SECRET OF SANKHYA: ACME OF SCIENTIFICATION UNIFICATION

By G.Srinivasan. mailto:<gsvasktg@gmail.com>

The Sankhyakarika (Sankhya) created in Sanskrit by Maharashi Kapila ages ago, is a unified theory of universal phenomenon that contains 68 axiomatic theorems of algebraic logic. It describes the entire spectrum of universal phenomenon as an interactive field activity functioning in a holographic mode. It is a relational (relativistic) theory that uses additionally two novel concepts of self-similarity and simultaneity as basic principles to define the fundamental holographic field. It is a dimensionless and scale-invariant theory as it describes all phenomenon by counting interactive events in terms of a precise elemental activity constant, derived internally through axioms. It also derives all the universal limits, physical constants and operating parameters through internal axioms, without any dependance on external or experimental inputs. Yet such derived values relate to all known and measured parameters in physics with an accuracy that is well within the acceptable tolerance limits. The holographic theory is reflection invariant and hence there exits a reciprocal value for every interactive event. Further, the interactive count values in the external, observable sequential domain is equated exactly to the stable holographic states in the simultaneous hidden internal states.]

The Relevance Of Einstein's Concepts to Sankhya Logic

Ref: "Meaning of Relativity" Indian Edition 1965. (Sixth edition revised 1956-reprint 1960)

There's a mythical story circulated by ancient intellectuals which goes like this: To the question where does the earth rest in space one ethnic replied it was on the back of a giant tortoise. It was promptly countered by another contemporary that the tortoise was too small so it had to be a giant whale and despite numerous intellectuals joining the philosophical fray no acceptable answer to end this quest was found. Sad to say but that query is still unanswered to date. The tenor of the humour one saw in these ancient answers would be no different from those views expressed by our contemporary intellectuals. In Appendix 2, page 134 of the above referred edition, Einstein has raised a query and answered it as follows: "What innovations in the post-Newtonian development of the foundation of physics have made it possible to overcome the inertial system? First of all, it was the introduction of the field concept by, and subsequently to, the theory of electromagnetism of Faraday and Maxwell, or to be more precise , the introduction of the field as an independent, not further reducible fundamental concept.". Einstein deftly refrained (on page 3) from analysing the Galilean tortoise of points forming the independent-field-continuum, and glossed over the Newtonian whale called inertial systems, to adopt the still undefined Faraday-Maxwell substitute of a field. The irony of this process is particularly evident when one realises that there is still no precise mathematical definition of what a field in physics really means today (2002), yet Einstein proceeded to fill the paucity in logical continuity by introducing the infinitesimal displacement-field as a workable mathematical entity, without a real and physical meaning.

Here it is worth emphasising the Sankhya axiomatic logic that, intellectually and physically, it is impossible to deal with 'nothing' . Hence 'nothing or empty space' must be dealt with as a real 'some-thing" and the field as a 'substantial element' of space. Another axiom that gives the clue to deriving a perfect theory is the concept of looking at cosmic space as though it were populated with cubes, however small , for it forms the simplest mathematical expression to describe the Universe in terms of elemental components, regardless of how large the cosmos may be. Further, the moment the description of a unit of anything, say even a Universe, is categorised as one, then it demands a mathematical ansatz that defines its singular status through the concept of simultaneity, (which does not exist in physics today) because the entire ensemble acts together simultaneously. Thirdly, if this singularity, whether it be a Universe, Galaxy, stellar or planetary body can be represented by any numerical quantity, then it axiomatically provides its boundary or limiting condition by the reciprocal of that value, for it forms the unit base. The entire mathematical process conceptually and actually reduces to a mere process of counting. An axiomatic approach to solving problems has an extremely precise principle as a corollary. It is the principle of self

similarity that derives all its laws from within itself and is not dependant on any external inputs. Puting it succintly, either such a theory works or it does not. Such axiomatic logic loops back to synchronise with its starting proposition with just six equations to provide an identical, equal and exact numerical value as the correct answer to a problem. It has the extraordinary power of supplying its own proof by the six redundant equations. If the answers to these six equations are different and inexact then it cannot be the theory and must be rejected. Einstein has himself dealt with this aspect in appendix II as the strength of equations. The outstanding achievement of Sankhya logic is that it derives an axiomatic basis for every point in space being the permanent and continuous source of maximum power by naturally functioning as a tiny blackhole-quantum, the laws of which are an exact replica of the largest Blackhole, the Universe. Such symmetry, on its own merits, is an admirable quality that mathematicians dream of but seldom realise in reality. Not withstanding the power of mathematics, scientific analysis must also be unequivocally bound to such rigorous human logic, that, it is deemed to be of an axiomatic nature and it should only be supported by mathematical calculations to maintain precision and logical continuity. Mathematical expressions can be seen as a concise means of transmitting knowledge, as formulations, devoid of ambiguities. Any mathematical process by itself is not based on absolute logic but forms a tool to augment logical explanations, which again depends on the skill of the investigator to find ways to use it meaningfully. Unfortunately there exists a section of intellectual opinion today that expect the un-understandable aspects of nature to be made meaningful through an iterative and mechanical application of advanced mathematical procedures. But the past history of scientific development shows it cannot replace the intuitive logic exposed by human innovative intelligence. Einsteins's theory of General Relativity is a case to point.

Presented in this paper is a considered analysis of Einstein's views on gravitational physics, as an equivalent comparison to the concepts elucidated by Maharishi Kapila in Sankhya. The question, why should one compare only Einstein's theory with Sankhya, can be answered with the fact that General and Special Relativity still remain the number 'one' in physics and cosmology. Secondly the intellectual basis and content of relativity is logical and its foundation is based on an acknowledged deficiency arising out of the experimental failure (Michelson-Morley experiments) to detect and define space. Till then, however, the prevailing scientific opinion supported the view that space had real properties, similar to Sankhyan thinking. Hence any argument for an alternate theory can be confined to analysing these primary inadequacies and bridging the gap in concept & theory then becomes a complementary effort rather than an exercise in confrontation. Sankhya principles do not violate any aspect of science. It compliments it by providing the means to decipher the hidden regimes. The current variant theories under the caption "String", "Super-symmetry", "GUT" & etc., are all covered in Sankhya as an integral part of its normal evolution through its self-similar and scale-invariant axiomatic mathematical logic. Hence no effort has been made to compare these newer theories explicitly and in any case the essence of these theories are not really different from the acknowledged relativistic concepts, except for the difference in its mathematical procedures and experimental conformity.

