

**SMOLIN SIR, I HAVE THE ANSWERS-PART-II, ALTERNATIVE COSMOLOGY:
REDSHIFT OF LIGHT YES, EXPANSION OF THE UNIVERSE NO! PART-A AND
PART-B**

**(Ridiculousness of the Idea that Galaxies 1000 Million Light Years Away Are Supposed To
Be Moving Away By 2000 Miles per Sec**

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PART -II: DARK ENERGY AND DARK MATTER

RED SHIFT OF LIGHT YES, EXPANDING UNIVERSE NO! PART-A*

Modern cosmology has strayed from the sound empirical road into wilderness where statements can be made without fear observational check

Max Born

**The overriding principle must be that of the economy of hypothesis
Hermann Bondi**

Both the principles [quantum mechanics and relativity] certainly one of them, perhaps *both* have to be modified or changed in significant ways in our next description of reality... one of them is certainly gone...[Specifically] the idea of spacetime is doomed...

Nima Arkani-Hamed (physicist) in a lecture 'Quantum Mechanics and Spacetime' at PI (April 2016)

Abstract: In the history of physics, ideas on space and time have changed the course of physics a number of times; this is another such event. This time, we postulate 'space and time' as a flow of quantum gravity energy, having the absolute velocity c (same as the velocity of light), where time is the delay in the spread of space (delay from infinite velocity flow, when there would be no time), such a flow has to have a reverse cycle, as energy creating it (howsoever large it might be, has to be limited and limited energy can only create a limited space and time energy spread) and the reverse cycle is that of the creation of fundamental particles. This explanation of the universe (space and time not spacetime), *as energy flow having a reverse cycle* as its base, tells us that the idea of an expanding universe is prime facie wrong. The problem has been that we have gone along too far with the perception of the relativistic world that Einstein built over 100 years ago. Einstein had no hesitation in accepting the idea of absoluteness of the velocity of light but never thought of giving the same absoluteness to space (and time) as a flow having the same absolute velocity c (the universal constant of nature). Thus, the problem with cosmology is not something contained in the subject but with things, it inherited from physics; they take physics given to us by great minds like Einstein (and Bohr on quantum mechanics) for over the 100 years as a gospel truth and have not questioned it seriously ever. Physicist incorrect conclusions have become the bread and butter of cosmology; cosmologists and physicists thus see the universe without the essential part of it: as an absolute flow of quantum gravity.

This new reasoning on space and time—as a flow of energy--leads us to show that expansion of the universe is *only an appearance*, reality is far away from it. And why is it only an appearance? The argument, in brief, is as follows: One, the universe is so large that we cannot see the edges, light from the edges takes far too long to reach us, there is a theoretical limit to possible visibility, thus, we have to refute its unlimitedness by theoretical considerations only; the reality is non-observable. Two, the process is dark, it is range of invisible (before charge emerged), the process of creation of charge (the reflection of light starts with it) has not yet taken place; it is the elusive dark energy that constitutes 74% of the total energy of the universe. We never connected space and time to flow of energy, and so did not find its connection either to its limitedness or to its dark nature (dark energy). Three, the space energy flow has a reverse process which leads to the formation of fundamental particles we have not included it in the totality of the processes of the universe, the former is the *dark energy* and the initial part of the reverse process—till it reaches the state of ionisation-- is *dark matter*. In the continuity of the cycle of space flow and its reversal to matter forms, ionisation happens at a particular point and visibility comes through along with; ionisation is a later event (which, as we explain later when we come to explaining the reverse process and with it enters visibility). It is this reverse process which creates fundamental particles (no big bang, the creation of particles is here and now). With no idea of space as energy flow and no idea of the reverse process, physicists could never take the step in the direction of the correct

understanding of the ‘dark energy’ or ‘dark matter’. Along with the correct understanding of the dark matter and the dark energy, enters another conclusion of great importance: the limitedness of the universe means it is closed from all ends, it is like a crucible of huge dimensions, thus CMB is not radiation from primordial past, it is something which is happening here and now. Thus, one correction—space is an absolute flow of quantum gravity, emerging probably from the binary black holes-- changes all our understanding of cosmology. This is one stone—space is an absolute flow of quantum gravity—that kills (correctly explains) four birds (issues): *explains the not expanding universe, explain what dark energy is, explain what dark matter is and it tells us that CMB is not radiation from primordial past.* The lack of one entity—absoluteness of space and time—has led us to the wrong conclusion on each of the four issues, biggest of all being: the inflationary universe (and its subsequent conclusion to its Big Bang creation).

Keywords: correct data wrong conclusions, determinism versus free will, matter has a will and ability to make choices, universe matter’s own creation, Universe as an absolute flow of quantum gravity, Space and time as absolute flows having a reverse process, Trial and error learning process, The Popper’s theory of knowledge is the theory of evolution, Newer explanation of redshift, dark energy, dark matter and CMB, Cyclic universe.

I. POSTULATES TO BEGIN FROM¹

The falsifiable postulates we begin with are the following:

1. The matter is as active an entity as thinking and action initiating human being, it has a mind and it learns by the same process of learning as the man: the process given to us by Sir Karl Popper, i.e. the trial and error process of growth of knowledge. Applying this concept to the first creation i.e. space and time, we say is that it is Matter that has created space and time of its own willful volition, as an absolute flow of quantum gravity. The source of the flow may be the binary stars or black holes or binary black holes, and it has the same absolute velocity as light, but with the same difference in the nature of the quanta constructing it i.e. the difference we well understand as the difference between fermions and bosons.
2. For this free willed process (discarding determinism) of the creation of the universe, matter having a will adopted the trial and error process (as above stated, Popper’s theory of knowledge) of the progress of knowledge which lead to the striking of the right combination of the values of c , G and h (velocity of light which is also the velocity of space flow, the gravitational constant the force that accelerates the space flow and h , the size of the quanta that constructs it) and thus the correct outcome of a viable universe.
3. This absolute space and time flow-- having same absolute velocity as that of light, with the further assumption of the finiteness of energy in the universe—tells us that there is a second part to the physical reality that begins whenever and where ever the energy flow supporting space flow weans.
4. The second part of the reality is the reverse process where the energy flow that creates space (and time) flow reverses to form fundamental particles. This happens whenever a wave of space

flow weans (though other waves are following it to form an unbreakable flow), it is the weaning wave of space and time creation which begins the reverse process, this reverse process is the process of the formation of the fundamental particles, which it is easy to conclude is happening everywhere, all over the universe.

Armed with these postulates we challenge the foundations of the currently accepted cosmology and show that these ought to change drastically.

Economy of Hypothesis, Simplicity and Falsifiability

Anyone—like us--beginning with Popper's theory of knowledge, has to compulsorily apply the principle of falsifiability to whatever he has to say. In fact, principles of falsifiability, as a norm is essentially required to be applied to every scientific theory, but it is hardly the case in practice. For us, *adherence to the principle of falsifiability is firm and unwavering.*

This implies that neither is the weirdness or the strangeness of the hypothesis is of any consideration, nor is important as to how many currently accepted theories are contradicted and how many well entrenched considered inviolable theories go by the wayside; all these are non-issues. *What is important is that what the results are: the number and the significance of deductions that can be made from it and whether the deductions are falsifiable and not falsified! Following this path, we will be able to resolve all the small or big issues in physics and cosmology, within the confines of falsifiability (postulates have to be of the nature that they can be in principle be falsified and these can only hold till a single empirical evidence that contradicts them gets located).* A noticeable thing is that every proposition that goes against the earlier steady-state theory of the universe (in all its versions of the past) gets properly addressed and a new form of it (steady-state theory) emerges. This steady-state theory of the universe as we stated above adopts the Popper's theory of knowledge its core principle as such all its predictions—unlike the past models of this kind—have to be are falsifiable (and not falsified by any empirical evidence). It is thus asserted that none of the pieces of evidence that falsified the earlier steady state theories will falsify this cyclic model of the universe.

Determinism does not Give Correct Science

The postulates have, in fact, emerged from a major change in understanding of the nature of physical phenomena; physics has always been determinism founded, we have replaced its foundation from determinism to free will. Determinism versus free will is a very old unresolved debate, while physics has largely built it on deterministic foundations, we begin by favouring free will. We thus begin by stating: Matter has a will and the universe has been created by matter's own willing efforts; it is a flow of energy which has come into existence by matter by its willing efforts in combination with the process of trial and error learning (Popper's Theory of Growth of Knowledge). Matter of its will is converting—continuously and in a sustained manner--its potential energy into kinetic energy as a flow of the correct specifications i.e. the *right* combination of the values of the fundamental constants of nature (c , G and h , velocity of space flow, gravitational constant and planks constant respectively) by trial and error and learning from mistakes.

One crucial and important aspect of this process of creation of space and time (creation of the universe) is that it is also *the origin of the meaning of what length, mass and time (what is the length of distance, heaviness of mass, and the duration of time)* and since length, mass and time are velocity created they are velocity dependent, i.e. they change when velocity changes. Physicists have for long wondered where and how the small quantities of Plank length, Plank time and Plank mass apply. Now we know that it is space flow which is constituted of Plank length $L=10^{-35}\text{m}$, Time delay in spread= 5×10^{-44} sec and Plank mass $M= 2 \times 10^{-8}$ kg, apply. From it, we can also calculate the density of the mass of space flow (mass/ volume): Plank mass /the volume of space (Plank length cube, L^3); Plank mass is 2×10^{-8} and Plank Length cube= $(10^{-35})^3$.

II. ABSOLUTE SPACE AND TIME FLOW

This trial and error (learning from mistakes made) evolution of the universe--the process of the creation of space and time being the progression of the same kind as any mechanical process on the earth--is a far superior theory than the presently understood theories of the universe: pure chance (with zero probability) and God created universe. It is a step forward from these two theories as, with it, at every step of evolutionary progress probability of reaching the correct process *rises*, because with it at every step, there is learning from past mistakes which are continuously eliminating the possible errors. This kind of progress is neither probable nor possible with either of the other two theories of the universe: the pure chance theory and the God created theory of the universe².

It is from this beginning we reach the inevitable conclusion that the universe (space and time) is:

- a) an absolute flow having the same absolute velocity that we have granted to light and it is continuously being supported by the constant and consistent flow of energy (quantum gravity), if there is no energy flow, there is no space, everything that exists has energy, space cannot and is not stage of perfect vacuum or state of nothingness (nothing means just nothing, no space exists, no time exists),
- b) universe is space and time, not spacetime, mixing space and time is an incorrect assessment,
- c) it has a beginning, which does not appear to be Big Bang; beginning is a far more scientific and probable,
- d) the law of entropy must apply of necessity and in a constant consistent manner, as it is applicable to any other mechanical process on the earth,
- e) it leads us to the inevitable conclusion that universe's beginning may have been gentler not catastrophic (as Big Bang), one that may have got activated from absolute zero and that it is continuous warming up,
- f) this universe has to have an inevitable end in a thermodynamic equilibrium (howsoever distant),
- g) the energy flow is the dark energy (non- ionised formation) physicists have been looking for a long time,
- h) universe is a definite and constant density flow with no breaks, the density of the flow also does not change, thus it has (in the absence of matter forms) no difference in its uniformity though out (For $v=c$, ∇c is also c , only $\nabla^2 c=0$),
- i) finite quantum gravity energy flow has to come to an end, finiteness is essential part of the model,
- j) this energy flow universe has a reverse process accompanying it, wherever and whenever energy flow weans it allows a reverse process of returning to matter forms (the process of the formation of fundamental particles) to set in, j),

the reverse cycle to the space and time tells us that it has an inevitable boundary and also some equilibrium between the two states, l) there is no secular expansion, or inflation, it is only an appearance (general inflation is completely ruled out); it may have some inflation, sometime, and at other time some contraction, i.e. if energy flow supporting it increases it will spread outwards, and if energy flow supporting it weans, some reduction in its volume will necessarily happen, equilibrium has its movement either way from it, some addition or subtraction at the fringes depending upon the fact that gravity supporting space (though coming in waves and bouts, one followed by the other and converting into fundamental particles everywhere in space) is getting added or is reducing, m) explanation of expanding universe where galaxies are moving away from each other (analogy given is that galaxies are on the surface of an expanding balloon, in two dimensions) is misplaced, totally incorrect, galaxies are all placed within the three dimensional universe, n) inflation in the current theories—unstable (like radioactive decay and a random process, with an uneven end to the initial inflationary period, hot spots and cold spots in the first few micro seconds, a weak process possibly caused by dark energy that will come to an end i.e. without any valid or appropriate idea on the cause of inflation—is unacceptable, o) energy flow created universe may be a nearly spherical entity (not necessary to have same diameter in each direction) and there is no necessity to assume it to be so, it may be spreading differently in different directions, p) this only nearly spherical universe is obviously closed entity, that will give CMB dependent on its current temperature, q) we have a steady uniform density energy spreading out *and only appearing to be causing inflation*, the non-understanding on the presence of the reverse to the expanding energy flow and the ends of universe being too far which cannot be visible has been the reasons for the redshift of light being misunderstood as inflation and acceleration, in fact there is no such thing happening, r) the kind of universe we build has to be a steady state universe, with a beginning and an end, s) it is not necessary to make the homogeneous universe assumption, homogeneity changes with the change in sources and the amount of radiation following in each of the three directions, further the even distribution of matter assumption is also not necessary, it occurs wherever the energy of the space and time flow weans, there is no necessity of making any assumptions other than the postulates guiding our analysis, t) quantum fluctuations do not happen in vacuum, but in real absolute space, u) Space flow is a Scalar field with zero potential difference, v) it is dark also dark, explanation of 73% energy of the universe is here, w) absolute velocity, absolute rotation of the quanta constituting it (duration of the time created is this unchangeable rotation, or the delay in the flow from infinite velocity), x) the reverse process, reverse of the space creation, where the energy flow as space flow returns to matter form leads to an equilibrium between the field form and matter form, y) the reverse process of the formation of fundamental particles is also a trial and error process, not all disintegrating energy reaches the correct form of baryonic matter, trial and error process leads to lot of junk matter being created along with.

The process of creation of the universe and its sustenance is a cyclic one, finite quantum gravity energy flow has to come to an end, finiteness is essential and so is the fact that space and time flow has an inevitable boundary and a reverse cycle and an equilibrium: beginning from Binary Black



Holes creating the Dark Energy flow of space (and time) - to creation of Dark Matter to Baryonic Matter to Stars to Galaxies and back to Binary Black holes and to dark energy (space and time flow). We will take this up in the last section of this paper. However, as we explain later, Junk matter creation and rise of entropy all along the cycles of the cyclic process are the essential part of (mechanical process will of necessity be accompanied by rising of entropy; the process is a) no different from other mechanical processes on the earth) and b) trial and error process of the formation of particles is bound to leave some incorrect non-viable combinations as well, of course along with a small part converting to the correct viable formations.

This one thing—free will replacing determinism—changes every other belief in physics, evolutionary biology and in social sciences, in short everything we have learnt since renaissance³. Crucial from our point of view on the subject of the paper is that general relativity foundations of Cosmology gets shaken. We must thus before proceeding further discuss the core issue that replaces the idea of relativistic nature of velocities: *length, mass and time are velocity created so velocity dependent!*

On Velocity’s Relation to Units of Length, Mass, and Time: Lorentz Invariance

Space flow out of radiating matter is the conversion of the potential energy in the matter to kinetic energy and the result is the created flow of space, and it also involves the thinning of the density of mass from matter to space, the extent of thinning being velocity determined. Along with the thinning of the density of mass has to have an obvious relation to the creation of length of distance and duration of time. Why? Velocity is distance/ time, thus by definition both length and time have also to change with velocity. Relation to d (distance) and t (time) which is c (speed of light, which is now adopted as the velocity of space) explains this velocity-length and time relation but since we also connect it to real energy flow, mass also gets added in equivalent terms. This is easy to comprehend when we compare any two stretching of space with different velocities, lower velocity will be the equivalent of creation of smaller length, heavier density of mass and longer time duration and higher velocities will be the equivalent of the creation of longer length, lighter density, and shorter time duration; at the top of it all (maximum velocity c) that corresponds to the lowest density of mass, the longest length of distance, and the longest duration of time (at highest velocity, c , the velocity of space flow).

Diagrammatically this can be explained something as below (Figure 1):



- A) Higher v and higher stretch of space AND longer stretch (shorter duration) in time (as in A)
- B) A lower v connected to lower stretch of length and longer duration of time as in B.

