation in the understanding of the structure, function, origin and fate of the universe. It changes in fact the whole philosophical edifice of our knowledge. The rotating universe makes the universe a vibrant entity and not mere passive container of matter, space and events. It is not matter, space and events that form the universe; but it is the universe that contains, guides and regulates matter, space and events. This concept imparts a new look to the relativistic concepts, quantum mechanics and philosophical issues like locality, determinism, role of God etc.

Third, the current theories talk of gravity as a slowly moving (only with the speed of light) but long ranging influence; the UTR makes gravity a much faster, smarter and effective force in the overall governance of the universe.

The space too assumes a special significance. The so-called empty space too is rotating along with the Uniglobe. The Big Bang cosmology starts from a singularity, which is a point, and then the space is created; this creation of space continues till now, and will continue forever. But this space is progressively diluting all the properties of the universe and its components. The contradiction here is for all to see. While, neither matter nor energy can be created or destroyed -- even natural laws cannot be created or destroyed --, claims the current Physics, space is being continuously created. This leaves us in an aesthetically shabby situation where nothing can be created or destroyed, except the empty space, which is being continuously created, and according to some models (like oscillating universe, closed universe, etc.) can also be destroyed. The universe before its beginning was a single space-less singularity, and the universe now has enormous space with numerous singularities inside it. What a massive gain for space, while nothing else has gained anything! In the UTR cosmology, space was always there, but it was a dead space having no property whatsoever. With the commencement of the rotation of the universe, space too came alive and got fully functional. The rotation of the Uniglobe is not only sustaining the enforcement of natural laws, the existence of matter and energy but also that of the dynamic space.

Similarly, the UTR better explains the incompatibility of Quantum Mechanics with the "prejudices" of Classical Physics by abandoning the concept of the constancy of light in favour of the rigidity of light; this makes speeds beyond that of light possible. It will be interesting here to understand Bohm's ideas of seeing the universe as a whole, for he seems to have come very close to what the theory of Universal Relativity establishes. David Bohm says:

"It is proposed that the widespread and pervasive distinctions between people (race, nation, family, profession, etc., etc.), which are now preventing mankind from working together for the common good, and indeed, even for survival, have one of the key factors of their origin in a kind of thought that treats things as inherently divided, disconnected, and "broken up" into yet smaller constituent parts. Each part is considered to be essentially independent and self-existent. (Wholeness and the Implicate Order)".

David Bohm's position of the wholeness of the universe has been described in an article, captioned "Of David Bohm's Holographic Universe" by Michael Talbot. The article says:

"Bohm began his theory with the troubling concern that the two pillars of modern physics, quantum mechanics and relativity theory, actually contradict each

other. This contradiction is not just in minor details but is very fundamental, because quantum mechanics requires reality to be discontinuous, non-causal, and non-local, whereas relativity theory requires reality to be continuous, causal, and local. This discrepancy can be patched up in a few cases using mathematical re-normalisation techniques, but this approach introduces an infinite number of arbitrary features into the theory that, Bohm points out, are reminiscent of the epicycles used to patch up the crumbling theory of Ptolmaic astronomy. Hence, contrary to widespread understanding even among scientists, the new physics is self-contradictory at its foundation and is far from being a finished new model of reality. Bohm was further troubled by the fact that many leading physicists did not pay sufficient attention to this discrepancy. Seeking a resolution of this dilemma, Bohm inquired into what the two contradictory theories of modern physics have in common. What he found was undivided wholeness. Bohm was therefore led to take wholeness very seriously, and, indeed, wholeness became the foundation of his major contributions to physics.

According to quantum physics no matter how far apart two quanta's of light (photons) travel, when they are measured they will always be found to have identical angles of polarisation. This suggests that somehow the two photons must be instantaneously communicating with each other so they know which angle of polarisation to agree upon. Eventually, technology became available to actually perform the two-particle experiment, but no one was able to produce conclusive results. Then in 1982 a remarkable event took place. At the University of Paris a research team led by physicist Alain Aspect performed what may turn out to be one of the most important experiments of the 20th century. There are some who believe his discovery may change the face of science. Aspect and his team discovered that under certain circumstances subatomic particles are able to instantaneously communicate with each other regardless of the distance separating them. …. This meant that either Einstein's long-held theory that no communication can travel faster than the speed of light or the two particles are non-locally connected. Because most physicists are opposed to admitting faster-than-light processes into physics, this daunting prospect has caused some physicists to try to come up with elaborate ways to explain away Aspect's findings. But it has inspired others to offer even more radical explanations. David Bohm believes the reason subatomic particles are able to remain in contact with one another regardless of the distance separating them is not because they are sending some sort of mysterious signal back and forth, but because their separateness is an illusion. Bohm postulates that the ultimate nature of physical reality is not a collection of separate objects (as it appears to us), but rather it is an undivided whole that is in perpetual dynamic flux. For Bohm, the insights of quantum mechanics and relativity theory point to a universe that is undivided and in which all parts merge and unite in one totality. This undivided whole is not static but rather in a constant state of flow and change, a kind of invisible ether from which all things arise and into which all things eventually dissolve."