Einstein, in Appendix 2 under ' General Remarks ' has given his sincere and deeply thought out rationale why he considered his approach to relativistic theory as the only possible way to avoid field theoretic complications leading to more complex equations. He outlines the possible variations like increasing the number of dimensions of the continuum, adding vector fields to the existing displacement tensor field and involving equations with higher orders of differentiation. But he felt neither physical nor empirical reasons existed that compelled one to take these steps. However, he made the point, that as of then, any field theory was not completely determined by the system of field equations. He raised the question that should one admit the appearance of singularities which necessarily leads to postulating its boundary conditions. He did not think it was reasonable to include such postulates in a continuum theory, as it would be far too vague; as also the field equations would not hold for such conceptual points. Again such an inclusion, he demonstrated through a numerical example, would be an approximation at best and would strictly form an inaccurate solution in space that is free of singularities. Einstein voiced the need for an improvement in mathematical methods, which might help such an approach. He was also critical of the need to modify a field theory into a statistical theory of probabilities through 'quantisation' as a first step, which he felt was an effort to represent a non linear process by a linear method. He further adds that one can give good reasons why reality cannot at all be represented by a continuous field. He also stated that

the quantisation phenomenon implied with certainty that finite system of finite energy can be completely described by a finite set of numbers (quantum numbers). Hence, in the very last sentence he states **"This does not seem to be in accordance with a continuum theory and must lead to an attempt to find a purely algebraic theory for the description of reality. But nobody knows how to obtain the basis of such a theory."** It is uncanny that his final 'view-in-despair' seems to have been tailored exactly to reflect the logic on which Sankhya theory was based ages ago. How, each deficiency, he has voiced, is eliminated by the axiomatic logic of the Sankhya Sutras (theorems of logic) that leads to a perfectly unified theory of universal phenomenon, is presented further below.

The foregoing view on singularities was tantamount to postulating that the conceptual point was not a substantial or real element of space. Logic however dictated that a 'point' must be mathematically definable as a real element of the field, if a theory was to be considered as being complete and self sufficient on its own merit. Sankhya logic overcame the Einsteinian conundrum ages ago by defining singularities as simultanoeous states contaning the reactions of all past interactions and likewise observable interactive states, as sequential activity involving events in the future. In a brilliant mathematical ansatz involving self-similar principles, Sankhya logic showed that the boundary of a singularity was the ending point of simultaneity and the starting point of sequential activity. The mathematical expression was that if simultaneity equalled $1/x$ then sequential activity must be represented by $1+x$ and if it was to be scale-invariant then $1/x = 1+x$ and a whole range of such boundary conditions could be generated as powers of $(1/x)^n = (1+x)^n$ and the latter could be expanded as a binomial series to give a precise numerical value to its hidden internal structure. It also provide a spectrum of 'sequences of similarity' equivalent to the Planck's blackbody radiation spectrum. By this means not only was the boundary of a singularity defined but also made equivalent to the starting equation of motion like the Schroedinger / Dirac expressions.. At the same time it eliminated the Heisenburg principle of uncertainty for now the point or singularity contained the region of uncertainty as an expandable binomial series with unlimited choice of parameters to nail the source of uncertain time or distance, within a boundary that could be made as small as one wanted.

On page 3 of the referred volume, there is a very relevant statement that highlights the break in logic which very surprisingly is explained satisfactorily by Sankhya theorems. Einstein states "I shall not go into the details concerning those properties of the space of reference which lead to our conceiving points as elements of space, and space as a continuum. Nor shall I attempt to analyse further the properties of space which justify the conception of continuous series of points, or lines. If these concepts are assumed , together with their relations to the solid bodies of experience, then it is easy to say what we mean by the three dimensionality of space; ---etc" . A number of major conceptual gaps are glossed over by the foregoing statement as set out below;

1. 'Solid' bodies in space are accepted as a fundamental state without further mathematical analysis. Logical completeness of any theory demands that if observable phenomenon is defined mathematically, then it must also be capable of defining through the same logic non-observable phenomenon too (like empty space) , that forms a part of what is considered to be the totality.
2. The possibility of identifying the point, as a mathematical representation of a singularity, defining a real element or unit of a substantial field, has been overlooked, even though experiential logic clearly indicates the equivalence. The very concept of a quantum is in effect the identification of a singular and independent entity that behaves in such a way that it can be quantified by a unit integer that retains it character throughout its existence, as the activity constant in Sankhya..
3. The 3 dimensions of space are taken as a standard structure synonymous with a static framework of reference that lends it the factor of 'solidity' perceived by experience. Strict adherence to logic necessitates the demonstration through mathematical rigor the evolution of the 'solid' quality as a derivable aspect of observable phenomena. Such an effort would demonstrate that even 'dimensions' (powers) greater than 3 could still represent a non solid or non observable phase of phenomenon in real terms and not just an artefact of mathematical logic. The foregoing underscores the fact that despite all the

intellectual exploration into higher "dimensional space", real space is vectorially limited to the 3 axis in reality.