If we including measuring length, mass and time among the law of physics, what we say that this physics is not the same in all frame of references; the acceptance of the homogeneity of space and time is the culprit; law of Lorentz invariance is violated on this account, every velocity change homogeneity

and the measure of length, mass and time! But this—change in the meaning of length mass and time is a general relativity issue. In special theory of relativity, it is only a matter of observation of one velocity against the backdrop of absolute flow of space and time. The real disturbance in the homogeneity of space and time come in general theory of relativity where the violation of homogeneity of space and time is real and continuous. In general relativity accelerated velocities lead to change length, mass and time (which can only happen through changes in space and time flow), thus the violation of the homogeneity postulate is a continuous one. Within the general theory of relativity--with absolute space and time dismissed-- there was no way physics or cosmology could proceed on in the right direction

Let us now take up the issue of ‘viewing inertial velocities relativistically, i.e. viewing inertial velocity in comparison to, and in the background of absolute space and time flows. This means that to know the effect of ‘change in units with the change of velocity’ it is a necessity to see them in the background of absolute space (and time) flow; this is what the explanation of relativity of velocities within the absolute flow of space and (time) really is.

III. DEPARTURE FROM EINSTEIN’S SPECIAL AND GENERAL THEORY OF RELATIVITY OF VELOCITIES IS SIMPLE³

Reality of the absoluteness of space and time dismissed by the special and the general relativity--which is the bread and butter of currently accepted cosmology—needs to be brought back into calculations; within the general theory of relativity--with absolute space and time gone-- there was no way cosmology could proceed on in the right direction; like a galloping horse that has taken a wrong direction, and went from one milestone of error to the other. Einstein’s rejection of absolute space and time was unnecessary; is the biggest blunder of the twentieth century; if light could be granted an absolute velocity, why can’t this status be granted to space and time flow? But then, somehow, the one essential thing required once discarded—by Einstein’s theories of the relativity of velocities space and Michelson-Morley experiment (applied to stationary aether)—was never thought to be re-examined with space and time as the flow of energy, this kind of reality escaped physicist’s imagination. Einstein, providing for his cosmological constant (to balance the contracting force of gravity would probably have been the right course) was half-hearted and thus could not meet all the needed provisions: space and time as an absolute flow, which has a reverse process; formation of fundamental particles is here and now, continuously, not in the unscientific Big Bang. But since space as a flow of energy was neither envisaged nor was a reverse cycle provided, misdirection was guaranteed. Seen our way space (and time) is a consistent density quantum gravity energy flow having a definite reverse process, this kind of universe (space and time) has to lead to all that Einstein worked with (and it’s leading to an expanding universe) became redundant.

Explaining Special Relativistic Effect within Absoluteness of Space and Time Flow⁴

Going ahead with the job of explaining special relativity of velocities within an absolute flow of energy as space and time, we add the following: Physicists have applied the principle of superposition (not the superposition of QM) for the explanation of several observed realities in many aspects of physics, here in explanation of relativity of velocities it stands for seeing or

observing one velocity in the background of the absolute velocity of space flow (or without it). Let us explain it with the help of a diagram.

Fig2. Relative Velocity explanation

Outer sphere: velocity c
Inner sphere B: velocity v
Main large spreading sphere=
Space flow, velocity c
Grey sphere= velocity v , in the
background of c here units that
apply, are the equivalence of the velocity
(c minus v)

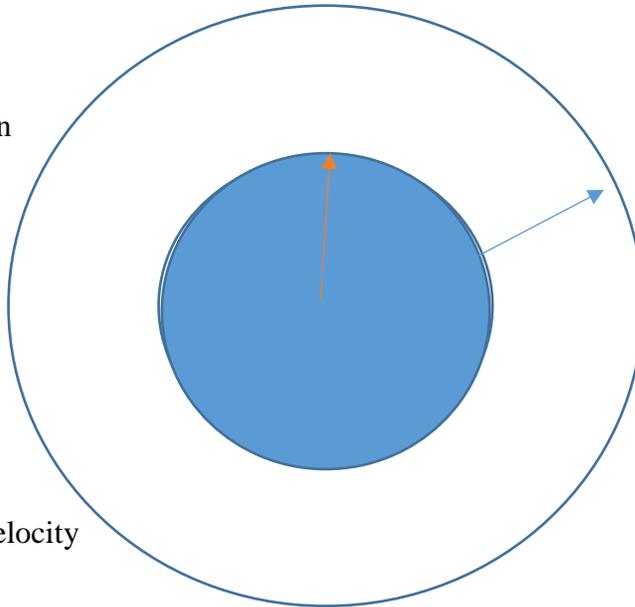


Fig 2: Superposition of Sphere B (spherical spread B) on sphere A (spherical spread A). Lower velocity (inner sphere spread), when seen in the background of flow with velocity c (as the outer sphere expansion), has the effect that is the equivalent of the velocity of space spread as if the velocity is of the order of c minus v .

What has been diagrammatically explained (Figure 2) is reaffirmed as follows: The absoluteness of space flow with its own self-created absolute *units of length, mass, and time also leads us to the reason for different observers in motion who are holding different yardsticks* (velocity related yardsticks), seeing its own and other's motion differently when velocities are different. Though all motion happens within the absolute flow of space and time (which continues unabated and without any concern to other velocities moving within it) different inertial observers are applying different yardsticks to its and to the other's motion; noticing or observing this fact also materially changes with a) whether the observation is being made a) against the backdrop of absolute flow of space or b) not being made against the backdrop of space (observation is being relativistically made or otherwise). Our stand becomes clear when it is noted that we have no quarrel with the fundamental principle of relativity of velocities i.e. you need to compare with some other velocity to understand reality of relativity of velocities; our difference lies only in the fact that the comparison has to be made with the absolute velocity of space flow (something that the relativists do not recognize). The fact that units of length mass and time is velocity dependent leads to different yardsticks (measuring tools) being applied by different inertial observers becomes obvious only if observed against and compared with the absolute velocity of space flow (i.e. a comparison is coming through

or not, and the comparison can only happen when observation is made against the backdrop of absolute space flow), otherwise the normal (called proper) units that space flow is itself creating apply. The difference in observation by different observers comes alive only when relativistically viewed; if it is not relativistically viewed (with respect to the absolute space flow) the normal units that absolute space flow creates apply.

An observer, in a spaceship, taking measurement within it will apply the units that space flow is creating (even though the units of length, mass, and time are different, they are commensurate to and in proportion to its velocity vis-à-vis velocity of space flow) because it is not making the measurements relativistically; it is only when some other observer makes the measurements or it makes measurement of some other motion or object at rest that the observations are relativistically applied and the true nature of the different yardsticks becoming applicable come to be understood and known. Other observers see the velocity of the spaceship in the backdrop of space flow (they superimpose its velocity over the velocity of space flow) and as such apply the units that are equivalent to c minus v , (v is the velocity of the spaceship). Similarly, when an observer in the spaceship sees the observer at rest (or moving) on earth it sees it in the backdrop of space flow, as a result, it applies the same units that the observer on earth applies to its motion (units that it itself carves out commensurate to its velocity). The crucial thing here, once again, is whether the observation is being made in the backdrop of space flow or not; whether the principle of superposition is taking effect or not, if it is, we will see it as if the units valid for ' c minus v ' apply if not the normal units that space flow is creating apply. The reality of relativity of velocities cannot be seen by someone within its own frame of reference; even though the units it is carving are different, but to observe this, it has to be (relativistically viewed, viewed in the backdrop of absolute velocity of space flow), i.e. compared with the units of length, mass, and time that space flow is carving. The rule of Einstein's non-distinguishability of inertial velocities and the necessity of comparison of any two velocities applies, but with the crucial difference that there is one absolute velocity to compare with is there (which also ensures that distinguishability between inertial velocities becomes possible); two velocities have not to be compared among themselves, each one of the velocity has to be compared with the absolute flow of space (and time) flow, inter-se comparison, if necessary, will happen via the absolute velocity of space flow. The result is that the observer within the spaceship will continue to apply the units that space flow carves out, as it is not making observations and measurements in comparison, you need a comparison to observe the relativistic effect. When observers on earth make measurements of the spaceship, relativistic effects apply, since they make observations (see the motion of the spaceship) in the backdrop of space flow (necessity of the application of the principle of superposition is being achieved). Thus, the clear statement is that we are not changing the basics of relativistic observations, only saying that: one, there is an absolute flow of space (and time) carving absolute units of length, mass, and time and every other velocity carves out its own units, according to the proportion to its velocity with the absolute velocity and for knowing it we need to compare it, and the comparison can only be with this absolute flow of space.

One error on postulating about space (it is thought to be either vacuum or entity at rest) misled us into believing that motion can only be explained with reference to some other motion (in relativistic terms), without any absoluteness to refer to (in general relativity it leads us to the error of reaching the complexities because neither was absolute space flow brought into the picture nor the fact that to give effect to relativistic effect of non-inertial velocities it would be necessary to apply local violation of homogeneity and isotropy of space; of course, to all of these we have also to add the basic error of mixing up of space and time. For explaining the arithmetic of the relation between inertial velocities, the new law of physics, to repeat is: space is an absolute flow that gives meaning to the units of length, mass, and time, and when other velocities happen they have to work out their own units of length, mass, and time in proportion to their velocities vis-à-vis the absolute velocity of space flow.

Invariance of the Mix of Space and Time, not Space and Time Individually

Seen from our new point of view (space and time are absolute flows and distance of length, density of mass and duration of time are velocity dependent) a thing of great importance, that has emerged is, that much-used equations of spreading spheres (with different velocities): $x^2+y^2+z^2=c^2t^2$ and $x'^2+y'^2+z'^2=c^2t'^2$ are not equations which are the same in all respects, if velocity of spherical spread (wavefront of space flow) has changed, x , y , z , and t have changed in proportion, the units that measured x , y , z and t are not the same that measure x' , y' , z' and t' : the units of length and time (and density of mass also) have changed in proportion to the change in velocity! We may be better placed, when we i) adopt only one frame and ii) relate it to or compare it with the absolute flow of space and time (the unique, preferred frame of reference). If the latter is $x^2+y^2+z^2=c^2t^2$, the former will be $x'^2+y'^2+z'^2=(c-v)^2 t'^2$, depending on the direction of the velocity, x y or z would change and t will change (units that apply in the direction of motion will have changed) in comparison to those that absolute flow of space created; transformation equivalence between the two different frames of reference moving with different inertial velocities is unnecessary, now each of the two (if we have started with two different frames of reference) have to be individually compared with the absolute reference frame (of absolute flow of space and time with its absolute units of length, mass, and time). The comparison is between wavefront (of space and time flow, equivalent to the light wave front, as absolute as the velocity of light) moving with velocity c and the other moving with velocity $c-v$.

The invariance relation can only be valid for spacetime, not space and time has to be a foregone conclusion because, in the first place the emergence of absolute space and time is an exercise where it is time freedom being lost to make way for space freedom; it is the potential energy (time freedom) which is getting reduced to convert to kinetic energy (space freedom). It is obvious that the sum of the two will not change but one is reducing to increase the other. Time and space have an inverse relation though the sum of the two will always be constant. This is the reason for the invariance of spacetime! The law-- distance of length, density of mass and duration of time are velocity dependent-- the crucial issue that is responsible for the change in perspective on Einstein's theories of relativity, we have called a thing of great importance-- tells us, (as above stated) that the equations of spreading spheres with different velocities, $x^2+y^2+z^2=c^2t^2$ and $x'^2+y'^2+z'^2=c^2t'^2$

are not equations that are the same in all respects, if velocity of spherical spread (wavefront of space flow) has changed, x , y , z and t have too changed in proportion. And that there is no direct relation between any two spreading spheres, each has a relation to the absolute spreading sphere of space flow, if the two are to be related, their relation has to emerge through the absolute spreading sphere of space flow (the unique, preferred frame of reference); for velocity v the comparison has to be between $x^2+y^2+z^2=c^2t^2$ and $x'^2+y'^2+z'^2=(c-v)^2t'^2$.

Lorentz transformations are inbuilt in this hypothesis and thus much easier to reach; no mixing up of space and time, no giving up of absolutes of space and time (as is required in the textbook method of working out the transformation equations) is needed; all this because now all the three changes (length, mass, and time) come out together in one go, and from just one rule. One very big and very useful conclusion also is that while we can accept the invariance of a mix of space and time (spacetime), we cannot say the same for Space and Time individually.

Causality, Speed of Causality, Instant Signals

The speed of light (for us speed of space and time flow) is said to be the speed of causality: the maximum speed at which it is possible to communicate, or at the speed at which the cause-effect relation can travel. From our point of view, it is the speed of causality of the universe because it is at this speed that the creation of the absolute space and time as a flow of energy—conversion of the potential energy available and built in the matter. Matter-energy relation $E=mc^2$ in its original workable proposition applies here. The process of the conversion of space and time flow from potential energy in matter to kinetic energy of space and time flow—the creation of the absolute velocity space (and time) flow-- may be taking place in the binary black holes (?), there is at least one in each of the galaxies. Space is an absolute flow of energy (quantum gravity), the delay in the flow the 't' in v/t is time, this is the delay from infinite velocity flow, the quanta constituting space flow have a rotation equivalent to this delay, which is like the absoluteness of its velocity has a rotationally rigid (the rotation of its quanta equivalent of delay) of the flow signifying the creation of the duration of time is also absolute and unchanging and unchangeable, as absolute and unchangeable velocity of its flow and it is this that makes duration of time absolute and unchangeable. This rotational rigidity has other applications as well, it leads to easy and instant transfer of torque forces, torque forces travel instantly through space. Thus the law that nothing can travel faster than light is faulty; torque singles can travel at faster than this speed. The new understanding that space (and time) creation is a flow which has a rotation that is absolutely rigid; there can be nothing going faster that light may be in order only with the exception that torque signals in the universe can travel instantly.

By the end of this paper, readers will realize that the rejection of absolute flow of space and time by the theories of the relativity of velocities has been a great hindrance to the progress of correct understanding of the physical phenomena and cosmology.

Newer Explanation of the General Theory of Relativity of Velocities⁵

General relativity is founded on the equivalence principle, spacetime mix, and force view of gravity being replaced by gravity being related to general curvature in space. We can meet all that is explained roundabout way with the simple law: space (and time) is an absolute flow of quantum

gravity which gives meaning to what length, mass and time are, length mass and time are velocity created and velocity dependent, we will explain all the issues connected with and deduced from Einstein's theory by the simpler approach: length, mass and time are velocity created and thus velocity dependent.

The New Force Law: Forces Warp Space and Time (not Spacetime)

One, single, important change that will be necessary to build the correct cosmology is the revised law of force.

Physicists—working in cosmology within the framework of general relativity have a serious problem in finding an answer to why of an expanding universe (which it is not); theories of relativity barred them from correct nature of space (and time), as a flow of gravitational energy (also having a reverse process). The problem has been that they only know gravity as a contracting force, this because they have never applied it as a consistent and continuous and continuing flow of gravitational energy, as a consistent flow being constantly being backed up it becomes an expanding force as long as the backup exists! Gravity truly is a contracting force, but if it is backed by more and more energy, it has to expand and expand and this has to go on till the backup no longer supports the expansion, the backup exhausts itself, and wherever and whenever the backing exhausts the reverse process begins; it is an expanding force only as long as there is constant and consistent backing i.e. the expansion has to continue only as long as it is backed by more and more energy. The flow of gravity and its reverse process—never understood by physicists and cosmologists—ensures that there is no expansion, it only results in the maintenance of a steady state universe.

The fundamental of the force caused curvature in space (or density changes or time dilation changes) is the change in length of distance, density of mass and the duration of the time change which has to happen with every velocity change. Relating to time alone (though other two affects are also simultaneously taking place), we have noted that time is created by the delay in the flow of space from infinite value and it is signified by an absolute rotation of the quanta constituting space flow, rotation that as absolute and unchanging as velocity (creation of duration of time, value of rotation equal to duration of time is fixed unchanging and unchangeable), consequently, the chain of the quanta bends (curves or warps) to accommodate for the required time duration changes to become effective; this curvature has to have the same relation with force that Lorentz transformation provides, after all, in general, relativity we are only generalizing the specific velocity-units (length, mass, and time) relation to its continued change. The diagram that follows explains our assertion a little more clearly.



Quanta neither change their velocity nor does rotation, only the complete chain bends to accommodate the change in the units of mass, length and time.