The UTR has made this wholeness of the universe not just a philosophical conjecture but an established reality. I have great respect for Bohm for his extraordinary insight that was comparable to that of Einstein. But unfortunately, Bohm did not have sufficient time to convert his ideas into a complete theory that would explain everything. More unfortunately, Bohm was closely linked to Einstein who would critique the every chapter of the book he wrote. Instead of building a theoretical basis for his results that proved the nonlocal nature of quantum mechanics, and his idea of the wholeness of the universe, he sat on assiduously submitting these ideas to Einstein's light-speed barrier. This made him think of the universe as a hologram and his quantum potential as an entity that would make the world phantasmic rather than real. The UTR not only confirms that his basic idea of the wholeness was correct in essence, but also establishes the true nature of this wholeness. The theory provides the axis on which this wholeness rotates by concluding that the universe (named Uniglobe in this theory on account of its unified nature) as a whole rotates on its axis. But, unlike Bohm's ideas based on the absence of an objective reality, the unified Order of the UTR is not an illusion or phantasm but a reality. As has been explained at several places in the book and in the beginning of this chapter, the universe after the establishment of the theory of Universal Relativity will transform into Uniglobe, which is a well-established, well-organised, state kind of entity having an unfailing system of governance. Uniglobe comprises the components, not that the components form the Uniglobe. Uniglobe sustains its denizens by arranging provision for all of them, and therefore despite their individual statuses they are also the miniatures of the Uniglobe.

What are the prospects of finding a unified theory of everything. The prospects have been certainly on the rise in the wake of the development of Superstring and M-theories. But still there are lots of unanswered questions. The Universal Theory of Relativity will surely become the gateway for the ultimate unification of the theory of Physics. There are many reasons for this assertion:

First, the UTR raises the status of motion as the most fundamental property of the universe and its

components. Mass, energy, inertia, charge and time, and all other properties are the direct result of the motion. If there is no motion, the matter will be dead having no property whatsoever. This is the first important step in the unification.

Second, the rotation of the Uniglobe as a single body makes all the matter and forces a single body having their functional existence due to the collective motion. The rotation of the Uniglobe means different parts of the universe are moving with different speeds, depending upon the distance from the axis. Obviously the circumference perpendicular to the axis is moving with the greatest speed. This speed has to be millions of times the speed of light. On this circumference, therefore, extraordinary energy situations can be visualised that would be enough for the unification of all the four forces of nature, namely gravity, electromagnetic, strong and weak forces. This super fast strip might not have just caused the beginning of the forces in the universe immediately after the universe began to rotate as the first step in the origin of the universe, but must also be having the same nature now. It may be regarded as the Mother of all Forces.

Third, infinities have no place in the UTR. The solution of the problem of infinities by the artificial and dubious mathematical methods like renormalization is therefore not required in the UTR. The presence of infinities has been the biggest headache in all attempts to unify the forces including the Superstring theories. The fundamental principle that infinities do not exist in the universe, along with the disrobing of light-speed from its infinite status will make things easy for all those who are looking for a unified theory of physics.

Fourth, the presence of Uniglobe as well-organised functional entity will give the universe the unification that no idea or philosophy in the past could give.

Fifth, the Strong Force can be better understood as the effect of the rotation of the universe. It is this force that combines the nucleons together. The immense energy possessed by the nucleons on account of their having a relatively big mass and the extraordinary speed of the universe would make them high-energy particles. Their same size and mass would keep them glued together.

I have to admit that I am primarily a thinker. I happen to be neither a physicist nor a mathematician. I have built the whole edifice of the Universal Theory of Relativity without using but a very little, primary level mathematics. Even in the little mathematics I have used I might have made errors. I hope physicists and mathematicians will now find it much easier to develop formulas and equations on the basis of the scientific and philosophical foundations I have provided. Then the true picture of the unification of the theory of Physics will become abundantly clear. I do hope this would come sooner than later, and we will soon enter a stage in the history of knowledge when all the fields of knowledge will lie within the belly of the mother of all knowledge, Physics.

Correspondence to:
Dr. Javed Jamil
Javedjamil@rediffmail.com
doctorforu123@yahoo.com