On the contrary, Sankhya concept is founded on real space populated with definable matter in a dynamic state whose properties can only be intellectually inferred by axiomatic logic, which is not in conflict with observation and experience. Such a process becomes vital when one realises the impossibility of deriving theoretical factors through experimental verification at the fundamental or absolute level. Sankhya logic was based on the principle of splitting space into two permanent, complementary and mathematically reciprocal factors of sequential time or activity and simultaneous time or super-positioned activity states displaying mass and density characteristics in a coherent or 'stationery' state. The implication of a such an approach was that If time or action was detected it portrayed its dynamic phenomenal status , otherwise it depicted its (reciprocal) synchronised state equivalent to its static condition. In very simple terms it meant that the substantiality of space had no effect on our mathematical equations except its state of activity displaying sequential or simultaneous time . With this extremely simple and elementary approach the need to look at the static state through a separate mathematical ansatz was eliminated and enabled the presentation of both dynamic and static phases through a single and unified formula. It simply meant that a cube described by holographic methods would be equivalent to a static expression of $Length^3$ when in a resonant or coherent state. Hence the necessity to classify space into Galilean, inertial, Newtonian, electromagnetic field etc. were completely eliminated. In fact the mathematical derivation then exposed the various types of listed behaviour as a consequence and not apriori. In conceptual terms it meant that observable action and non detectable activity could be treated mathematically as the reciprocal of one another; or the sequential and simultaneous aspects of time were nothing other than the equivalent of the mobile and static aspect of interactions in space. Hence, even a point in space could be treated as an element of reality, which then endowed each of them with the mathematical status of a real singularity or element in the real field of space. In such a situation, the point singularity having a mathematical value lends it the quantised status and what is more, the point concept naturally leads on to a field theory with the characteristics of a continuum made up of real points. While an objection can be raised here, that the above seems to be a repetition of the abandoned Ether concept, the Sankhya mathematics will show that it is a dynamic state so fundamentally different, as chalk from cheese. The outstanding achievement of Sankhya logic is that it derives through an axiomatic basis, for the so called cubic point in space, to function as the permanent and continuous source of power by acting as a tiny 'blackhole-quantum-singularity' that absorbs all unbalanced activity and in the process has the ability to expand into the state of a gigantic cosmic spherical envelope without losing its property of scale-invariance, self similarity, self organisation and self maintenance, through one elemental variable 'time' not as a dimension but as a relational countable state of activity cycles.

On page 23 Einstein makes a point that the configuration of rigid bodies have been founded upon the hypothesis that all directions in space or all configurations of Cartesian systems of co-ordinates, are physically equivalent. He refers to this equivalence as the 'principle of relativity with respect to direction' that uses the calculus of tensors to establish such equations. Then poses the query whether there is a 'relativity with reference to the state of motion of the space of reference.' While admitting there is such a principle based on Galilean transformation of co-ordinates, he points out that it fails when applied to electromagnetic phenomenon. Such a Galilean process shows that the velocity of light varies with direction with reference to an observer whereas the equations of Maxwell-Lorentz are based on the constancy of electromagnetic translation velocity. He quotes in support, the results of the Michelson-Morley experiments that showed the velocity of light was not affected by the translation speed of the earth in space. Further, he made the point that, as there were no experiments that could be conducted on the earth to show that it is travelling at about 30kms around the sun, it confirmed the experimental findings and the correctness of the logic behind the principle of special relativity.

It is worth making an observation here, that both the problematic questions raised by him can be shown to possess contrary answers on applying Sankhya principles. The axiomatic self similar principles of Sankhya show that all phenomenon including the electromagnetic and particle ensembles are bundles of vibrations locally generated by each point-singularity or Purusha (blackhole state) in reaction to interactive stresses. The vibrations or oscillations maintain a precise and constant rate, within its own

cyclic time of an axiomatic ratio . This holographic ensemble transmigrates from one Purusha state to another Purusha state like a line of people passing buckets of water from person to person without the persons themselves moving to transport the bucket. In this 'chain' analogy assume that every human is a Purusha state, the arms of the human the co-ordinate system, the bucket the earth and water the electromagnetic wave ensemble and the constant rate of change of bucket from hand to hand the velocity of earth-transfer and the rate of transfer of stresses in water the light-velocity. The co-ordinate laws governing the transfer between bucket and human hand are governed by rigid body or mechanical considerations. One can use Cartesian, Galilean or Newtonian equations here. What is not apparent in the rigid-body mode of analysis is that the Sankhyan principle of simultaneity (self similar laws) are implicit as time varying factors are excluded in the so called classical treatment of physics. Not so the water in the bucket, for it depends on its state of flexibility and organisational form. Here one has to use equations of Maxwell, Lorentz and special relativity. The velocity of transfer of water and bucket being same no relative velocity could be measured between the two of them and Michelson- Morley measured just that – null difference between rate of transfer of earth (bucket) and light-wave (stresses in water) with reference to space or the human Purusha. In this analogy the concept of a solid body should be replaced by synchronous and coherent ensembles of vibrations that imitates the static state and thereby projects the solidity of form. But another experiment could have been conducted then (the Doppler frequency shift) to show that the stresses in the water increased in the direction of movement and a decrease in the opposite direction, displaying the frequency shift towards the blue in the former case and shift towards the red for the latter case. (In relativity this is separated out as the characteristics of a gravitational field, implying that it was a different state.) Hence the speed of earth-motion could derived from the Doppler frequncy shift in light frequency. A new experiment, yet to be conducted, will show the bucket too (earth) will register an increase in stress in the direction of motion and its reverse of decrease in stress in tat he opposite end, which could be detected as change in the angle of synchronisation or coherence of the internal stress potential. The evidence for this factor exists in the distorted tidal envelope around the earth and its extraordinary nature highlighted by the maintenance of its shape as a permanent static form, the mathematics for which does not exist in current physics. Any static form in space, where everything is in motion in relation to everything else, can only be described through formulas based in simultaneous or self-similar laws operated through a single variable. Therefore, absolute or zero movement will be represented by a perfectly spherical surface distribution of the identical-potential values in different directions from a common centre. These would confirm the Sankhya concept of the holographic coherent field of space populated by singularities in the Purusha state of a blackhole. The conversion of Sankhya logic into the equivalent mathematical form recognised in physics, will show that the fundamental unit in space expands to the bounded universal volume in a natural and axiomatic way that encompasses the concepts of quantum mechanics, electromagnetic and thermodynamic principles as a single integrated form that collectively displays the characteristics of a gravitational field. It shows unequivocally and unambiguously that there is only one single law, process and method that operates in diverse ways at different levels of observation.

On page 54 Einstein makes a point that as long as the principle of inertia is regarded as the cornerstone of physics then the earlier view of space as a real medium was justified. But he provided two serious criticisms of this concept. "In the first place it is contrary to the mode of thinking in science to conceive of a thing (the space-time continuum) which acts itself, but which cannot be acted upon." "In order to develop this idea within the limits of modern theory of action through a medium , the properties of the space-time continuum which determines inertia must be regarded as field properties of space, analogous to the electromagnetic field. The concepts of classical mechanics afford no way of expressing this."