Fig 3. Force- Local Curvature in Space Relation

Absolute space and time remain uniform and absolute always; the velocity of the flow and the rotation of the quanta connecting to create the flow (responsible for the creation of space and time) are unchangeable entities. Forces neither affect the velocity of the flow nor the rotation time of the quanta connections; in the vicinity of forces the fabric of space is curved or warped or stretched or

compressed or, let us also add, thickened so that the needed effect of length elongation, mass increase, and time dilation becomes the equivalent of lower velocity (c minus v) so the force caused continuous change in the length, mass, and time gets applied. Related to time, we can assert that while proper time (created by space flow) is absolute and unchanging but in the presence of forces, the path having been curved to accommodate time duration changes, the time needed to traverse the curved path is increased. Easy to note i) where velocity is not changing, there is no curvature and ii) every velocity change is accompanied by three changes in space, all happening in combination; space around the object (undergoing velocity changes) thickens (mass increases), length contracts (density increase also shows this reduction in volume), and time duration changes (time dilation) happens and iii) presence of large celestial objects curve space and time flow which is otherwise flat throughout, which is real energy (quantum gravity, with constant density) flow; there has to be no reality either of *empty space or of spacetime*.

Needless to add that the force law so formed will not need separate Lorentz transformation; it is general one which includes within it, every effect, including the effect of relativity; the facts the new law of force has emerged out of the revision of the relativistic considerations only (rule: length mass and time are velocity created so velocity dependent, so the effect of force has to happen through space flow changes only) must never be lost out of view; thus there is no need any separate special or general relativity corrections. Also, there has to be no reality either of empty space or of spacetime, space and time and real one way streets— a constant and a consistent energy flow supports it, and the application of the law of entropy to it has to be ensured!

Lorentz length contraction, time dilation and mass of the body changing with velocity changes are not simple relativistic entities, it is not a question of just the *dynamics of objects*; there is a whole lot more (that is related to the fundamental issues related to our understanding the creation of the universe itself). Once we understand correctly the vastness of the scope of the issue, the rest is easy. Also, with the new view in hand, it emerges that it is wrong to say that it is not possible to distinguish between objects at rest (far away from celestial bodies, or any kind of forces) and objects falling in free space; like Lorentz transformation equation themselves give this out (for inertial velocities), in general relativity the curvature in space (local) is different for different quantum of force (any force), it is this difference that shows and paves the way to the distinction between objects falling in free space and those at rest when no force acts on them. We will apply this force law to see the perplexing redshift which has baffled theorists for a long time: the redshift of the quasi-stellar objects.

Newer Explanation of Equivalence Principle

The new way of seeing the effect of forces also explains the crucial fact of gravitational acceleration being independent of mass; when we connect the effect of force to curvature in space, and motion of the objects is that of fall in the curvature in space, all things will fall equally as the controlling entity is curvature in space caused by the massive celestial bodies like the earth (the small mass of the object has only negligible effect). Moving up the curvature is a different ball game, it needs force to counter the curvature (inertia); the mass of the object will come into the picture, $F=ma$ will apply, but its new causality comes from space being cured by forces. The law

$F=ma$ is not a law that works between the force and the object, it is a law which tells us that force warps or curves space and objects move within the curvature so caused! Thus in both cases bodies moving down the curvature or moving up the curvature, it is the formation of curvature that rules. Gravitational forces curve space (and time flow) *locally* and it is this which needs the requirement of force to move things up the curvature. In both cases, it is the same curvature that rules (gravity or forces effecting objects governing the laws of motion), and thus it is natural to get an assured equivalence.

Space in the presence of matter is curved or stretched inwards towards the matter placed in it, its sectional view of the smoothly crumpled sphere may look something like we see below.



Fig 4: Genesis of the Equivalence Principle

Gravity caused curvature, objects flow down the curve, acceleration, upwards motion needs equal force

Once again, objects fall in the curvature caused by the force of gravity of the celestial bodies, if objects need to be moved they have to be moved up the curvature as such an equivalent force is needed. The former is the equivalence of the creation of pit and latter is the moving of the object lying in the pit (at the bottom), the former is acceleration and the latter inertia that requires the same amount of force to be applied for upwards movement (as was applied by the force of gravity for downward movement along the force created curvature in which the object moved).

The equivalence principle is thought to be the heart and soul of Einstein's general theory of relativity, we have shown that it is not so, the heart of the general theory is the same principles that explained special relativity.

We have explained all the required changes in the understanding of theories of relativity, these changes—starting from the presence of the space and time as an absolute flow—lead us to a very different cosmology than the one we understand now.

Complexities in Cosmology are the Creation of the Einstein's Theory of Relativity

Einstein's special and general relativity has made things unnecessarily complex, all of it because we did not know that space is a flow and the simple rule that any velocity created thing will change with velocity changing i.e. a velocities relation to length, mass and time have to be in place! But there are other complexities as well. There is no need for dimensions more than *three*, there is no *space-time mix*, *no curved space* in general—curvature is local and it is in a space which is *absolutely flat*. Space and time and real one way streets—a constant and a consistent energy flow supports it, and forces warp it. The relationship between local curvature and forces is linear, but the correct analysis is only possible through the new law of force: force curve space. Physicists' love Einstein for giving them the mathematical tool which is far more powerful than Newton so that they could apply it to the universe (which Newton's methods could not be made applicable), but what is a tool if it itself is based on the wrong premises (four dimensions, gravity is general curvature in such space, the two errors that possibly cancelled to give some semblance of correctness of the results). The solution to the limitation of the Newtonian method is far easily

corrected. What is required is to recognize that a) forces act through space because length mass and time change with velocity and b) this effect can only happen when space and time curve in presence of forces. The crucial change of applying force to act through space is the simple rule that corrects all the complication added by the theories of relativity. There may be many methods to analysis the force- curvature relation but the best seems to me to work it out through tensor analysis, which works out the local curvature at each point in the vicinity of the force that applies. Einstein made us go not only the roundabout way and also the wrong way.

No Secular Expansion, only Movements around an Equilibrium

The correct picture is that space flow energy (our absolute flow of quantum gravity) is the creation of space (and time) itself, it is the missing dark energy (which is the beginning of a cycle, to dark matter to baryonic matter to binary black holes and to space flow again) *which as a reverse process*. With secular expansion being ruled out by the inverse process, there, however, can be some expansion or contraction depending upon whether the energy adding to space flow is increasing (from a given level) or it is reducing. In all cases, an equilibrium is attempted to be retained, but the increase or decrease of the flow will call for some positive/negative changes. If the energy flow (from binary stars or black holes or binary black holes is on the rise the universe will extend its boundary, if the energy flow weakens, the boundaries will contract.

Einstein's equations of general relativity lead to a universe that could either contract or spread, steady universe was not a part of it, so he rightly provided a term (cosmological constant) to counter the idea of only expansion or contraction but when Hubble's conclusion on expansion of the universe appeared he unaware of the error (we now discover) though that his idea of providing a cosmological constant was a mistake (which it was not, mistake was in the discarding of absoluteness of space and time). Einstein's erroneous rejection of absolute space and time could have found the correction in his cosmological constant but it had not to be; physics (and with it, cosmology) went from one *black hole* to the other. Thus Einstein's good correction—the idea he threw away-- went totally and disastrously in the realm of blunders; one opportunity to correct the direction of history got lost! However, his flip flop damaged his reputation dearly.

IV. CONSTANT FLOW OF ENERGY WITH A REVERSE PROCESS ACCOUNTS FOR REDSHIFT WITHOUT AN EXPANDING AND ACCELERATING UNIVERSE

From cosmological point of view in general and for the explanation of non-expanding universe, with the presence of absoluteness of space and time as an absolute flow of quantum gravity (theories of relativity out of the way) at hand, the desirable changes that now get added to help us achieve our aim are as follows: a) space and time as absolute quantum gravity flow, which is the only field needed to explain all physics b) this field is finite and is a closed entity, c) the energy flow also has a reverse cycle, d) this field—space and time flow-- bends *locally* in the presence of massive gravitational objects, where light too bends but because it can only follow the bent space (and time) flow and the crucial one to be made note of is that e) because the space and time flow

is closed at the far ends all around, and the energy flow has a reverse cycle, the expansion is only an appearance, the bending of light (in the close-ended space gets replaced by its redshift, closed crucible does not allow any other option to light); this is the real nature of redshift with no expansion of the universe. The universe by and large—except for some expansion or contraction that depends on the fact that the quantum gravity energy flow is getting added or is reducing. A simple mistake of rejecting absoluteness of space and time flow—the absence of real objective and accurate explanation of real and absolute nature of space and time (and not knowing that it is this creation that is fundamental to every explanation in physics)—which as we have explained above has its own accurate explanation of the equivalence principle and general relativity and a new law of force (all of these explained to be happening within the absolute field of space and time flow). The absence of the absoluteness of space and time (that initially led to the mix of space and time as spacetime and giving up the concept of gravity as a force) when corrected (added deduction that length, mass and time is velocity created so velocity related) also needs a reverse process. This absence of the energy flow content in space and time went on to add one complexity to the other and ultimately reaching the wrong model of the inflationary cosmos; the doom of correct understanding of the universe lies in this single tiny error.

It is this return of the absoluteness of space as a flow of quantum gravity which has a reverse process that is able to undo all that Einstein wrongly gave to cosmology.

The Reverse Process Adds the last Nail

Once an absolute motion in space is created (to which every other velocity can be related to), the foundations of the relativity of inertial velocities get shaken. The change from stationary aether to the aether in motion with absolute velocity c immediately leads to explanation of relativity within an absolute space and time flows, as the crucial invalidation of absolute space and time by Michelson- Morley experiment only applies to stationary aether, if it is velocity created, it stands firm and tall, immune to all kinds of criticism. The crux of it all is that gravity—the contracting force—in the fact of consistent and constant support—is an expanding force, but limited by the availability of the backup; limited energy can only offer limited support. Thus space as the flow of energy (having a constant density, no expansion, no dilution of density), which, since *there is also a reverse process (so that the energy flow does not expand the universe)*, shows that accelerated expansion is only an allusion and an appearance. The flow of energy is finite and since finite energy can only create a finite universe (of constant density) there has to be a turnaround as well; finiteness of energy needs the reverse process firmly and inevitably. Thus the beginning of the Einstein's error was the grant of absoluteness to the velocity of light alone, and it was never considered to be applied to both light and space.

We may restate our simple explanation to non-expansion of the universe: at first, we without hesitation admit that space is appearing to be expanding and then provide the following three additional information on the reality of which physicists and cosmologists have been unaware which give a lie to the expanding universe. These three aspects are: a) that universe is a flow of energy (quantum gravity) and since energy cannot be infinite, it has to end somewhere are a reverse process has to begin, i.e. the energy flow process has to be cyclic, b) from our point of view the

reverse cycle is happening at every place in space, it is dark because it is ionisation that grants visibility (only after ionisation the property of the reflection of light emerges), fundamental particles were not created in the Big Bang, these are constantly being created in this universe itself, the reverse cycle of the energy that creates space and time (the universe) is responsible for it, and c) reason for the ends of the finite universe are not observable is that the far ends of the universe in all directions are so far that light from the ends does not reach us and since we cannot view the ends of a flow of energy either at the fringes of space or wherever it takes place (which in fact is everywhere, one wave ends but others a following it up to create a continuous flow) we are misled into believing that it is expanding. There is only an appeared expansion (and appearing indefinite, the end is too far away to be seen, the flow of the background appears--only appears—as an expansion forever. Reality has invisibility of the ends and the presence of an invisible reverse cycle happening all over space to create matter forms and fundamental particles). These two facts put together unassailably confirm that there is no expansion of the universe; it is an illusion born of the fact that it is the motion of space (the background in which light is moving is in motion without of course any expansion, it has a reverse process); physicists had never known space (and time) as an absolute flow, not the reverse-ness of this process, so were bound to err; and error that multiplied to expanding universe and it is this perception that needs correction.

Neither is this absolute energy flow constituting space (and time) is in the range of the observables nor the reverse process is of the nature of being observed (both these processes are out of the range of direct observation, visibility comes when ionisation happens; ionisation is a later event). Thus the real issues here concern, not the explanation of expansion itself, but the following connected issues: what is the real nature of this space and time which is a flow of energy? What is the real nature of the reverse process? Why the ends of the universe in direction is not visible and lastly what will be the newer explanation on CMB? The earlier points have been explained, we will take up the last issue on CMB shortly to complete our explanation on the non-expanding, non-accelerating universe. Before we take this up, we have to explain that if the universe is not expanding, 'how and why the redshift of light is observed'? We also have to extend our explanation to include 'why more the distance light travels higher is the redshift' (and the explanation of the other redshift, the Anomalous one)?

Redshift of light in a Non-expanding Universe and its Relation to Distance Light Travels

Since we are not contesting any basic fact about redshift, we have no separate argument to explain the issue. The only change we have asked for is that it is the background which is expanding which is leading to the effect (relativistic observation) of redshift of light, it also within it includes the fact that higher is the distance (farther the galaxy) higher the redshift. The differences in current understanding are two: first, the appeared redshift is a relativistic effect between the motion of space and that of light, light is being seen in the backdrop of space flow which is moving and second, though the background—the space flow is expanding, nay accelerating (as above explained $c + c=c$) it is not in reality leading to any real expansion of the universe—it is only an illusion born out of expanding background which appears expanding because it is a flow at high velocity but since there is a reverse cycle to it, it is not expanding forever. To repeat the arguments

what we say is that the flow (which gives the appearance of an expansion) has a reverse process which leads the energy to convert to fundamental particles and b) there are edges to the universe in all directions but because the edges of the universe are too far they are beyond the range of our observation.

On the issue of higher the distance of the galaxy the higher the redshift (redshift has a relation to the distance travelled by light) and that too without any actual secular motion (local motion under the inter se force between galaxies themselves left out) our argument is to put together the following facts: one, between two relativistic motions it is difficult to distinguish if one or the other is in motion or at rest, and two, since velocities of space flow and that of light cannot change ($c + \text{anything}$ is also c), two, the only way the effect (appeared relativistic effect of redshift) can apply is by the change in the amount of redshift and three, the more the distance travelled by light more will the redshift be because the more the light travels (seen in the backdrop of absolute velocity space flow) because there is no other way the relativistic effect of two velocities except that the light redshifts (*velocity cannot change and it cannot increase its distance travelled as it is placed and travelling in a closed space*). This argument also applies to explain the higher redshift if the distance travelled is higher; light coming to us from galaxies that are farther away will have higher redshifted (more the false observation of acceleration has to appear to be) because it is the only way left for light to behave.

Worth noticing is the fact that all the arguments for the redshift of light remain as it is now explained except that we are saying that *instead of galaxies moving apart in an accelerating universe, it is the background--real absolute, objective quantum gravity energy flow background--which is in motion; which, as far as comparative motion under the theories of relativity is concerned there is no difference between the two*. However silently there is the entry of an absoluteness of space and absoluteness of time which fundamentally destroys Einstein's essential argument that there is nothing absolute about velocities, we have space and time as absolute flows to compare any other velocity with; there is the essential difference which is so fundamental that it destroys, from its foundations, the theories of relativity of velocities.

V. EXTRA DOPPLER SHIFT FOR HIGH-SPEED ROTATING OBJECTS (GENERAL RELATIVITY EFFECT) THE SUPERNOVAS

It was discovered (1960) that Quasars--very small, compact, brightest energetic objects, sources of optical and x-ray sources as well, sometimes called quasi-stellar radio objects, often blue in colour, the brightest objects in the universe, the most intense sources of energy, mostly near spiral galaxies-- show extraordinary large redshifts in comparison to than their distance from earth; their brightness versus the redshift was not as smooth as in the case of Galaxies. The conclusion that they were at the farther end of the universe was however unsustainable.

Standard model theorists, having no plausible answer, yet would not accept this contrary evidence (a matter of a big controversy between the critics of the standard model and those who accept it), which makes it, all the more an important issue to discuss and resolve. The conclusion clearly was that the *quasars do not follow the Hubble law, the connection of brightness and redshift distance*

does not apply; which led to the speculation that there are some *non-cosmological redshifts* which are higher in value and have some non-cosmological components. Since its redshift had no relation to the observed distance (the non-big bang theorists called for the abandonment of the idea that is the basis of Hubble law) it was thought to be a) an aberration or b) need to look for some other astrophysical process that could explain it. The strange case of NGC 7603 (Margret Burbidge's observation which went against the incontestable conventional wisdom dispensed by the establishment) was a matter of great controversy and the cosmologists—like Margret and the likes of Arp—had to pay a heavy price for going against the establishment. There is thus also another redshift, the redshift of the light from quasi-stellar objects which in fact puts breaks on the redshift-expansion of the universe theory.

From our point of view, this observation of the higher redshift of the quasars is neither an aberration nor was there need for a new astrophysical process to explain it. What we say here is that the newly emerged law of force (and the newer explanation on the principle of equivalence that replaces everything that general relativity of theory stands for) is needed to solve the riddle of what is known as the anomalous redshift. If we do so the explanation of the extraordinary redshift for the light from the quasars (quasi-stellar radio sources)--objects ejected from the galaxies and they are ejected with high angular velocities-- is easy; *they ought to be having larger redshifts because they have high angular velocities*. Observations which seemed contrary to the 'galaxies moving apart' explanation of redshift does not remain either unexplainable special cases or observational freaks.