The solution to the problem posed by Einstein is provided in the main Sankhya Sutras. The definition of each component of space (using concepts allied to classical mechanics) is precisely and axiomatically enumerated as a Purusha state of a blackhole (or singularity), which has the properties of a coherent (centered) field that displays radiative (or electromagnetic) action when it's balanced state of activity is upset but returns to the coherent state (synchronous-field or inertial or static state) by absorption of all non synchronous activity. It seems to act but not react immediately and displays the typical dual-field property of an 'one-way ground state' or activity sink or absorber field. Here the principle of field action is described in two ways namely that non synchronous or circulating field activity can be described by

electromagnetic laws of Maxwell / Lorentz and special relativity whereas synchronous field activities achieve self similar coherent states that display qualities of mass or inertia and must be described by the self similar field laws of a singularity that are equivalent to Newton's gravitational laws, Einstein's General Relativity and blackhole mechanics delineated by Hawking et al, the latter three of which are true ONLY as a boundary condition of the real point in space. The formulation of $1/x = 1+x$ defines that boundary condition where the Schroedinger equation begins to function and the uncertainty of observables can be minimised to as a small a bound as one can or want. The magic here is that a blackhole point or singularity (which represents the most dynamic state) resembles the perfect static holographic state, when expressed mathematically by a single law. One cannot but agree with Einstein's observations that there is no statistical uncertainty in nature which in the context of human thinking gives it the divine base.

Later, on page 55 he says "In the second place, classical mechanics exhibits a deficiency which directly calls for an extension of the principle of relativity to spaces of reference which are not in uniform motion relatively to each other." Here he points out that even though there are two different conceptual modes of defining the cause of acceleration as being due to an inertial or gravitational mass, the values from both are always identical and equal to each other. He concludes that this equality of both types of mass is justified in reality (through experiments of Eotvos etc) and before theoretically accepting this equivalence one must show that the two different concepts of mass derivation are the same in principle. Using relativistic logic he analytically concludes that the equality of both masses can only be confirmed if the system was considered to be at rest relative to each other but the accelerative property was inherent in a gravitational field that influences and determines the metric laws of the space time continuum.

The rather extenuating mathematical logic, used to arrive at this conclusion given above is, on the contrary, made simple and precise by the Sankhya concept of a holographic base for all manifestation. This sea of singular, elemental matter comprising cubic point singularities provided the base for phenomenon. The singular element in the midst of an infinite sea of such components cannot at all have the freedom to move, transfer or translocate in any manner whatsoever in a relative way or in other words each component is always at rest relative to each other. It shows that there is no need to explicitly derive or state the principle of equivalence. Due to any initiating cause it can only interact with the adjacent components but not being able to move, it merely creates vibratory stresses as a reaction. However, the interactive stresses of the neighbouring components can and must transmigrate as vibrations or oscillations along this vast sea of unitary components. Its interactions again can only be in three modes, that is towards each other (compressive or inelastic) or away from each other (expansive or elastic) and continuously oscillate in both the previous modes (resonant or bound states). The components cannot move but the vibratory stresses can and at the very first level it can and must commence as an interaction between two units. Again, in such an initiating mode, Sankhya logic stated that the fundamental interactive stress must transmigrate directly in a straight line and cannot 'curve' logically. Summation of subsequent interactions produce the 'curvature' as a post interactive reaction that is related to the different rates of interactive activity between any two axis. This difference creates the non linear mode of action. As shown later, the value of π is the sum of all the displacements due to a standing wave resonant state at any or all rates of interactions within a boundary. At an axiomatic cyclic oscillatory rate of 5.1 x 10^{13} / cycle the 'curvature' stops (the so called string) as this value forms the maximum limit of an interactive rate in a self similar domain due to a third order damping constraint (caused by axiomatic reasons) and the interaction if continued , instead of displaying tensor / vector or curvature characteristics, flips to the opposite position or undergoes a parallel 'displacement' depicting scalar properties. It is here that the electromagnetic behaviour thus far changes over to a linear or parallel or radiant movement mode. Maxwell / Faraday laws end at 10^{13} and in just one cycle rises to 10^{26} to synchronise and act in a coherent mode along two axis to display mass and the stress energy tensor value of 10^{-27} as the reciprocal of the previous sequence. Here it crosses the containment boundary and radiates because the vibrations cannot superpose or compress any further on its own potential and now behaves as a 'solid or simultaneous action section'. The notable point about this characteristic is that interactions curve inward or display elastic properties up to the 13th. order but beyond it the radiant path is linear and outward, typical of inelastic collisions. But the enigma in understanding this action is confounded by the logarithmic nature of the transition – that is upto10^{13} it moves predictably in time following EM laws but just at one cycle past that critical value it jumps to 10^{26} counts suddenly. At this

point of flipping across the boundary the fundamental cubic singularity transmits its stresses in a radial outward mode. Sankhya deals only with these stresses, as a dimensionless numerical value that indicates the interactive counts per cycle and shows how it builds up all the phenomena we observe, as a real hologram through synchronous resonance that remains as a coherent ensemble of vibrations around a passive core, at all levels of phenomena, be it a tiny nuclear particle or even a gigantic galactic ensemble.