The Other Redshift: Not Anomalies

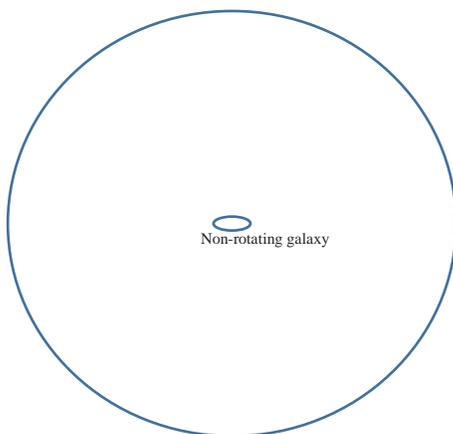
We worked out the effects of both in our explanation of both the effects—general as well as special—from the same basic rule that forces curve space and units of length, mass and time change with every change in velocity (length, mass and time units are velocity created so velocity dependent) earlier in the explanation of the new law of force and the newer explanation of the equivalence principle. In the earlier explanation (normal redshift of light from the galaxies) the assumption was that the velocities are low and almost inertial (there is rotation as well as acceleration the former is however was ignored), we only saw the motion of light from the galaxies against the backdrop of absolute space and time flow and were able to explain the redshift without taking into consideration the general relativistic effects i.e. without taking the changes in space into consideration; we just evoked the Einstein principle of relativity that between two inertial velocities (it is difficult to distinguish which is at rest and which is moving) and redshift effect was explained as the motion of the background of space and not that of galaxies (between space flow and the light from the assumed not moving galaxies, we explained that inertial velocities, nil or low accelerated galaxies it was space which was in motion and the cause of redshift of light). The conclusion that universe is not accelerating, it is the background of absolute flow of space which was acceleration was easy to reach by adding that this acceleration is only an appearance, because a) though there were ends to space, they are so far away that they always remain out of the observable range of the universe, b) there is reverse process to the energy flow and the reverse process is happening everywhere, and c) both the above processes—space flow and the reverse

process up to the stage where charge emerges in the process—are invisible as we believe that presence of charge particles is necessary to visibility. All in all this light from the galaxies is being observed to be redshifted because of an accelerating background, which is a flow all right but is limited, finite and does not reflect light. Thus all these arguments put together with the essential changes in special theory of relativity (one, observation to be made against the background of absolute velocity flow of space and time and that every velocity has its own units of length, mass and time to go with) was enough to explain non-expanding universe,

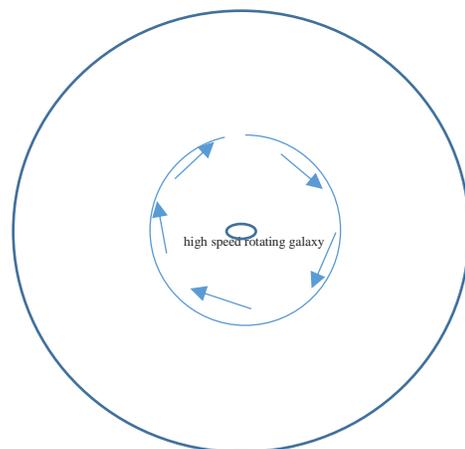
In the case of rotating objects, we need to put together, the revised explanation of both special and general relativistic effects; once we do it all observed larger redshift becomes explainable without having to ask for that universe is expanding or accelerating.

The non-inertial velocities effect need to involve space and time flow, these velocities curve it; the bending of light in presence of gravity is that it is space which curves, light only follows the curved path (we have no quarrel with bending of light by massive gravitational objects, our explanation is however different, we say the absolute space and time flow which bends and light only follows this curved space and time). Thus the distinction between special relativity and general relativity effects —though emerging from the same principle i.e. length, mass and time units are velocity dependent—and the modification we have sought for in the explanation of equivalence principle and the laws of gravity (as explained in the earlier sections) need to be applied to explain the redshift from galaxies which have high rotation.

To comprehend and explain the fact that quasars are associated with the galaxies and near it yet they have redshifts very different—much higher than galaxies-- we needed to know the *Nature of Space and Time Correctly*, which alone allows us to discover and apply the new law of force (forces curve space, the revision of the explanation of general relativity) correctly. The redshift is higher because this one is backed by the more powerful effect of rotation changing the curvature of absolute background flow of space and time! The change of curvature of space explanation of the larger redshift when the velocities are non-inertial (needs to account for change in the units of length, mass and time with every change in velocity, and this happens in space and time flow) from fast and furiously rotating objects, needs this application to be added to the explanation of normal redshift. Let us look at the two situations



Only special relativistic effect,
background is accelerating



Involvement of both special and general relativity issues

It is clear that in the second case though we are looking at the acceleration of the background only, this time, however, there is another factor to be considered; the factor to be considered is that the light is also bending (along with the bending of space and time flow by that high-speed rotation of the galaxy. Since the bent light has also to straighten up as it moves (velocity cannot change, the light is also held up at the ends, the edges of the universe are fixed and energy cannot extend outwards, it cannot go beyond, that is why it had to redshift as it moves towards us), it has to go through much higher redshift. *The light is getting blue shifted a great deal before there is the beginning of the red shift making a start!*

To say it in other words is that there has to be an added redshift—the beginning is from a blue shifted light caused by rotation of the objects is also causing the curving of the background (because of its high-speed rotation is curving space and time flow in its vicinity, the space is becoming thicker, time duration and units of length smaller)-- the background object which earlier was passive to the motion of the background of space flow is now an active participant and has led to some blue-shifting of light before the red-shifting begins-- which is the equivalence of light traveling a higher distance causing redshift of higher valuation. The difference in this redshift—from rotating objects and the light from normal galaxies—has an additional factor in addition to the earlier three we have enumerated above: a) it is space flow which is in motion, theories of relativity does not distinguish between which is in motion, b) there is a reverse process to the flow and c) though there are ends to the universe (limited energy flow can only create limited space and time flow (the universe), the ends are not visible as light from the ends, it is too far away. The fourth cause that is now added is because of the rotation of the stellar objects—non-inertial velocities are involved--the general explanation of the redshift of velocities based on special theory of relativity alone is inadequate The fact that wavelength from which the redshift has to make a beginning is higher (than what really is), the result of the sum of all the four facts (ensuring the presence of space and time as absolute flow of energy) that the light travelling in real objective absolute space (and time) flow has to stretch its wavelength (higher stretching when the source is also undergoing high rotation). Rotation of the stellar objects is only adding to the redshift because the rotation is initially blue shifting the light a great deal. Crucial new addition, to repeat is that the high rotation and presence of non-inertial velocities causes space to warp (it makes for shorter length, higher mass and a longer time duration); the density of space in which light moves will make for waves to be higher at the source (space near it is of denser kind), the stretching begins from a higher frequency and thus the redshift is larger. The explanation of observed higher redshift from quasars is as simple to explain as that! The distance cannot be stretched (closed crucible), velocities of light and space flow cannot change (absolute velocities), the only effect of the rotation of galaxies—as was the case of non-rotating (or slowly rotating galaxies) galaxies can cause is to permit light to blue shift even before the redshift of light traveling towards us begins (which looked against the backdrop of absolute space flow (flow giving the observation of an apparent expansion, while there is none because of the presence of the reverse cycle).

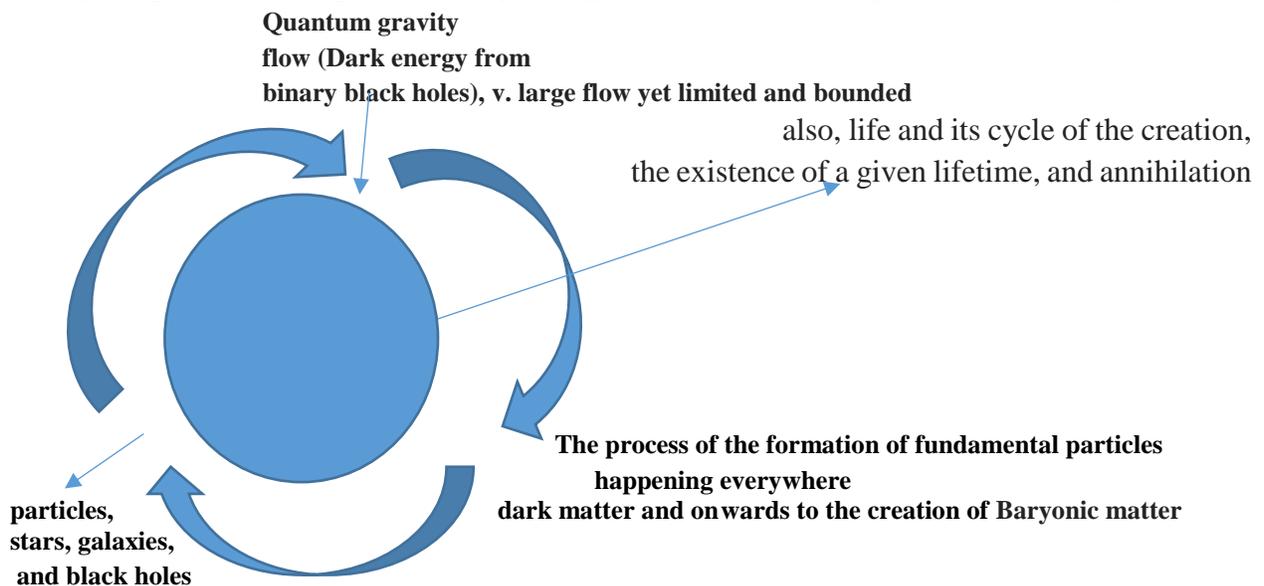
We have now completed our explanation of both aspects of redshift, one which has been misinterpreted as expansion of the universe, as well as misinterpreted as higher the distance the

higher the redshift and the other for which the standard model theorists had no explanation (except to deny its existence or hid the facts, or leave it unexplained). Both the redshifts are not related to expansion of the universe, expansion or acceleration of the universe is a fallacy; it is only an appearance because there is a reverse process associated with the apparent expansion (the background to the flow of light i.e. the background of space and time flow) expanding which it is not it is appearing indefinite expansion because we neither has the knowledge of the energy flow universe nor with the reverse process of the formation of the fundamental particles associated with it; and of course could not have observed the ends, being too far away to be seen. Result? What is just a limited flow of the background appears--only appears—as an expansion forever!
 The universe is cyclic, and the cycle is what we discuss now.

VI. THE CYCLE OF THE CYCLIC UNIVERSE

There is an apparent expansion (and appearing indefinite, the end is too far away to be seen, the flow of the background appears--only appears—as an expansion forever, which it is not at every place a reverse process is happening to create matter forms and fundamental particles). These two facts put together unassailably confirm that there is no expansion of the universe; it is an illusion born of the fact that it is the motion of space (the background in which light is moving is in motion without of course any expansion, it has a reverse process); physicists never had known space (and time) as an absolute flow, nor the reverse-ness of this process, so were bound to err.

The cyclic process that replaces the expanding universe is something like the following:



It has been unassailably argued that the expansion of the universe is an illusion born of the fact that it is the motion of space (the background in which light is moving is in motion without of course any expansion, it has a reverse process); physicists never had known space (and time) as an absolute flow, not the reverse-ness of this process, so were bound to err. Having effectively explained red shift by an alternative description we can say that we are back to the steady-state theory of the universe which nevertheless has *many points of difference* from the past theory of this nature, though it has some common points as well.

We may at the end of this part repeat the issue which had led us to believe in non-expanding universe: a) The ends of the absolute energy flow constituting space (and time) are not in the range of the observations, b) there is a reverse process to the energy flow space and time creation happening everywhere and c) the reverse process which can give a lie to expansion is also not of the nature of being observed as both the processes (space creation and its reverse process up to the state of the emergence of charge) are that which happen before ionisation happens; ionisation being necessary for the visibility—the reflection of light-- to take place. This is what has been roughly shown in the diagram above, which shows that the real issues that concern us on the explanation of expansion, is not that of expansion itself, but the following: what is the real nature of this space and time? (It being a flow of quantum gravity energy). What is the real nature of the reverse process? (It being creation of fundamental particles). And what will be the newer explanation on CMB? (It is black body radiation as happening today). We return to the important issues of dark energy, Dark matter and CMB in part II of this paper. The answer to these questions is going to tell us—prove for us—that expansion of the universe is only an appearance, not reality.

Notes:

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1. Based on, My Forthcoming Book (2017): *Smolin Sir, I Have the Answers-Part-II (Rewriting Cosmology)*
2. Refer to chapter 2 of my book (2016): *Smolin Sir, I have the Answers-Part- I (Giving up Determinism, Return to Objectivity, Realism and Absoluteness in Physics: back to 1892)*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-5.
3. Reference here is to the explanations of economics is to reference no 1 and 3, social sciences to reference no 2, evolutionary biology to reference no 4 of my other books (listed below under ‘My References’)
4. Based on paper 4 of my book (2016): *Smolin Sir, I have the Answers-Part- I (Giving up Determinism, Return to Objectivity, Realism and Absoluteness in Physics: back to 1892)*.
5. Based on Ibid, paper 5.

Inspiration:

1. Drucker, Peter (1980), ‘Towards Next Economics’ in *Towards Next Economics and Other Essays*, Allied Publishers Private. Ltd New Delhi
2. Popper, Karl (1972), *Objective Knowledge*, (subtitle, An Evolutionary Approach) and his other writings.
3. Daya Krishan (1969), *Social Philosophy (Past and Future)*, Indian Institute of Advanced Study, Simla, India
4. Smolin Lee, *The Trouble with Physics*, Penguin Books (2006), the book criticizes the current standard model of particle physics).

My references

1. *Malhotra (1988), An Insight into the Next Economics*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-5

2. Malhotra, S.K. (1994), *The General Theory of Man and Society* (Work Completed at Indian Institute of Advanced Studies Shimla -1992-94).
3. Malhotra, S.K (2008): *Next Economics: Simple Assumption-less, Falsifiable*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-5
4. Malhotra, S.K (2009): *From Natural Selection to Intelligent Selection: Theory of Knowledge is Theory of Evolution* (sub-title: Popper's footprints), to be published
5. Malhotra, S.K. (2015), 'Freedom: Teleological Causality of the Universe: Common Origin of Science and Religion' Presentation made at Religion and Science conference, SUF-2015, Vienna.
6. Malhotra, S.K. (2016), *Smolin Sir, I have the Answers-Part- I (Giving up Determinism, Return to Objectivity, Realism and Absoluteness in Physics: back to 1892)*.

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**REDSHIFT OF LIGHT YES, EXPANSION OF THE UNIVERSE NO! PART-B*:
EXPLAINING THE REALITY OF THE DARK ENERGY AND THE DARK MATTER
(Killing four birds with one stone)**

Equipped with his five senses man explores the universe around him and calls the adventure Science".

Edwin Hubble

No experimental results should be admitted if it is not backed up by a theory; science is not a book of facts, it is a matter of understanding

Edington [as paraphrased by Michael Turner]

Abstract: A non-expanding universe is being justified by the following arguments: a) the universe is an absolute flow of quantum gravity, b) it is the flow of dark energy, c) the flow creating this absolute flow of dark energy space and time is huge but finite, d) it is so large that there is no chance for light from the edges to reach us, the ends in each of the directions have to remain out of sight e) the reverse cycle has an intermediate stage where charges—positive and negative changes-- separate out, f) reflection of light and visibility happen here, this is also the state where the formation of fundamental particles and baryonic matter makes a beginning (fundamental particles are created here in this universe, not in the Big Bang); up to this stage (of the emergence of charge) the process (just as the process of space and time creation as a flow of energy is dark) the process is dark (it is dark matter), g) that the energy flow universe has end points, it is like a closed crucible of huge proportion, CMB thus is the temperature dependent radiation happening in this large closed crucible that the universe is; it is something that is happening as on now, it is not some relic from the primordial past. We work these out—a) elucidation of dark energy i.e. space is a flow of energy that is dark, b) this dark energy is not expanding the universe but is the energy creating the universe, c) it has a reverse process (which is also the explanation of dark matter and it is also the creation of the fundamental particles) and d) the revised explanation on CMB (it is a temperature dependent radiation happening here and now)--in this part II of the paper.

Keywords: the universe as an absolute quantum gravity energy flow, quantum gravity energy flow has a reverse cycle, the cyclic universe, no Big Bang creation of fundamental particles, determinism versus free will, trial and error process of learning, progressively improving chance versus the pure chance creation of the universe.