Einstein's relativistic field theory also deals with such vibrations but describes it as an infinitesimal displacement tensor field of points represented geometrically as a continuum. The logic of Riemannian geometry presents the curvature of a surface as a natural consequence of its mathematics. However, its adoption into General Relativity as the model to describe the behaviour of a surface in space, presupposes that the curvature of space is a de-facto reality. Einstein makes it clear that the 'point' in the geometry of space cannot be treated as a singularity or a real element because it would have led to arbitrary mathematical postulates in defining its boundary conditions which indeed was the 'source-location' for the infinitesimal displacement field. Einstein's problem was real because there is no mathematical method existing now that can describe a static point evolving into a (movable) displacement or field activity, without an identifiable cause / effect or action / reaction cycle and space could not be made the source as it was a vacuum or pure emptiness. Sankhya overcame this problem by showing that the geometric point in the continuum is a real elemental singularity called a Purusha, that followed the 1/x=1+x selfsimilar laws. Conceptually the Universe or a galaxy seen from the "outside" from a great distance would resemble the same point. The Purusha was the repository of all the past interactions in the fundamental state of space and in fact acted as the historical record keeper by absorbing all the unbalanced interactions as a maximised static potential with an astronomical numerical stress value , to initiate activity as a vibratory source-field. The Purusha's stresses caused by interactions with adjacent ones, created the 'infinitesimal displacement' field calculable by Einstein's relativistic theory. Whereas, Einstein could not define the point because it had to be a real element in an empty space and therefore, he found it impossible to provide the boundary conditions, especially in a vacuum. Another caveat was that mathematically curvature of a surface produced the effect of mass or inertial characteristics and vice versa. With Riemannian geometry, there was no need to create it by a separate mathematical ansatz. Therefore, he effectively dealt only with the movable infinitesimal displacement of points in terms of space and time following geometric rules.. Moreover, the experimental failure (of Michelson/ Morley)to verify the medium of space, necessitated the derivation of the source that became a point only because it dwindled into a zero-activity state that was mathematically described as the boundary of a boundary. However Sankhya logic showed the zero activity was a only pseudo static state that actually housed the powerhouse of the universe in each point singularity of space. One can visualise this in the form of Rubic cube being subjected to intense twisting & turning activity that would be described as a surface interaction (Einsteins stress energy tensor to Hawkings super radiant phenomenon are in this domain) but in reality the entire reaction is centred on the invisible internal cube that MUST exist if it were to function as expected. The visualisation process can be extended further by looking at the external surface as an Einstein stress energy tensor boundary activity and the internal surface of these cubes as the Hawkings super radiant phenomenon regime. But holding all this together is the invisible central cube acting as the anchor or swivel pin, that really contributes to all the reactions, though it is invisible , both literally and figuratively. {Sankhya shows through a real count value that this centre contributes the maximum rate of power transfer = c^5 /G per cycle. It transmits it by tunnelling as a transmigration phenomenon, involving a variety of particulate states that seem to function like waves.

Sankhya too dealt with vibrations but with a difference that instead of an empty spatial point there existed a Purusha singularity point component which was the permanent repository of all the vibratory stresses existing due to any initiating cause in space. The question that how each Purusha accumulated all the vibratory stresses is answered by the logic that if there was no externalisation or radiation the oscillatory activity had to remain within this domain and get distributed equally in time (a sequence of interactive cycles) among all the components as a 'non moving' activity-potential. The singularity thus defined has an automatic and axiomatic boundary condition, which emerges as a necessary consequence of evaluating the repository state of all possible vibratory stresses around this Purusha point, through an axiomatic logic of self-similar behaviour of components far removed from other influences. Hence, with this concept

it can be positively stated that singularities must be included, not as a stray and arbitrary appearance but as a standard necessity everywhere in a real field of elemental components. While the details of the mathematics are given in the main Sutras, conceptually defining the Purusha singularity and its boundary was simple. The in-going (compressive = inelastic) vibratory stresses from all possible sources must reside in that (centre of mass) point (Purusha) at that instant and could be described mathematically by a cubic or third order value. Next the sum of all the infinitesimal displacements of the Einsteinian variety equated to the outgoing (expansive = elastic) and resonant (bonding) stresses around the Purusha must equal the in-going stress at every instant. If it did not equalise then the algebraic difference defined the singular state along with its boundary condition. If the difference was zero it meant that the singularity did not behave as such or that it was in a passive and balanced state. This equation could not only mathematically describe a singularity but also describe space that behaved as though there were no singularities. The simultaneous in-going stresses towards a point that became its limit could be described as a third order damping stress. The $1/x = 1+x$ could be rewritten as $x+x^2 = 1 =$ the balancing point and the difference $x-x^2 = x^3$ the 3rd order damping constraint. This equation then had the power to equate dynamic field equations to static (or coherent) states of the Purusha point (or singularity) with perfect linearity in the form $(1+x)^n =$ binomial expansion. It gave an axiomatic, mathematical and logical value directly connecting the field to it's source- the point singularity, which in fact was the problematic cause that made Einstein exclude singularities from a field theory. The activity in a continuum could be described relativistically if there was inequality between compressive and expansive stresses but if it was equal it identified the quantised point or Purusha in the static state. Just by accounting the imbalance in the in-going and outgoing values the identity of the exposed and hidden states were identified. There were no absolutes in Sankhya; even the so-called constants were not. Its perfection lay in the fact that the source of all power was local for each Purusha point of singularity, (in coherent space) was the repository of all the interactions in the cosmos from eternal times and therefore provided the maximum static potential at every point or singularity perpetually. The major inability of Einstein to accept singularities as a mathematical reality in a field theory was overcome, through a profound and fundamental conceptual change by recognising the real existence of the substratum of space in Sankhya. Now, the question could be asked " is this concept acceptable in the experimental domain of physics "? The answer would be a positive yes because the outcome of the long series of the well known Michelson-Morley experiments confirmed that the earth-matter did not move relative to space. Further the Doppler effect of frequency shifts relating to motion, confirmed the Sankhya principle that expansive-compressive stresses only moved across the Purusha. The frequency shift towards the blue end of the spectrum related to compressive stresses while the red-shift was associated with the expansive stress transmigration process. The existence of coherent (static) Purusha state also has confirmation in the highly accurate results of the Hughes – Drever experiments to detect inertial-mass anisotropy by detecting tiny frequency shifts in the atomic and nuclear resonance lines. It is shown in the main Sutras through exquisite mathematical logic that all manifestation, whether it be a ray of light or even the largest object – a galaxy , are only the variations in the coherent state of stresses residing in each Purusha or a 'conglomeration of Purusha –singularities' acting as a single, coherent or synchronised unit but on a different periodic scale.