The key issues in explaining a non-expanding universe is as we discussed in the part-A of the paper are a) the space and time as an absolute quantum gravity flow, b) which has a reverse process of the formation of fundamental particles, c) this process of the formation of fundamental particles and through it to the formation of baryonic matter, has an intermediate stage which is special, this state is special because *up to the level of the formation of charge happening* there is no visibility (the process is dark), d) the special state is the state where charge separation takes place (which is the necessity entity for light to be reflected and visibility to emerge). That accounts for the presence of space and time flow (created by quantum gravity) gravity as dark energy and reverse process, up to the formation of and the emergence of charge as invisible dark matter. This new light on space and time and that of particle creation--through the intermediate explanation of dark energy and dark matter (the not understood and as such not accounted for space energy flow explains dark energy and its reverse cycle, up to the emergence of charge is dark matter)—easily allows us to reach the conclusion that there is no expanding or accelerating universe. If there is energy flow and it is limited, there has also to be of necessity a reverse cycle, this tells us that universe is a cyclic; this cyclic universe has to be *complete, self-sufficient and ought to explain all the cosmological observations*—so far made and that may be discovered in future—correctly, cogently and thoroughly. There are thus several connected issues in the explanation of this non-expanding universe that need to be shown to be correctly explained by this model. These are: a) space flow is the flow of dark energy, b) its reverse process which is also dark (up to the level of emergence of charges) which gives universe its finiteness and is responsible for the creation of matter forms, i.e. the fundamental particles and its higher forms and c) the revised explanation of CMB that supports this view. We begin with the revised explanation of dark energy.

I. DARK ENERGY¹

Much of what we have to say on dark energy is already stated in our explanation of space and time flow as an absolute flow of quantum gravity, discussed in part-A of the paper, we may, however, add some more on a) the connection between dark energy and the space and time as the absolute flow of quantum gravity and b) and the process being dark.

Physicists and cosmologists think dark energy-- also called vacuum energy, and they have evidence of it being 73% of the total energy of the universe—is the energy responsible for the expansion of the universe. In their wisdom, without the knowledge of the reality of the universe being an absolute flow of energy, and having garnished support from Hubble's observations on redshift, they have seen merit in asserting vacuum energy or dark energy to be the cause of the expansion of the universe. This, when extrapolated backwards, leads to beginning of the universe from a Big Bang singularity followed by epochs and radiation dominant period and matter dominated period. They have also merged Hubble's expansion of the universe with Einstein's theory of general relativity to give Freedman-Robertson-Walker equation with its three kinds of possible universes.

Cosmologists think of universe and dark energy as separate entities, and the latter is responsible for the expansion of the universe. From our point of view universe and as a flow of energy (which has reasons to be dark, invisible) and the universe (as a flow of energy) are one and the same thing; it is the flow of energy which is dark is also the reason of the universe's continued existence (if it

was not there would not be no universe) and its presence from a point of initiation to today and to its unidirectional but limited (limited by entropy considerations as the energy flow creation of the universe is a mechanical process) continuing in future (i.e. creation of space and time and the universe being synonymous entities). As far as expansion and its connection to dark energy is concerned, the very idea of expansion is wrong, as explained in part-A of the paper there is no such thing as expansion; the energy flow creating the universe has also a reverse cycle associated with which rules out expanding universe, but that of the creation of the universe Restated, expansion is only an appearance, because a) the real nature of the universe i.e. it is a constant and consistent flow of quantum gravity, b) the process of the creation of the universe—space and time—has also a reverse process accompanying it, and it is happening everywhere, all over the universe and c) the universe so created is so large that there is no possibility of light from the edges reaching us, it has not reached us yet. The reverse process is the process that converts the disintegrating space flow energy to fundamental particles. Everything dark as well as visible is happening here and within the universe, we need not evoke the Big Bang to do a few things that we were unable to explain (because in the first place we did not contemplate universe as a quantum gravity absolute velocity flow).

What this explanation-- space as a flow of gravity is itself the dark energy, the expanding energy flow—shows us that gravity has a repulsive incarnation-- in fact there is nothing repulsive about gravity, the expanding (appearance) is there because flow of gravity is being backed by more and more energy, which is pushing it and creating it; it is this real flow of absolute constantly backed up gravity that gives it the expanding formation, which in the absence of the knowledge of the reverse process is giving the appearance of an expanding universe. The deviation from the relativistic world that Einstein had given us is now replaced by the presence of an absolute quantum gravity energy flow which does to physics a few wonderful thing: a) it creates an objective space and time which are only one-way streets as an irreversible process i.e. it provides the solution to the contentious issue of dark energy, b) in its reverse process which leads to the formation of fundamental particles, it leads to—in its initial stage (before the stage where charge emerges) the explanation of and dark matter, c) the space flow of energy having a reverse process tells us the universe is not expanding, d) it does away with the need of the unscientific Big Bang creation and e) it also has the creation of charge in its reverse cycle (with it comes visibility). Whenever and wherever energy flow weans the reverse process of the formation of fundamental particles (as well as the creation of charge, and with it visibility) begins—the invisible reverse process which is dark in its initial state is this process. Cosmologist apply evolution from plasma state to baryonic matter state in a linear manner from past to present (primordial past to present) in terms of history; we believe it is not linear from the past to present; it is cyclic: binary black holes to absolute space flow (plasma state, dark energy) to fundamental particle (up to the state of the emergence of charge, dark matter) to baryonic matter to stars to galaxies to black holes and back to space flow. We also add to this newness of the cyclic flow formation (dark energy and back to another addition to the dark energy flow through the process of fundamental particle formation and the formation of stars, galaxies and black holes) another important aspect which gives it a fresh new and far higher scientific quality: as this process continues, entropy rises. Dark energy thus is a constant, consistent flow, which has no break in between (if one wave comes to an end there are others following it up), and the explanation of dark matter also comes in the form of its returning to matter form (limited energy cannot go on and on, it has to have a reverse process, the reverse process has to begin anywhere and everywhere where the support to a wave of its flow ends), the moment the support ends the reverse cycle begins, and formation of fundamental

particles begins and it is spread all over (the entire) universe. The equation of the energy flow universe is: $v=c$, ∇c is also c , only $\nabla^2=0$. It is a scalar field-- constant consistent flow with no break in between (if one wave comes to an end there are others following it up) flow, there is zero potential difference at any place and absolutely flat (as long as it is away from matter forms). It is Dark Energy (where the energy flow is dark but not dark energy but as we discuss below it is not a photon flow, it is through all its length and breadth a fermion flow (spin of its quanta construction is of the kind fermions have). This absolute flow of gravity creating space and time (or the universe) also has a reverse cycle so it is not expanding. The misleading entities leading us unacceptable and unimaginably incomprehensible thing in cosmology have come from our wrong understanding on what theory of relativity is all about (explained in part-A of the paper). This absolute velocity energy flow universe is dark but it is a constant density flow which has no difference in its uniformity across its entirety (presence of matter forms distort it locally). Along with an absolute velocity, as discussed in part-A, it also has an absolute rotation of the quanta constituting it (duration of the time created is this unchangeable rotation or the delay in the flow from infinite velocity).

This is, in brief, our story of the universe and that of dark energy, which we believe is cyclic; no expansion, no matter dominance, or radiation dominance differentiation (matter dominated and radiation dominated universe has no place in this model where there is no expansion, no three types of possible universes, no different eras. We have a cyclic universe to account for everything. After the right combination of the values of c , G and h were once struck, it is a constant density (no expansion no dilution), a completely and correctly evolved universe. We would not like to speculate on the period it was evolving by trial and error, except may be to just add that earlier there would have been only energy flow which by the 'willing' process and the urge to freedom enlargement—physicists may call it spontaneous symmetry breaking—some bosons flow began to convert to a fermions flow of space and time, mass and time delay entered evolution and with it happened the creation of mass and time (mass and time got added to what was earlier plain energy flow).

'Energy' in Dark Energy is a Misnomer

Since we believe—as above explained—that space is a fermion flow, it is made of mass particles and it has the element of time included in it, it has units of action (unit energy multiplied with time) it is not photon flow or it is not made up of bosons. Space and Time is a Fermions Flow; there is some density of mass, rest mass, and spin that will work this out differently from massless photon flow of electromagnetic energy. Physicists give graviton spin two, how and why physicists give it a spin of two is not understandable (there is something wrong in the understanding of gravity somewhere, somehow but then they have no real—realism intact—understanding on spin, mistakes are bound to enter)²

The dark energy thus is space flow of mass particles (having the rotation of its quanta equivalent to time a delay of the flow as compared to infinite velocity, which is also the reason of it having rest mass), with another new addition that there is a reverse process to it as well. It is the creation of the universe itself. To understand the universe we form the reader may contrast the FRW universe of current understanding with our cyclic universe drawn at the end of the part-A of the paper.

Nothing else is needed to explain dark energy (and the cosmological constant), dark matter explanation follows, but before it, we must argue that the universe has to be a finite universe.

On the Finiteness of the Universe

We believe that nothing can be infinite, infinity has no useful meaning. Thus if the energy flow creating the universe (absolute space and time flow) is out of limited energy, it has to a) end somewhere, and b) it has to have a reverse process that has to begin whenever and wherever the energy flow supporting it (the creation of space and time flow) weans.

There has also to be an edge of the universe in all directions, the edge is not visible because the universe is so large that light from the edges cannot reach us (our visibility is limited to 13.7 light years only). The edge, however, may not be sharply defined, depending on whether the energy flow supporting it is going up or is reducing there may be inward and outwards movement, but for the whole dynamics, some equilibrium (even momentary) is always possible to be worked out around which the outer ends fluctuate. The plus or minus change is equivalent of some young girl attempting to keep her weight (in fact volume) in check, if she eats more (if more energy is entering to expand space), she expands (universe expands), if she reduces her calorific intake (the flow support to space and time flow weans) she contracts (the universe contracts). If the intake--the flow of energy creating space and time-- remains constant the universe will have an equilibrium. One fact to be essentially noticed is that: without any backup support there is no way to expect the universe to exist, the quantum gravity flow support has gone on for 13.7 billions of years and it is likely to go on and on till the rise of entropy brings it to an end. If energy flow support were to end, it will be the end of the universe.

There is also a reverse process to this absolute quantum gravity flow, which is the second part of the two-stage universe (and the two stage physics), which physicist and cosmologists never comprehended (as they did not understand the first as a flow of energy); it is this absence of knowledge of the second stage which is the reason for physics taking the universe to be expanding. The truth about inflation is that it is an appearance only, in reality, there is no such thing as secular inflation.

II. DARK MATTER³

Observation on the velocity of rotation of stars within a galaxy—velocities of stars are independent of their distance from the centre of the galaxy-- led to the conclusion on the presence of an evenly distributed matter all over the galaxies, in the absence of this matter i.e. if there was no evenly distributed matter within the galaxies, it would have led to the stars at the edges of a galaxy flying away and not remain contained within the galaxies. Physicists named this evenly distributed matter that does not seem to interact with the stars, dark matter. It is strange that on one hand, they have the matter that they call dark, to which they have no clue and on the other, they profess a Big Bang where the fundamental particles were created! Can't we keep away the unscientific big bang out and apply a cycle of flow of dark energy having a reverse cycle in dark matter! Can't we say that fundamental particles are being created within the galaxies from the reverse process of the dark energy flow of space and time (which is responsible for its creation)? Even without going into details our model—space and time as an energy flow which also has a reverse process to it happening everywhere and which is for good reason dark as dark energy (above explained) is—the model appears to prima facie solve the two contentious problems of cosmology: a) what is dark energy and b) what is dark matter; and also takes away the need of something so unscientific as the Big Bang (anything without connection to the law of entropy is unscientific). This new light on space and time as the flow of energy has made things simple and so is the explanation on dark matter; limited energy can only create limited space and a reverse process has to essentially follow. The two together—space and particle creation being part of the continuous process cyclic energy

flow explains both dark energy and dark matter rather easily: dark matter being the reverse process of the conversion of this dark energy flow space, two together make a simple tell-all story if we only accept that big bang conceptualisation (and that fundamental particles were not created in it) as unscientific; particle creation is a continuous process happening everywhere and all the while. But to understand it all the first acceptance of the fact that physics has two stages, The two stages to repeat are: a) space and time that is matters own created dark energy flow (it is really quantum gravity absolute constant and consistent flow which is dark because the process of the creation of charge, essential for visibility by reflection of light, has not yet come into existence, details below) and b) the real absolute flow has to have a reverse process which leads to the creation of fundamental particles, this process too is dark—dark till the process reaches the state of the creation of charge (explained later). The finiteness of the former (which is finite, finiteness has to be accepted because we believe there is nothing like infiniteness in anything) though it being so large that light from the edge does not reach us (as such the ends are not visible) coupled with the latter (the reverse process to it) allows us to say the expanding universe is a fallacy.

The Process of the Formation of Fundamental Particle: Why the Finer-Structure of all Fundamental Particles has to be a Harmonic Oscillator? ⁴

Physicists have formed a planetary structure of the atom with a nucleus, which has neutron and proton which in turn is constituted of quarks. For the explanation of the very large number of properties of the fundamental particles, particle physicists assume them to have properties of a harmonic oscillator, without having any cogent reason to do so, simply because this kind of explanation matches with the observed properties very well. In our view—which has a different beginning for space and time as well as fundamental particles formation (particles are not created in the big bang but out of the disintegration of this space flow energy, whenever and wherever the energy flow weans)—the disintegrating space, first of all, takes the formation of long thread-like structures which spin and come together and later coil; this space flow energy has high velocity and lot of rotation, so at the disintegrating stage the long space strings which spin and later coil can be well expected. Really of fundamental particle formation thus concerns the question how will the network (that space and time flow is) unfold if suddenly the energy support to it was to stop? The answer obviously is, that it will much depend on the way the network got constructed in the first place. Fundamentally the answer to what this process of particle formation is lies in what the network of quantum gravity space and time flow--painstakingly knitted and supported by more and more of the repetitive connection the quantum gravity network, moving with velocity c and its quanta rotating (rotation equals the time delay in the flow), and all of it happening at the small scale of 10^{-34} that space (and time) flow which is disintegrating—is. Since particle formation follows space disintegration, the particle physics data can give us lot of clues to what preceded it; how it initially got constructed will get unveiled from what has resulted from it. Knowledgeable particle physicists will ultimately be able to form a very exact, completely accurate information on what is only being speculated in this section. We may, however, stress that the *basic idea of the formation of the particles as harmonic oscillators is not speculative*, the details of the process of the formation--which in fact involves the revision of the whole of particle physics-- may only be treated as some kind of guess work worked out of what particle physicists tell us (no not exactly what they tell us, but on what little I have understood of what they have told us).

If the initial space flow was a construct of the three long chains of the smallest action particles ('action' has units of energy times time) and it is these that come together, it will disintegrate in that manner only: thus the first entity we get from the disintegrating space (and time) flow ought to get long thread like entities (a long chain of the connection of 'action' particles, action being

the smallest quantum that connects to form the chain), we may call it long space strings of the lowest dimension. These long space strings will be twisting because at disintegration they have an angular velocity, three of them will spin together to form the thicker long string which coils under its own gravitational force. Individual strands twisting independently will result into neutrinos (helicity of the neutrinos easy to explain, they are the foundational constructs and have large freedom, low constraints, the area of uncertainty is its area of freedom (we are here not discussing our view on the current non-realism based quantum mechanics, suffice to note here is the fact that area of uncertainty is the area of freedom in the hand of the particle, which can think and act at its own bidding in this limited volume of uncertainty, this changes understanding on quantum mechanics drastically, it now does not compromise on realism)⁴; these three strands twisting together (not coiling) connect to form three thicker strands (each made from the three lowest level least energy flow leading to the formation of the thicker strand (one strand having three of 3 sub-strands). If two such strands connect, twist *and coil* we get a meson, if three join together and twist *and coil*, the result is a baryon. There are initially nine basic strands of the level where the science of neutrino operates, three of these connect (no coiling, some twisting is possible) and lead to three strands of long space strings that twist *and coil* to form fundamental particles. We also speculate that these connected three strands, when they coil result in the formation of quarks (inseparable because these are constructed out of spinning connection that cannot be separated (not by applying force, at least, it may be possible to separate them by more tricky methods like first de-twisting and attempt to separate them only thereafter). These strands (3 into one strand, one formed from three more basic neutrino level strands formed before the coiling process begins) when connected as a pair spin and coils together (1x1twisting strands coil together), as above stated, will result in the formation of mesons, if one string joins with *two* other strings, the result is the formation of baryons (proton and neutrons) as the core of particle formed. Fundamental particles created out of space flow energy disintegrating, which twist and coil in a given kind assures us that all particles have to attain the form of harmonic oscillator formation, differences between them arise from the manner of their coming into existence (different twisting and coiling). Twisting happens twice, coiling only once-- the first combination of three long space strings only spin and join and later the joined thicker entity spins and also coils. The coiling goes on and on till ultimately it breaks; break at a certain level of coiling the level being determined by the strength these spinning and coiling long space strings carry with it. The breaking is of such a nature that the particles do not attain complete independence from space, there is still the limited freedom relation with space, and have a) the ability to be a part of it, i.e. be a wavelike entity or be in particle form or become a part of space or move out from it (depending upon the constraints faced on way), and b) be able to draw limited energy/momentum from space energy/ momentum or push some into it. The coiled entity (the harmonic oscillator) is independent of its mother i.e. space and time energy flow (to which it owes its existence) yet has a close association (freedom relation) with it i.e. having the ability to draw limited (limited by the applicable uncertainty relation) energy/momentum from space or push some into it.

One noticeable thing in the way we see particles formation, every formation has to have an inner hardcore (the nucleus) and the dangling another end which in case of charged particles is an electron i.e. the formation results in a pair of baryon and a lepton; creation of a baryon and a lepton as a pair is a necessity, it is a new symmetry in the offering. Thus, we can say that a) creation of particles is in pairs: a baryon and a lepton, b) nucleons and electrons have to be seen as a unified entity--two ends of a complete unit, and c) whatever information has been experimentally obtained separately for the nucleons and electrons needs to be brought together, laws that apply have to be

located for the totality of system having the electron and proton (or neutron) as a part of the atomic structure, d) whatever be the form every entity is a harmonic oscillator and e) it is the interconnection of the few of these smaller harmonic oscillators that gives us atoms (and later molecules). The important conclusion is that all the interaction between particles has to be studied as interaction between two (or more) harmonic oscillators; whether we study the nucleon or an electron it is the study of the harmonic oscillator as a total entity or as a truncated one, or as a study of a single harmonic oscillator or a combination of several harmonic oscillators. The difference between neutron and proton has also to be seen within the harmonic oscillator construction. The essence also has to in some way reconcile whatever information has been experimentally obtained separately for the nucleons and electrons to be put together, laws that apply have to be located for the totality of system having the electron and proton (or neutron) as a part of the atomic structure and every entity has to be a harmonic oscillator or a combination of several of such formations. The study of atomic forces (nucleons included) has to strictly result from harmonic motion of one single such form or a combination of several simple harmonic oscillators. We may have to work out the oscillations of several units placed together in different patterns, and the reality to comprehend being resultant diffraction (or interference) of several oscillators with different properties (the mass on the spring (electron) and properties of the spring the nucleus. The result may be of similar to nature as that reported⁵ in Am J Phys, where the result of several oscillators with different lengths hanging together operating in unison has been reported.

Involvement of Spin

We must also notice that the study does not just involve that of the vibrations of the harmonic oscillator, along with the vibrations, there is also to be rotary motion (because of some angular momentum also applying) and it is this latter that is likely to give us the explanation for the kind of spins, magnetic moment, and quadrupole moment etc. to this we may add that the nucleus part, for its mass and inertia, is relatively fixed, and at the other end of which is the electron which ought to be vibrating or gyrating (or doing both simultaneously). It is also easy to note whether electron end is joined to the core or not joined to it (whether the particle is a neutron or a proton), it is a harmonic oscillator that has a harmonic motion and spin. Whether an end of the formation (seashell like) is loose or connected to the core does not change the basic formation and its motion as a harmonic oscillator having oscillation as well as spin (the currently accepted formation of a nucleus and electrons moving around it is faulty). All formation including the independent lepton or neutron or the further complex formations (resulting from the coming together of several of the simple harmonic oscillator, the result of coiling or two or more fundamental coils coming together) has all to be having the harmonic motion having a spin (and nothing else).

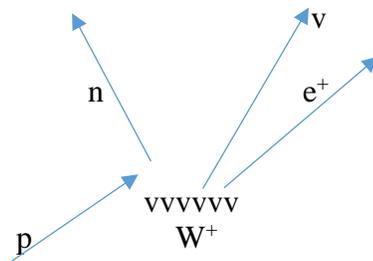
The few important factors that control the nature of particle created that need to be specified are: a) the process by its very nature to begin from very fine smallest quantum level (10^{-34}), b) different properties emerge from different kind of twisting and coiling, the initial velocities and momentum and angular momentum that long space strings inherit from the disintegrating velocities and angular velocities of space flow has to be coupled with the quantum freedom i.e. limited ability to control initial velocities that disintegrating objects have in their hand, c) long space strings (having mass, space flow has density of mass, so it will be fermions kind of construct, as against light (which is a basic boson construct), d) its form has to be a spiral structure (like the sea shell) on this very small scale, e) since the formation of particles is from the twisting and coiling of the disintegrating long space strings, the combination of two or three of the long strings twisting and coiling together (and this combined entities twist and coil together and breaks at some point) can be the result, and the result has to be essentially a harmonic oscillator, f) the formation has to have

an inner hardcore (the nucleus), g) the hardcore of necessity (two or three strands coiling together, two coiling together is a meson, three coiling together a baryon), it also leads to either two or three inner smaller core elements (inseparable quarks, because two or three coils have twisted together before coiling, making them inseparable) and h) the coiled construction has to have both the core and the dangling end as one entity, i.e. the creation of particles has to be in the combination a baryon and a lepton pair, i) the presence of small mass is also an optional entity, harmonic oscillators can operate as harmonic oscillators even without the presence of the two together (as in the case of textbook study of mechanical oscillator, the inertia of spring is also to be included in the mass (we approximate when we speak of the mass m without the inclusion of the inertia of the spring), and j) the *amplitude* of the harmonic oscillator is dependent on the initial conditions and, k) the *period of oscillation* on the properties of the nucleus (depicted by the rigidity of the spring, k) and the mass (m , total mass of the particle, both the nucleus and lepton) hanging at the other end (electron or positron, depending on the direction of coiling) or if the two are a single entity (as in case of a neutron).

Once again, it is necessary to keep in mind that we are not working out the exact particle physics, whatever we have worked out however firmly and unequivocally tells and establishes: a) space flow as energy is dark energy and its reverse process—till the state where charge emerges-- is dark matter, dark because ionisation has not been created till its reverse cycle begins (beginning of visibility has a relation to the emergence of charge, to ability of light to be reflected), and b) particles are all formed out of its disintegration and they are all real harmonic oscillators that have real limited (limited by the uncertainty principle) freedom relation with space flow (that it has the ability to be a part of space flow, i.e. be a wave, or be independent of it as a particle, and also the ability to draw limited energy/momentum from space flow energy/momentum or push energy/momentum into it).

Creation of the Neutron

The structure of the atom concluded by physicists has been that of a planetary system where the nucleus is separate from the electron--though for getting most answers correctly a harmonic oscillator is often always revoked. We have shown that at the very fine level of operations the structure is a harmonic oscillator itself. Every particle is a harmonic oscillator where the core of coiled entity will be a proton with a dangling electron at the other end: a real harmonic oscillator. Since at the atomic level the nucleus also contains neutrons along with protons (except in the case of hydrogen), it is necessary to show that neutrons are also created *within space flow* and in the vicinity of protons so that formation of atoms—beginning from hydrogen and helium—is facilitated.



The known process of conversion of proton to neutron requires a proton and presence of so-called weak force interaction, which leads to neutron being produced along with a w^+ boson, which decays into a positron and a neutrino, we cannot discuss the new methodology of the new process in this paper, it involve many new things than hitherto understood which involves: a) the different ways in which forces act that has been discovered by the that replacement of theories of relativity adds (the essence of which is that the variations caused by forces are happening through changes in space (and time) i.e. through changes in absolute space and time flow, b) explanation of the quantum mechanics (realism intact quantum mechanics) energy flow (ability to draw energy or push energy from/to the reservoir constituted by space and time energy flow is a part of the whole dynamic process of the formation of particles), c) space and time flow are active participants in the whole particle formation process (it, of course, begins by the disintegration of this energy flow), d) creation of strong force is the same process as the formation of the nucleus, strong force is nothing else than the proton creation by coiling of gravity, e) emergence of the weak force is a part of the creation of strong force (reaction to rotational rigidity of the space flow, rotational rigidity come from rotation being connected to the creation of the duration of time which is unchangeable like the velocity of space flow cannot be changed) f) this creation of weak force (in the same manner as magnetism is the reaction of electrical forces to this rotational rigid space and time energy flow) comes along with the entry of strong force. We never had space and time as energy flow (to which law of entropy applies) we consequently also did not know of the rotational rigidity of this space and time flow and this never knew that weak force is comes along with the strong fore is the reaction of the strong force to rotationally rigid space and time flow. All these issues cannot be gone into details here, our limited purpose in this section is only to explain how neutrons can be and are indeed produced in space in the vicinity of protons and for which we have to assume all the above entities to be given. These new explanations allow us to reach an easy explanation of the change of proton to a neutron, within the space and time flow *everywhere at whatever temperature that may prevail! Thus neutron will also come into existence here and nearby the process of the creation of the proton!* The creation of the neutron along with proton ensures that further particle creation progression can follow everywhere in the absolute quantum gravity space and time flow! All the above factors—specifically the emergence of strong force and the weak force in unison-- ensures that the process of the conversion of protons into neutrons is not as difficult as it has been made out to be as in the present method of the explanation of the formation of elements; simply stated is that is that proton is created by the coiling of long space strings (electron at the other end), this very process when seen in terms of effect of forces causes changes in space is the strong force and the reaction of the strong force to rotationally rigid space is the creation of the weak force; thus weak and strong force come into being together which makes possible for neutron to be available wherever proton comes into existence. Needless to repeat that this process beginning from space and time energy flow disintegration does away with the unscientific Big Bang creation of fundamental particles.

Presence of a Newer Symmetry

The above considerations lead to an important conclusion: since nucleons and electrons have to be seen as unified entity--two ends of a complete unit—there is the presence of the symmetry in the creation of the particles: proton and electron emerge in pairs and as two ends of *a harmonic oscillator*. Thus whatever information has been experimentally obtained separately for the nucleons and electrons needs to be brought together, laws that apply have to be located for the totality of system having the electron and proton (or neutron) as a part of the atomic structure; of electrons can separate out and be independent harmonic oscillators. The inner core, the nucleus

part, is if for nothing else because of mass and inertia to be considered relatively fixed at the other end of which is the electron which ought to be vibrating or gyrating (or doing both simultaneously). The study of atomic forces (nucleons included) has to strictly be a simple harmonic motion associated with some rotational motion because of some angular momentum also present (we must have the explanation for spin, magnetic moment, and quadrupole moment included!).

Thus the totality of the system (nucleus and electrons as a part of a single system) is that different particle systems are a) all harmonic oscillators, b) the different properties arise from the difference in their *amplitude* (real amplitudes of real objective entities, no fictitious wave functions having fake amplitudes) which itself is dependent on the initial conditions and the *difference in their period of oscillation* which is determined by the properties of the nucleus (spring constant k) and the mass (m) hanging at the other end (of opposite charge, call it negatively charged or whatever it may be named, electron), which also has a spin, and c) as in the case of mechanical oscillator the inertia of spring is also to be included in the mass (we approximate when we speak of the mass m without the inclusion of the inertia of the spring) and d) on the rigidity of the spring, as above it not totally rigid and our not bringing its elasticity into calculation is only an approximation, in the fine calculation (if we want complete accuracy we may have to include there also in the calculations). The emphasis is on the conclusion that at the deeper construction within the particles (there may be difference of details) but in its totality the construction is that of a harmonic oscillator, and that it obeys the laws of a harmonic oscillator's motion (oscillations of the mass on a spring). We must remember here that most of the mass is at the core end and there is only a very small mass that hangs at the end (electron has a very small mass) but even the spring (coiled from the long space string) the inner core is also not totally rigid or unmoveable, it is rigid only in relative terms as compared to the electron.

In sum total what we say—allow me to repeat-- is that A) harmonic oscillator formation that also has a spin is going to be science of fundamental particles, the composite structure of nucleons and electrons is also going to be the new science of particle and atomic physics, and also of the further advance forms i.e. molecules and biological complexes (up to the human brain) also we have to deal with harmonic oscillators or complexes of several harmonic oscillators (as can be seen in a reference quoted above, reference 5 below), and B), that the initial process of the formation of particles is dark, i.e. till the process reaches the state of the creation of charge (it is the dark matter which has escaped discovery till now).

Dark energy to dark matter and further some of it reaching the baryonic matter state is a continuity and all three states are part of a continuous cyclic process of the creation of space (and time) as an absolute flow of quantum gravity, its disintegration whenever and wherever energy flow weans and the beginning of the process of formation of particles, first the process is dark because charge has not emerged (which is necessary for visibility to happen), after charge emerges further progress to baryonic matter, to stars, galaxies and black holes happens and once again binary black holes create the absolute velocity quantum gravity flow; all in all everything is happening and continues to happen in a perfect cycle. We must not fail to note that in the course of this cyclic process—all of the energy getting into different forms, a lot of energy is also converted to heat (the process is mechanical and it involves the law of entropy), rise of temperature of the universe and rise of entropy in this process is in order.

Fibonacci spirals

An interesting fact may also be taken note of: In the year 1280 Leonardo Pisano noticed the golden rectangle (formed out of numbers 1, 1, 2, 3, 5, 8, 13, the next number is the sum of earlier two) is found in nature in huge variety of things from the spirals of galaxies to the floweret of the

sunflower. Scientists have never been able to reason it out. With the above method of the formation of particles (spiral structure of the nature of harmonic oscillators), the new structure of the particles and later also of the atoms and molecules (several spiral structures coming together) provides the answer: the golden rectangle is the fundamental, basic structure of matter forms! It is seen prominently in nature, and the reason is obvious: because everything in the universe started from the space disintegration converting to spiral forms! The golden rectangle (formed out of numbers 1, 1, 2, 3, 5, 8, 13, the next number known is the sum of earlier two) is no accident or coincidence or chance creation in nature (see also the progressive nature of chance, in will caused and constructed space and time flow and further advancement of happenings in the universe. Following are the expression of the Fibonacci numbers in the spirals, it is obvious that this formation has also to be seen in the basic structure of fundamental particles

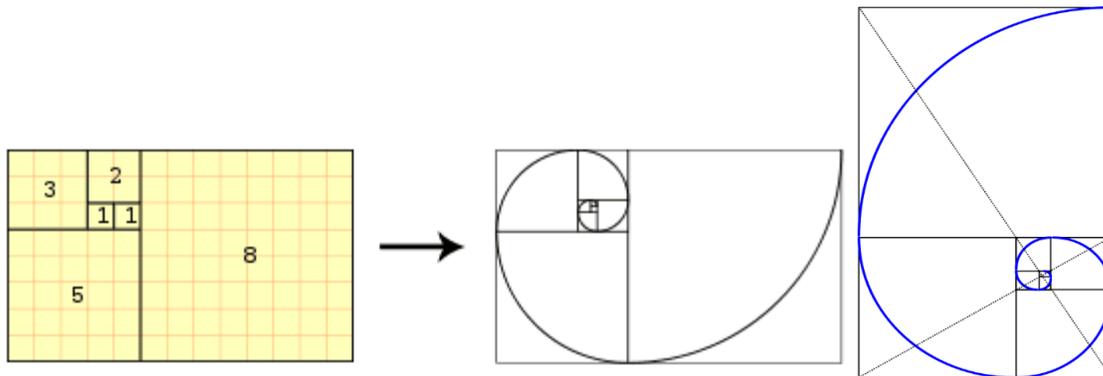
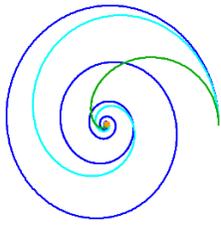


Fig.1: Fibonacci numbers relate to the spiral. The spiral known as Fibonacci spiral is the basic structure of all matter forms, it has to be because this is the only way in which disintegrating long space strings can spin and curl (the spirals, the harmonic oscillator form, all atoms are the coming together of such fundamental spirals, not all such formation are lucky enough to become matter form, lot of these spirals move around in absolute space, not resulting in Hydrogen or Helium atoms (the two most simple spirals and the most abundant of all).

The conclusion is that the particle and atomic structures have to be different from what has been worked out till now; no plenary structure. For accounting the stationary state of the fundamental particles and their advanced forms physicists work with their harmonic oscillator formation, but do not accept it as that; there is now enough justification to say that all particles are harmonic oscillators, every issue connected to the particles is much better explainable from this kind of structures (spirals that take the form of harmonic oscillators).