The next question was that there existed an inherent incompatibility between the continuum theory and quantised presentation, which led to the 'uncertainty concept' of statistical probability in defining phenomenon. The question was that could the quanta also be broken down to such a level as that of the infinitesimal displacement field to achieve an accuracy similar to a continuum theory? Can one replace statistical probability with interactive precision? Can one show that acceleration and mass are reciprocal states? If the displacement in space, time and rate of interactions between the 'points' or singularities could be represented by a set of numerical series that had the property of linearity and proportionality right down to the infinitesimal state then the combination of these three could enable the description of phenomenal activity in the nature of a continuum with its accompanying characteristics of certainty. That is these series had to be self-similar and scale-invariant down to 'zero' displacement in space, eternal in time, perpetually resonant and the synchronisation of these three provided its own boundary naturally. Then every real point in space, however close in distance or time could be described by a linear and proportionate numerical ratio as expected in a field-continuum. Sankhya has identified these three axiomatic ratios as series shown below. The very first Sutra in Sankhya lays down a proposition that states that the three interactive modes of stress, confirmed by experience, could not have existed but for the presence of the following 4 qualities of space:

a)   synchronous-coherence,

b)   eternal existence,

c)   perpetual dynamism and

d)   un-manifest state (or non radiative, undetectable therefore balanced state of conservation.).

Again in keeping with the axiomatic requirements that there are no absolutes, all the (above) 4 are ratios of simultaneous and sequential activities. They are:

	Simultaneous	Sequential	Coherent
Simultaneous	ε	ρ	χ
Sequential	π	β	o

$$\frac{\varepsilon\, \rho\, \chi}{\pi\, \beta\, o} = 1$$

$\varepsilon = 2.718$

$\rho = 1+(2/100)^1 + (2/100)^2 + (2/100)^{3>>v}=50/49$

- $\pi = 3.14159$

$\beta = 0.618034$

$\chi = 1/\,((1/2^3)^1 +(1/2^3)^2 +(1/2^3)^3+(1/2^3)^4+(1/2^3)^{>>v}=7$

$o = 10$

The six parameters are:

1. The Coherent state acts simultaneously.

$$2^3 - 1 = 7 = \chi$$

An unit interactive count-rate in all three directions will be 1. If it doubles then it becomes $2^3 = 8$.

However the increment is 8-1=7. Hence 7 levels of increment take place on doubling the rate.

The displacement as the reciprocal of thesum of power series :

$$1/\Sigma(1/2^3) = 7 = \chi$$

2. The Coherent state synchronises to a stable form at 10 cycles for four reasons:

Four incremental sequential changes in direction form a cycle as follows:

$$1+ 2+ 3 + 4 = 10 = o$$

Interactions remain together and coherent if its sum is divisible:

If N = 4 = 2+2 = 2 x 2 then

$$(N+N^2) /2 = 10 = o$$

The Cosine of $2\pi /10$ equals a self similar ratio, when radial and linear interactions are proportional.

$$\textbf{Cosine}(2\pi /10) = 1/(\beta+\beta)$$

$$[2\pi / (\textbf{arccos}(1/(\beta+\beta)))] = 10 = o$$

The ratio of sequential and simultaneous increment equalises at the 10th. Index level. It forms a resonant well up to 10, where the sum of sequential aggregates exceed the simultaneous expansion rates.

If N=10 Then $\quad \beta = 1.618034$

$$(N+N^2) /2 = 55$$

$$\beta^N / \sqrt{5} = 55$$

3. The Simultaneous interactive state. $\varepsilon = 2.718$.

Any count rate larger than one establishes two limits; maximum and minimum. By keeping the

minimum as 1 always the ratio will be as follows (if number is v).

$$v / (v-1) = 1 + 1/(v-1)$$

If $\qquad\qquad N = (v-1)$

$$v/N = 1+1/N \gg (v/N)^N = (1+1/N)^N$$

As the Value of N increases it equals the natural logarithmic base:

$$(1+1/N)^N = \varepsilon = 2.718 \ .$$

Hence within the simultaneous domain confined interactions maximise to $\varepsilon.$ By this theorem the self-similar rate of change of any unit (however large) can never exceed 2.718. The absolute temperature or rate of change of volume of the expanded universe in equilibrium can never exceed 2.718. This is the reason for the so called microwave radiation at 2.7 Kelvin in quiescent space.

4. Perpetual resonance. $\qquad \rho = 1.020408163264 \gg$

The resonant half wave-length value of ½ raised to any index n (to infinity) and summed, will asymptotically tend to equal one. The nth sum $\sum \frac{1}{2}^{\,n} \equiv 1$. Hence a complete wavelength can be described as the sum of 2 half wavelengths or an infinite number of smaller wavelengths acting in synchrony (harmonics). The ratio at any two adjacent index levels would always be half ; that is $\frac{1}{2}^n / \frac{1}{2}^{n+1}$ = ½. . Any resonant state with all its harmonics synchronised to 2^n will always maintain all its nodes in the same relative positions or the main nodal position will always remain at the centre or at the same location, thus defining a static state. It can be treated as a static object. Hence, if any numerical value could be fitted into this series it would exactly describe a resonant state in a static position. As a cycle of interaction can take a minimum of one unit of cycle time to complete an interaction, the simultaneous sum of two interactions will equal 10^2 =100 while the sum of the sequential cycle duration will be 1 + 1 = 2. At the nth rate it will sum up to 50/49

$$1+ (2/100)^1 + (2/100)^2 + (2/100)^3 + (2/100)^4 + (2/100)^{5 \ggg N} = 50/49$$

The sum 1.020408163264 etc is an indicator of a perpetually resonant state. 2^n and all its harmonics will always maintain the same nodal relationship with reference to a central point and loss of 2 counts per 100 decays asymptotically in infinite time or sequence. Hence a solution to the equation defining a dynamic Universe must equal this constant to ensure eternal existence.

5. Self-similar sequential interactions. $\quad \beta = .618034$

The three interactive modes of a sea of singularities surrounding a singular Purusha component will cause the transmigration of stresses so created towards its centre. Since the Purusha cannot move it must transfer / transmit such stresses across itself simultaneously if it is to retain its balanced unitary status. While the complex nature of this function is dealt with in the relevant Sutras, the principle will be

explained in simple terms for there is no parallel theorem in mathematics or physics that deals with this aspect explicitly. As a visual example a worm, caterpillar or snake moves by bunching up or compressing one part of its body at one location and stretching out or expanding another part towards another section in a cyclic mode. Similarly a man, with partially stretched out arms placed firmly between two walls on either side of a narrow passage, will have to contract one elbow while he stretched the other at the same time to enable his body to shift towards the contracted side. Or the joining point, of two coil springs confined between the two walls, can move only if one spring contracts while the other expands at the same time. Here expansion and contraction takes place at the **same moment** in time (simultaneously) by using the **internal potential** and the rules of both these types of action (contraction and expansion) must be similar or follow the same ratio, proportion etc. in that instant. Fluid flow far from its boundary similarly balance the stresses along its adjacent areas by adjusting a single proportionality variable to expand and compress at the same time. Another visualisation may add credence to the above if one imagines that a slight twist causing unequal pressure on the tautly held bridle of a horse will cause the animal to turn as long as this tension exists. It can also be viewed as an instantaneous action that transfers the same quanta of contracting stress to the expanding location to maintain the balance internally. Since both actions are simultaneous it may seem that the principle of causality is violated but a single self similar law provides the connection that seems to act simultaneously. It is important to note that the connection is not by a signal of cause and effect but by single law of limitation. Such an action is called self similar or Swabhava in Sanskrit and one single variable governs both types of movement at the same time. This variable is derived by imitating the above action by adding and subtracting a value say y.

$$(1/2 + \psi) + (1/2 - \psi) = 1 : (1/2 + \psi) - (1/2 - \psi) = 2\psi$$

solving

$$((1+1/2^2)^{1/2} - 1) = 0.118034 = \psi$$

$$(.5 + .118034) = 0.618034 = \beta$$

$$(.5 - .118034) = 0.381966 = \beta^2:$$

$$\beta - \beta^2 = \beta^3 = 2\psi = 0.236068$$

$$1 + \beta = 1/\beta : (1 - \beta) = \beta^2 : (1 + \beta)^\nu / \beta^\nu = 1$$

$$\beta^\nu = \beta^{\nu+1} + \beta^{\nu+2} : \beta^{3\nu} = \beta^{\nu+1} - \beta^{\nu+2}$$

$$\nu^{1+\beta} / \nu^{1-\beta} = (\nu^\beta)^2$$

Compression C: $1 - \beta = \beta^2$

Expansion E: $1 + \beta = 1/\beta$

Self-similar slope C/E : β

Resonance C+E : $\beta^2 + 1/\beta = 2$

Third order (negative) damping force;

$$\beta - \beta^2 = \beta^3$$

$$(C+E) / 2 = (\beta^2) / 2 + 1/2\beta = 1$$

This derivation of the well known "Golden Mean or Ratio" with some of its unusual but profound aspects are shown above. The power to concatenate or transmigrate or tunnel or expand and contract simultaneously is emphasised by the fact that by just shifting the index n one up or down like n +1 or n -1 , the relationship $x^n = x^{n+1} + x^{n+2}$ merely shifts to left or right while remaining constant in form and effect. While it will be explained in the main Sutras, the shifting of index (log) is the same as shifting the phase angle by 1/10 (cosine(1/2x) = $2\pi / 10$) instantly and the coherent state of the Purusha singularity is always kept in balance by this mechanism. An internal rotation does not violate any laws of causality because it is not a sequential time consuming action but a simultaneous balancing action driven by its own source. The internal state remains constant ; that is it gives and takes changes in vibrations (value of stress) at the same time within a cycle. This is the passive but dynamic state of the Purusha in space always. The singularity or blackhole transmits vibratory counts as stresses but remains balanced and the boundary condition remains the same (C+E) / 2 = (x^2) /2 + 1/2x =1) and the slope remains at x. In other words the relative unit one can be factorised to infinite levels using the binomial theorem format. In thermodynamic terms the entropy is constant but action and reaction are equalised within a interactive cycle that has 3 modes of functioning like compressive, expansive and resonant states in numerous permutations and combinations. Since all activity is internalised, its energy balance is constant.

If the nature of the stress is non-resonant, colliding, asynchronous or non-coherent then C- E = $-x^3$ which means that the cube of the slope becomes negative and stops the non synchronous state simultaneously and instead of passing on such a disorderly state it curls up into a cubic state and shrinks to become a negative absorbing state. If length L is defined as velocity V into time T then $L^3 = V^3 \times T^3$. If it is interpreted in static terms T^3 can not have a time value, for the clock time can only be T, but it indicates the occupational limit of a dynamic volume V^3 in an overall Volume L^3 and signifies the number of times that space is occupied in that cycle of time. Here T^3 like x^3 is the 3rd order damping 'stress' that exists in self similar domains explained in the main text. If this state continues it eventually becomes a blackhole or massive singularity by accretion of 3rd order damped stresses. Now the entire blackhole state can be described in coherent terms by the expression $((1 + x)^n) x^n = 1$: The graphic presentation of the density curves in this domain is identical to the Planck Black body radiation spectrum. It shows that every singularity is a cube in space, the perfect orthogonal element in it; and there are 10 divisions to a cycle or the coherent phase angle is 36 degrees or in terms of geometry---10 dimensions. It expands to a spherical state through sustained interactions else it returns to its cubic static form-the perfect orthogonal element in space.

6. Sequential Interactive containment **.** $\pi = 3.14159$

The third aspect is the creation of curvature, mass, inertia and super-positioned or contained states just by increasing the rate if interactions which does likewise to the rate of transmigration of stress across the Purusha singularities in space. This principle must be understood in naïve terms. While the Reimann geometry mathematically evolves the concept of curvature through the behaviour of complex tensors the Sankhya solution is a far simpler method using triangular analysis of the behaviour of sequential interactions at varying rates in a static mode. A vector at 45 degrees means that a force causing a displacement A in one direction is being offset by an equal amount of displacement B at 90 degrees to it. That is the vector has magnitude and direction and the force at A is reduced in value that can be calculated using a right triangle. If the displacement B, represented by the vertical side of a right triangle, is halved keeping A (the horizontal side) constant, the vector angle of 45 degree of the hypotenuse, will