More on the Nature of Winding

Following are some of the possible windings:



Two spirals winding
Together (like in mesons)



clockwise and
anticlockwise winding



three quarks in
in the nucleus (baryons)

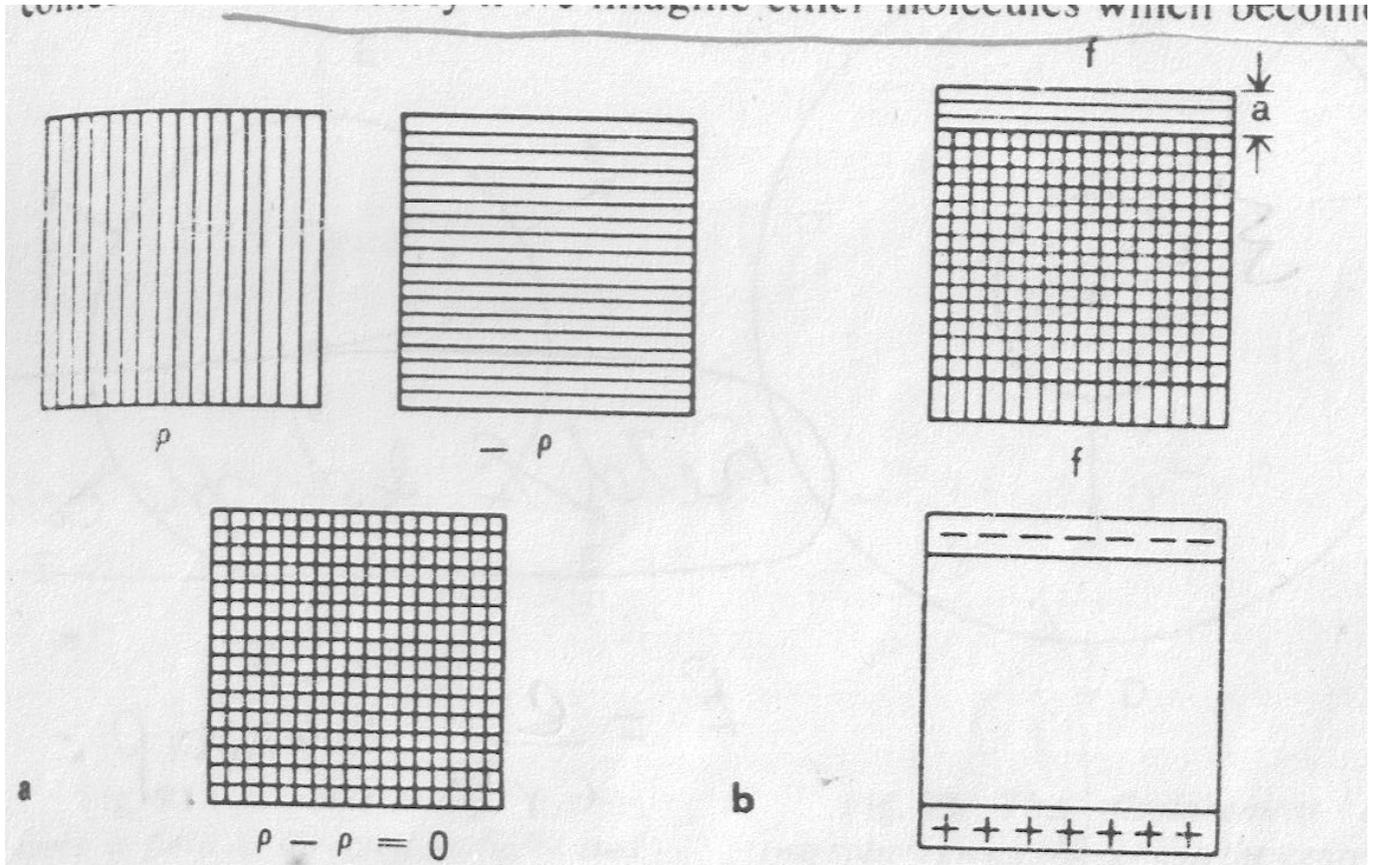
From the first formation of the disintegrating space will be long space string, which will come together in bunches of two (mesons) or three (baryons), a lot of the long space strings will not find partners (will remain as dark matter, space flow itself is dark energy). The twisted and joined long space strings are all fundamental particles. From the disintegration to particle formation we can see that all particles have to have the spirals and harmonic oscillators

It appears that the successful formation is quite small, the unsuccessful formation much larger and it is the latter which is invisible (does not reach the correct electromagnetic formation) is what dark matter is; it is not a part of radiation it does not emit light, it remains in its micro form (quantum scale onwards, and not the correct assembly of charge and as such not directly observed and shows its presence only indirectly. It is thus no mysterious thing, we did not know the reality of space flow and far more did not understand the correct method of the formation of particle nuclei and charge that leads to the formation of atoms—specifically, the formation of electromagnetism--and thus did not get the correct answer to what dark matter (or its earlier dark energy state) was.

Emergence of Charge: Issue of Displacement⁶

Dirac in his classic article ‘ Evolution of Physicist’s Picture of Nature (Scientific American May 1963) predicted charge ‘e’ as the derived quantity, how correct he is now proved to be. We have discovered a causality for the universe’s (space and time as a flow of quantum gravity) coming into existence and in has the fundamentals of it has at its **basics** emergence of the right values of the fundamental constants in c, G, and \hbar (i.e. the velocity of light, gravitational constant, and Planck’s constant/ 2π), as we see them applying now; e (the electron charge) is outside it, it is a derived quantity, derived from the other three and this is what we intend to show—including its causality-- in this section. We believe that the cause for the presence of charge (value e) is displacement between the coiled layers of space components. We have already noted that particle construction happens out of fast moving space (moving with absolute velocity c), which disintegrates into long space string wherever and whenever further support of energy to it weans the original disintegrating long space strings, as above worked out, has three strands--these are three lowest level long space strings that twist and coil--as these three layers coil together. The coiling layers as the coil tightens get slightly displaced, which results in positive and negative charges emerging at the opposite end. Thus, to repeat, we believe that the emergence of charge is related to the formation of the structure of the particles from disintegrating space that works itself out from the long space strings and the manner in which they curl and twist before becoming particles. Since there are three strands (one each from each dimension of space?), charge emerges by *displacement* between the three strands (due to the long space string getting coiled, the three

layers of string twist and coil and form harmonic oscillator particles); thus in its basics, this process of twisting and coiling of the emerging long space strings (out of disintegrating space) is also the process of the creation of charge. The three layers when they coil will displace slightly differently, the inner layer will coil more than the outer layer; this differential displacement between the layers is responsible for the emergence of charge. the idea of displacement has been borrowed from Born⁶



Idea of displacement is from Born, the above figures, that clearly develops the idea, is reproduced from of his book *Einstein's Theory of Relativity*,

What we say is (as per basic idea from Born) that at some level of the long space string coiling and coiling hard, the inner later will be tightened more than the outer layer, while the in-between layer may remain neutral. There will thus arise two differentiations here: a) the way the space strings twist and b) the way the twisted string curls up into becoming a proton. The long string becomes so tightly formed coil that it shows displacement at the ends, its end shows a small split (see fig. above)⁷, this is the emergence of charge!

The coiling will also break free from space and become a separate, fundamental entity having two ends, the coiled up end and the free end with opposite charges at both the end, this also has the division of change among the quarks inside the harmonic oscillator particle (with complete neutron or proton in place). The completeness of the neutral particle with separation of charges in place comes out with the coiling breaking free from space and becoming an independent entity (within the absolute flow of space and time. the formation of the harmonic oscillator particle complete with the charge in place (both positive and negative at each of the ends) is completed by the

breaking of the tightly coiled entity at a determined level (which is dependent on the property of the long space string that coils).

Displacement and the breaking free of the coiled entities happens simultaneously, the inner and outer entities also get their different opposite charges; one kind of charge emerges at the inner end and the other the opposite at the outer end, the charge at the inner charge at the heavier end of the coil and the outer charges is at the lighter dangling end of the coiling. Though the opposite charges emerge at both ends simultaneously and separation happens at the time of the particle breaking free, we may notice that the outer charge is easily removed (electron flow can be created), the charge on the inner core cannot be easily displaced. It is the coiled up end, which we call positive and the free end is that we call negative. The nomenclature is not important-- we may name them the way we like, but there is the fundamental difference between the two which cannot go unnoticed.

Space is a three layered entity when it coils, the displacement of the coiled layers have: a) the amount of displacement each of the layers goes through is fixed given and unchangeable but is related to the elasticity and density of space that is coiling b) manner the space disintegrates which also is a given entity, c) the extent of twisting and coiling that long space strings, the disintegrating substance, goes through; d) the nature of long space strings formed i.e. its properties which particles will inherit from the properties of space i.e. the density and elasticity of space which in turn comes from the fundamental constants of nature, that is c , G , and h . is also fixed and unchanging. Since unvarying entities can only give unvarying results, there are enough reasons to ensure that the value of the charge is also of unvarying nature.

Reflection of Light and Visibility

With the separation of charge also enters visibility. Before and up to this level, i.e. first, the initial creation of the absolute space and time flow and later in the followed up reverse process, up to the above-explained state of the emergence of charge, there is no charge separation, there is no reflection of light, hence there is no visibility; space flow is dark energy and the process of particle formation (up to the time of emergence of charge) is dark matter. Significant to note that this charge separation—and the emergence of plasma like state—has nothing to do with high temperatures, it is cold and dark—temperature now is 2.7 K, it would have been lower earlier.

As we stated earlier, it is the point which is the separation between baryonic matter and its earlier forms, the emergence of charge and its two posit forms--the charges positive or negative, or whatever way you name it-- or so different entities that you cannot interchange them by looking at them from opposite ends. This clearly points out to the futility of the principle of gauge invariance, so very important (and now wrong) part of particle physicist's two foundational principles (the other being spontaneous symmetry breaking, which is only a very weak variation of our principle of freedom seeking and limited uncertainty area freedom available to the particles). Within it i.e. within the separation of charges there are many other new entries also built-in: visible and invisible matter, the correct argument of separation between the correct and the wrong view on dark energy and dark matter and the real nature of QFT, and the correct perspective on the connection between the field (we have only one field) and particles i.e. both being objective entities and the correct nature of Quantum mechanics (the limited freedom relation between real fields and real particles i.e. the non-realism free explanation of the area of uncertainty and the freedom relation between particles and fields, of course things other than the dark matter and the dark energy do not engage us in this paper).

Reasoning on Abundance of H₂ and He

The coiling process which at first has the disintegration of space into long space strings and then the twisting and coiling of the strings to form harmonic oscillator particles, which builds into an inner hard core and an outer dangling end easily shows why hydrogen is the most abundant of the elements in the universe; what is after all one inner core and one dangling end kind of harmonic oscillator? It is nothing else but hydrogen! 'The one proton-one electron system' is the simplest and the easiest to form in the above process (coiling of long space strings) of the formation of particles explains the abundance of hydrogen. There is no big bang creation of fundamental particles. The next on the list has obviously to be (on the abundance scale) Helium.

Emergence of helium becomes easy to explain if we know the correct process of the formation of neutrons, which we have explained above; significant to notice that unlike the presently accepted process which needs high temperature and the difficult and complicated process of the creation of weak force, we in our newer explanation have the simultaneous emergence of weak force along with the strong force, which also leads to the emergence of neutrons from protons the simpler way and without high temperatures. Once we ensure that creation neutron is immediate with the creation of proton and electron assembly (the hydrogen atom), we can see that two hydrogen atoms along with their merging with two created neutrons is also far easier and immediate and the vicinity (basically arguments emerge from the strong and weak force getting created in unison) and thus the coming together of proton and neutron is simple and so also the merger of two neutrons with the two—one each of the single proton-electron system (hydrogen), two of these along with the newly created neutron combine to form helium. It is obvious that this has to be next on the level of abundance of elements in the universe.

We must also note that particles creation from disintegrating quantum gravity absolute velocity space (and time) flow--the dark energy flow (73% of the total energy)--in its reverse journey forms fundamental particles, the cyclic process is the one that is leading to a balance between dark energy, dark matter and visible form of matter in the ratio of 73: 23: 4 respectively.

Element of Chance in the Process of the Creation of Particles and Creation of Junk Matter

In our process of the universe's creation and progress of universe, trial and error is a part of it from the very beginning and at every stage thereafter. We saw that it applied in the determination of the correct combination of the fundamental values of these constants (c , G and \hbar), which has given us the viable universe. The viable ness and accuracy of particles getting their form have the progress of knowledge by trial and error learning as a part of it. it is this which assure us that the correct formation out of all the possible ways (all the varying forms of twisting of space strings and the merger of thinner space strings to form two or three twist strings, and these two or three strand strings coiling to form particles with confined quarks and the hard inner core containing formation e.g. neutrons and protons and leptons i.e. the lighter outer dangling entities, where properties of particles are dependent on the method of coiling of the long space string also shows us the way to reach the conclusion on the unification of particles: all particles emerge from one entity, behind all of them it is the force of gravity in its different forms of coiling) which have been reached by lots and lots of trial and error efforts. The process of the correct formation was never laid down and given but was found out, and found out the difficult 'trial and error way'!

The cruel result of the process to recognise is that lot of space flow disintegration will not take the correct form, much of it will be wasted, and lost in the form of viable junk matter (wrong building of the building blocks). This is the unfortunate outcome of the process—a part of the large process of the struggle for freedom and knowledge—is that at every stage success comes only for a small and limited entity. This also is the story of further progress from matter to the plant and on to animal world to man also has its trial and error progress (and even the present improvement to

higher knowledge this is a necessary element) built into it, but this we cannot dwell here. On the creation of correct formation of particles the trial and error process applies at the initial coming together of the three separate strands of the long space strings, lots of string material will be lost in the non-combination or the wrong combination of the long strings, and at each of the twenty parameters (Smolin quote referred below) that lead to the correct formation of the particles; this is the explanation to Smolin's problem number four: "explain how the values of the free constants in the standard model of particle physics are chosen in nature"⁸. They are not chosen, the values are brought into effect by trial and error learning and after a lot of discards (free will applies, determinism is not science). The conclusion on the trial and error process of the formation of fundamental particles from disintegrating space (whenever and wherever the energy supporting it weans) does not have 100% success. A lot of the building blocks get wrongly connected to produce unviable products, where only a small portion reaches the correct formation of the correctly constructed baryonic matter. Needless to state that all the formation junk and on-their-way to correct formation of baryonic matter—until it reaches fully charge formed baryonic matter is dark and a part of the dark matter in the universe.

Discussing the Current Explanations of Dark Matter

Following are some of the current explanations of the presence of dark matter and our brief comments on each:

Modified Newtonian Dynamics

A modification of Newtonian dynamics is necessary and we have discussed the 'New Law of Force' in part-A of this paper, it is worth keeping in mind that new rule on force is affecting space and time—which in our formation constructs a perfectly flat space (inside of a huge sphere can only be flat), which curves locally in presence of forces; because length, mass and time are velocity created so it is velocity dependent; thus every force has to affect space, warp or curve space, and things on which force is applied move within the curvature so caused. The modification sought for is also necessary to correctly work out the movement of Matter (stars) within the galaxies and the motion of the galaxies themselves, but it also needs to be noticed that this modification—of the force law - may only have a small peripheral effect on the explanation of dark matter itself; dark matter issue in itself too massive to be explained by small modifications that general theory of relativity of velocities or any modification of the Newtonian dynamics (including our new law of force, that involves force modifying or curving space and time flow).

Neutrinos

This explanation is the closest to our point of view (as explained above)—in the process of formation of fundamental particle, neutrino level formation is the first state that advances to the formation of fundamental particles (its emergence is also necessary when protons convert to neutrons). The most important factor to notice however is that not all initial neutrino level strings result in successful formation of baryon matter, the method of advancement process being a trial and error process, much of it also leads to the incorrect formations (junk matter, which is also a part of the dark matter present in the universe). It is thus possible that a lot of neutrino level entities do not combine to viable matter, and float around in the universe.

Machos and Wimps

Dark matter is an array of massive compact halo objects, or weakly interacting massive particles are not a valid or correct explanation because the causality to their presence is not explained.

Cold Dark Matter

We, however, are in agreement with the sound conclusion that dark matter is cold and dark; at 2.7 K (the temperature of the universe) there is no other possibility. The process of the beginning of the

creation of dark matter is only an intermediate stage of the formation of stars and galaxies, and there is no other way—except the cold process that could lead to the further steps that cause to the formation of baryonic matter, stars and galaxies.

III. CONTINUITY FROM DARK ENERGY TO DARK MATTER TO BARYONIC MATTER

The idea of continuity from dark energy to dark matter must have got noticed by the readers. Dark energy is the creation of space and time as a flow of energy it is invisible as it cannot reflect light, and it is from its disintegration only that the reverse process of first the creation of the non-visible matter, and the reaching of the state of visible baryonic matter emerges in a continuity; the relation between dark energy and dark matter is intimate, it is dark energy that, to begin with, converts to dark matter. Dark matter as above explained is that matter which is small enough and below the state where charge emerges (as explained above, it is the winding of the long space strings which correctly build the positive charge of the nuclei of the harmonic oscillator particle which at the other end has the negative charge); it is only when charge emerges correctly that matter can reflect or absorb light. Once again the Dark matter is not a different kind of matter, it is non-baryonic to the extent that charge has not a) yet evolved or b) not correctly formed; in the former formation, it is a precursor to the ordinary baryonic matter.

The standard model of either the particle physics or cosmology never had space and time flow as energy flow, so it could never envisage a reverse process to it, it is obvious that in the absence of any information on how the way space and time got built, these models could never either understand the real nature of dark energy nor the real nature of dark matter or the cycle of dark energy to dark matter and back to dark energy. First, there has to be knowledge on how matter created space and time flow, and then the information of its reverse process (disintegration of absolute quantum gravity energy flow) led to the creation of baryons, via the intermediate dark matter creation. Another absence of knowledge is on the fact that it is all a cariogenic process from its beginning to its end. We have shown the correct method to the formation of particles (dark energy to dark matter to baryonic matter) and shown that all this is possible by simpler processes and within the universe, by processes well understood by physicists; the crowning part of it is the application of the second law of thermodynamics to it! The state in which the creation of particles need not be a fiery beginning (assumed by mainstream cosmologist) but it is also not collision-less as they expect it to be, but then all the major changes because we begin from major differences: no general relativity, no expanding universe, no Big Bang beginning. Since we have a non-explosive, not-blazing beginning-- objective and absolute space and time flow (dark energy) and its reverse process up to the emergence of charge (dark matter) and when we couple it with current temperature of the universe as it is 2.7 K we can project it backwards—as the mainstream cosmologist do for the expanding universe--to get a universe that has begun from absolute zero or nearby. Thereafter we also discount any era of matter dominance of radiation dominance or any high temperature that has fallen to the current level. The universe, once the trial and error learning process has ended has been of constant density and flat (in the absence of matter forms). The beginning is different and lets us be assured that we are better off than the big Bang theory of the creation of the universe; we apply the principle of falsifiability to our assumptions and the process thereafter, the principle of correct conclusions has long been forgotten by modern physicists and cosmologists!

The above model of the universe, if correct, ought to have everything—every question needed to be answered in physics, cosmology (the correct method of the formation of all the elements of the

periodic table and the explanation of why and how the elements are formed, as well as what part of the whole story of space creation and its reverse process of the disintegration is dark, need for electromagnetism to emerge, which happens only later and with it dark matter attains visibility!) as well go a longer way to answer questions in evolutionary biology, social sciences, and also make religion and ethics a part of the generality of all the explanations; this is indeed the strength of this model.

Energy Equilibrium of the Universe; Conservation of Energy

Everything needs energy, and nothing in the universe is infinite, there is thus no question of the universe to keep expanding forever—it is only an appearance—because the process of the energy flow universe has a reverse process. Also the energy density of this flow—the creation of absolute space and time flow—has to be constant, thus the expansion is leading to continuous reduction in the density of the universe is also unscientific; there is no thinning, the density of energy stays constant (one that is determined by the values of the fundamentals constants that led to the formation of space and time as an absolute flow of quantum gravity i.e. c , velocity of space flow i.e. the same as velocity of light, c , Newton's gravitational constant, G , and h , the Planck's constants that form it). We think the question of varying density of the radiation and of matter, is itself when asked in the context of the concept of space and time as the flow of real energy and asked without the constant and consistent energy flow necessary for its existence, is a wrong question. The energy (matter form, energy form or space flow energy) in the universe, is a constant and cyclic. Radiating matter creates a lot of energy flow with a small part of it as space and time flow, the energy flow of the universe expands depending upon, if the radiating energy is higher than the reverse cycle—formation of particles (matter forms)-- or lower than it. Once we understand the fundamentals of physical reality in the form of two stages, the correct conclusion on any question of conservation of energy easily follow.

Worth adding is the fact that since we are conceptualising a cyclic universe, at all stages of the cycle, there will be equal addition to energy flow in particle formation, which is getting matched with equal energy in space flow from; the formation of space flow and its taking the reverse cycle of return to matter form (which makes a beginning of the making of particles, fundamental particles and higher formations and their getting collected to give rise to large chunks of matter, and newer galaxies) when summed up will always be the same, and it will be limited. Of course, like any mechanical process on earth, there is also the rise of entropy and rise of temperature (addition to the heat form of energy) has to be always included. At each and every moment and all the time, the total and the constant energy of the universe is the sum of the following kinds of energy: space flow from of energy (the dark energy)+ radiation as non-space flow formation (all wavelength of electromagnetic radiation including light) + thermal energy form (rise of temperature with the rise of entropy on a continuing basis)+ matter forms (the dark matter form i.e. before charges separate out as well as the junk matter, the wrong formation out of the trial and error process) + the baryonic matter form. For the working out of the conservation of energy it needs to be stated that the sum total of all the above forms will remain constant which has to add the newly added energy of space and time flow; this later addition alone ensures for us the crucial inviolability of the law of conservation of energy (including energy in matter form) i.e. as it ought to be, has to never break down, it never can. We only have to have a new addition to its form, space flow energy. Even the violation by the quantum mechanical theorist borrowing from vacuum—even for a small fraction of a second-- is not valid (from our point of view this borrowing is from the reservoir of space flow energy).

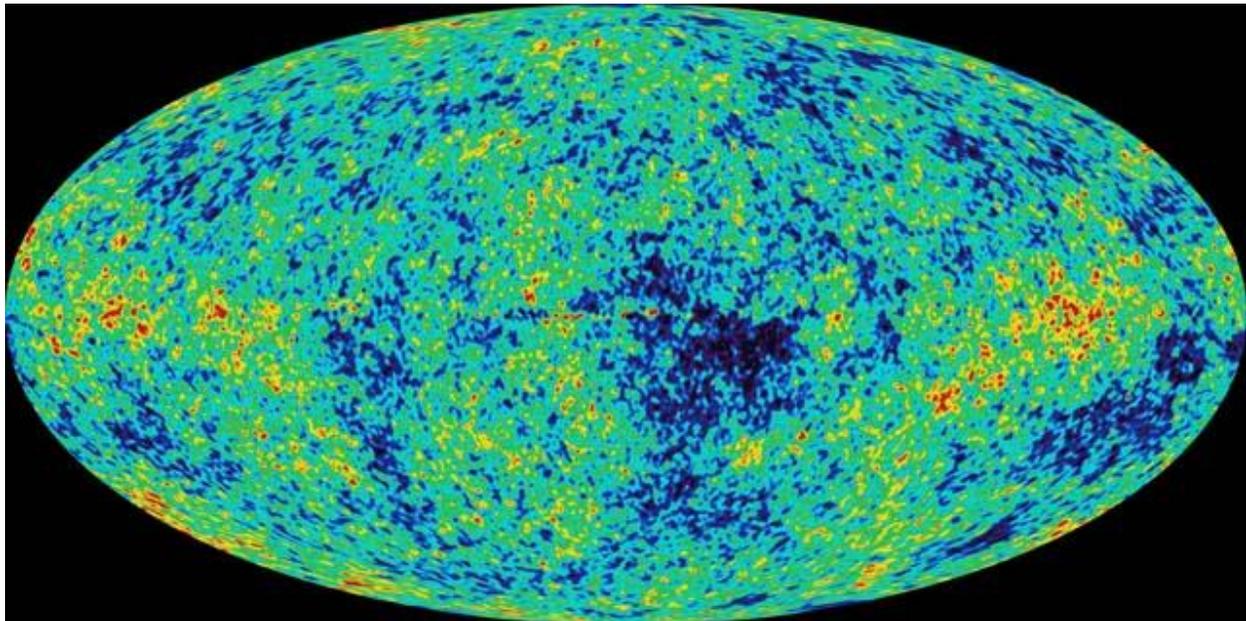
IV. ON CMB⁹

We have reached the conclusion on a nonexpanding cyclic universe. The wrong posing of question of expansion or contraction has arisen because we never have the correct knowledge on the nature of energy in the universe (universe is a constant and consistent flow of energy), it is either thought to be empty (without answering the question of density: if empty where does density arise) with large chunks of matter placed in vacuum; the truth is far from it.

Our assertion is that the lack of the knowledge on either the energy flow process of the formation of the universe or the reverse process (which limits its size, makes it finite, though the flow is giving it an impression of expansion) has led to the mistaken belief of that it is accelerating and expanding. This the impression of an appeared expansion or even acceleration of the universe is false, the reality is very different, so different that we need to revise our understanding on all other major aspects: dark energy, dark matter and CMB. We have explained the earlier two, we now move on to the newer explanation of the CMB.

The creation of the universe is a mechanical process subjectable to the laws of entropy, which has its limitedness, has a boundary and thus it is like a closed crucible, and it is this closed crucible entity that tells us that CMB is the radiation as it is happening today. We have thus an entirely different story to tell, the state of affairs restricted to primordial past (380,000 years from the beginning of the universe i.e. from the Big Bang beginning, when the universe was supposed to be a perfect black body) is replaced by it being a closed crucible always, and even now; the plasma state is not only in primordial past, these is a continuous and a continuing process, a part of the cyclic universe; there is a total cycle of creation—beginning from the creation of space (and time) and its reverse cycle of the formation of particles and their annihilation. The past beginning with the creation of the universe (space and time (dark energy) and its reverse process up to the state charge is created (dark matter) is the plasma state (or the perfect black body condition), and after charge emerges (see above) the visible universe (universe of baryonic matter, creation, existence and annihilation of fundamental particles and their advance forms, beginning with hydrogen, helium, other elements, molecules, stars of the first and subsequent generations as well as galaxies, and also other forms of matter, the living and man) made a beginning are both a part of a continuity; this continuity is not in time from the past to present but in a process from space flow creation to the formation of fundamental particles (and charge creation) creation to onwards evolution process of the universe. Thus plasma creation is neither related to primordial past nor connected to high temperatures—the plasma we work with is cold plasma at 2.7 K and earlier at even lower temperatures—is the temperature at which the universe really was and is and its formation and its presence is that part of the total continued and continuing cycle of creation of matter, its limited existence and its annihilation (and newer creation, the existence of the newer formation and thereafter its annihilation, and the cycle that goes on and on, like day follows night and night is again followed by day, plasma state is followed by the creation from it all kind of baryonic matter states and their annihilation followed by more plasma matter and from it more baryonic matter creation and its annihilation), of course, all this cyclic creation and annihilation is accompanied by the process of rising of entropy all throughout. Plasma state is a) a part of the total process of creation—from space and time to all other forms, b) it is also operating, as earlier stated, at the same temperature as the universe is (2.7degree K or as it was earlier i.e. lower than the present), temperatures is slowly rising (not falling fast from very high leaves as the big bang standard model of cosmology wishes us to believe, c) no high temperature is needed for the presence of plasma state, cold plasma is a reality, d) there is no density change (of the universe, space and time flow)

is involved, density has been and is always constant and e) universe was, except for the initial trial and error formation period (of which we have no knowledge and perhaps will never have), was approximately of the size as it is now, there was never a smaller universe of past from which the CMB is supposed to have emerged. This kind of universe and its process has only one answer to the CMB: it is the radiation as it is happening at every moment of time, real time, the present time. The universe is a closed crucible (its hugeness of size need not distract us from its factual reality) and it has CMB related to its temperature of 2.7 K bears this out, the small variation in the temperature is explainable from the fact that the closed crucible's boundaries are not fixed but ever changing, the shifting boundary of the closed crucible is responsible for the small variation in the observed temperature distribution of CMB.



The diagram¹⁰ is reproduced from the current cosmological explanations of CMB but it concerns very different explanation, it is no relic from past, it is as it is happening, here and now.

V. WHAT IS A GOOD THEORY? WHY IS OURS A BETTER THEORY?

Hawking¹¹ tells us the requirements of a good scientific theory, as follows:

- a) It ought to accurately describe or explain a large number of phenomena on the basis of a model that contains a few arbitrary elements.
- b) It ought to make finite predictions of the result of future observation.
- c) The eventual goal being a single theory to describe the whole universe

I hope we have succeeded achieving the goal.

Simplicity and Reductionism

The Principle of the economy of the hypothesis also applies to this model. Simplicity--as defined by director of perimeter institute Neil Turk¹²—is: “concepts that unify, concepts that bring together disparate --dissimilar, different, unequal, unlike, incongruent, unrelated, contrasting, distinct—ideas—knowledge and unify them, bind them by a common rule” is simplicity (e.g. our theory binding together relativity and quantum mechanics) as well as the binding together of diverse

subjects e.g. physics, evolution, and social sciences even religion. We come out true and correct on this criterion as well.

Entropy

Let us also not ever forget the golden words Arthur Edington told us: “The law of entropy always holds, I think, the supreme position among the laws of nature. If someone points out to your pet theory of the universe that it is disagreement with Maxwell’s equations—so much the worse for Maxwell’s equations. If it is informed to be contradicted by observation—well these experimentalists do bungle things sometimes. But if your theory is found to be against the second law of thermodynamics, I cannot give you any hope, there is nothing for it but to collapse in desperate humiliation”. On this ground alone (see the last section on CMB) we have a superior theory than the theories of the cosmos so far propounded.

Lastly, it needs to be noted that the steady state theory of cosmology does not contradict and facts, there is only an alternative explanation which explains diligently discovered facts better. There is no contradiction of available evidence, in fact, the myth that ‘support from facts can prove a theory’ is disproved, we ought to be back to supporting ‘science is where falsifiability is’, and it is the supporting backbone of our theorising!

References:

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1. This is taken from chapter 7 of my forthcoming book *Smolin Sir, I Have the Answers-II (Rewriting Cosmology)*
2. Refer to non-realism based quantum mechanics in papers 6 and 7 of my book referred to at number 6 in my references below
3. From chapter 7 of my forthcoming book *Smolin Sir, I Have the Answers-II (Rewriting Cosmology)*
4. *Based on the discussed of the issue in chapter 2C of my forthcoming book Smolin Sir, I Have the Answers-II (Rewriting Cosmology)*
5. (Am J Phys 59(2), 186-187 (1991) and 69(7), 778-782 (2001), one can also see the resultant pendulum waves on YouTube (and other websites)
6. The idea of coiling of the long space string (that leads to displacement of the layers) is an inspiration from Born, we are applying that concept to the coiling process of the three layers of the long space string coil, which leads to charge separation: Max Born, *Einstein’s Theory of Relativity*, (Revised, 1962 Edition), Dover Publication Inc.
7. Ibid.
8. Smolin Lee (2006), *The Trouble with Physics*, page, 13.
9. From chapter 5 of my forthcoming book *Smolin Sir, I Have the Answers-II (Rewriting Cosmology)*
10. *Diagram is everywhere in all explanations of CMB.*
11. Hawkins, *Brief History of Time*, page 10

12. Neil Turok (2015): ‘Public Lecture: The Astonishing Simplicity of Everything’, Perimeter Institute for Theoretical Physics

Inspiration:

5. Drucker, Peter (1980), ‘Towards Next Economics’ in *Towards Next Economics and Other Essays*, Allied Publishers Private. Ltd New Delhi
6. Popper, Karl (1972), *Objective Knowledge*, (subtitle, An Evolutionary Approach) and his other writings.
7. Daya Krishan (1969), *Social Philosophy (Past and Future)*, Indian Institute of Advanced Study, Simla, India
8. Smolin Lee, *The Trouble with Physics*, Penguin Books (2006), the book criticizes the current standard model of particle physics).

My references

7. Malhotra (1988), *An Insight into the Next Economics*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-5
8. Malhotra, S.K. (1994), *The General Theory of Man and Society* (Work Completed at Indian Institute of Advanced Studies Shimla -1992-94).
9. Malhotra, S.K (2008): *Next Economics: Simple Assumption-less, Falsifiable*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-5
10. Malhotra, S.K (2009): *From Natural Selection to Intelligent Selection: Theory of Knowledge is Theory of Evolution* (sub-title: Popper’s footprints), to be published
11. Malhotra, S.K. (2015), ‘Freedom: Teleological Causality of the Universe: Common Origin of Science and Religion’ Presentation made at Religion and Science conference, SUF-2015, Vienna.
12. Malhotra, S.K. (2016), *Smolin Sir, I have the Answers-Part- I (Giving up Determinism, Return to Objectivity, Realism and Absoluteness in Physics: back to 1892).*