be reduced by a proportionate factor and if this process of halving B is continued iteratively then the vector angle will become very small such that the hypotenuse (vector) will almost equal the side A, while the displacement would have decreased proportionately to infinitesimal levels. In such an exercise the direction of the vector and its magnitude becomes almost equal to A. The numerical sequence of halving can be taken to any level within a cycle or period just be increasing the rate of such an interaction with the added certainty that the location of the halved or divided nodes or sectors remain in a predictable static relationship with respect to the centre. As the interactive rate increases the vector (hypotenuse) becomes equal to A. In other words the accelerating nth harmonic of a resonant standing wave (1/2 wavelength) moves towards the centre to act almost directly at the same rate. This can happen only at the resonant frequency that maintains a sequence of ever decreasing nth harmonic ½ wavelengths at the same nodal position with reference to the centre. Expressing this action in another way is to compare movements within a bounded region in the x and y axis directions simultaneously. Both rates of movement will be synchronised when the subtending angle is exactly 45 degrees and non synchronous at all other angles. However at 'zero' degrees both rates of movement superpose to act as one or in unison, at the same rate. Here the rate is same but its intrinsic count value has doubled logarithmically or a coupling has taken place at the same rate and acts simultaneously at the same location. Therefore the inertia has increased or the time of reaction has increased. Such a state displays a "loss" of some measurable parameter which is typically measured in bound or coupled states of particles. The zero in reality has an axiomatic value of 10^{-13} (approx) thus limiting the rate of interaction. The rate having remained the same, the change can be detected only as a change in its density, mass or inertia. The sum of such changes in displacement equal π at infinite interactive rates or counts per cycle but actually maximises when the displacement reduces to 10^{-13} (approx) fraction of the timing cycle . The mathematical explanation is shown below.

If the value of n was known, the limit of the resonant state could be identified; which point then dictated the beginning of the non resonant or transmigratory state. It is the point at which the infinitesimal displacement commenced. Now the value of n is identified in Sankhya as a limit when the time-period difference between the linear and circular functions exceeds the maximum self-similar rate to create the boundary of a boundary, by a process that seems to flip or tunnel or cross the static node into another state. These factors are derived and shown below.

a. The algorithm which derives the value of the vector at the nth. power index.

$$\text{If } A_0 = x/2 = .309017 \text{ Then } A_{v+1} = \sqrt{[(1-\sqrt{(1-A_v^2)})^2 + A_v^2] \times (1/2)}$$

b. The sum of vector A /2 approaches $\pi/10$ as the power index n approaches infinity.

$$\text{as } v \to \infty \text{ Then } A_{v+1} \times 2^{v+1} = \pi/10$$

c. The self similar expansion rate of c expands to c^{1+x} and when the interactive differential equals the reciprocal of this value, the inward direction of the interaction stops thereby limiting value of $\pi/10$. If the interaction is forced to continue due to external factors then it becomes radiative .

$$\mathbf{C^{1+x}} = \mathbf{5.1e10^{13}} \; A_v = \sqrt{[(1-\sqrt{(1-(A_v^2 \cdot .5)^2)})]} \; A_{20} < 1 / \mathbf{C^{1+x}}$$

The meaning of this behaviour in terms of the Purusha singularity is explained as follows:

At a rate of 10 interactions per cycle, represented by a decahedron (10 sided) , the relative value of each side or displacement equals x/2 =.309 but the equivalent value of the arc = $2\pi/10 = .314159$, giving a difference of 0.00514. But as the rate of interaction is increased by doubling to maintain the resonant state, the difference between the linear and circular relationship narrows down to ultimately equalise at the infinite harmonic asymptotically. The near equalisation of the linear and circular count relationship is cut of at a value $(c^{1+x})^{-1}$ = 1.957968510567e-14 because the maximum rate of exchange of counts must follow self similar laws of simultaneous behaviour AT THE PRECISE POINT of equalisation. A self similar simultaneous action is driven by its own internal source and therefore all interactions are limited by the same laws of actions. This state could be described as a super-positioning of vibratory stresses, displaying qualities of mass, inertia, density etc. This precise point attains super-positioning density consistent with the rate of interaction and as this nodal point remains stationery the maximum count rate is sustained in this position to create the singularity. Beyond this point the internal stresses are externalised or radiated. Expressing it in another way, as the difference in rate of interaction along the two axis (vertical & horizontal in the same plane) increases to 2^{21} (21nd harmonic) the reducing displacement reaches the cut off value and any further increase (due to external factors) in rate has no effect internally but the displacement reverses and radiates externally or flips past the containing boundary . The internal third –order damping 'force' must be exceeded to cause the radiation or externalisation of action, which can only be done by an external input because the count value of internal source is always nullified by the sum of the expansion, contraction and damping counts .

The generation of mass at this level of interaction internally is caused by the third order constraint that synchronises two axis to act together in unison. This can be expressed mathematically by the following parameters where Kx is the Purusha mass comprehensively derived through axioms in the main text.

$$A_v = \sqrt{[(1-\sqrt{(1-(A_v^2 \cdot .5)^2)})]} : 1- \sqrt{(1-(A_{21}^2))} = 1/ \mathbf{C^{1+x}} = \mathbf{1.9588e\text{-}14}$$

By synchronising along two axis it = $(1/ \mathbf{C^{1+x}})^2$

At resonance it is $(2/ \mathbf{C^{1+x}})^2$; At rate of interaction E and Purusha Mass Kx and perpetual resonance Rr the mass value generated at index 21 is

E Kx Rr 2 = 2.718 x .914987 x 1.02040816 = 4.974835

_____ **= 1.8866e-27**

$$\mathbf{(C^{1+x})^2 \; fc = 2.6086e+27 \; x \; 1.010845 = 2.63689e+27}$$

The precise value after time correction is shown as a non dimensional ratio exactly when mass is formed due to synchronising of accelerating interactions. Mass is formed by synchronisation of two axis at a rate exceeding 10^{13} oscillations per cycle. It is confirmed surprisingly by Einstein's derivations of mass from the field stress energy analysis as a dimensional ratio is in reality equal to count-rate-per-cycle ratio:

$$K = 6.673e10^{-8} \times 8 \times \pi$$

$$\underline{\hspace{6cm}} = 1.886272e\text{-}27$$

$$C^2 = (29979245800)^2$$

Simultaneous Interactions.

All measurements in space must be of a volumetric or three dimensional nature. Even a point must be described by 3 dimensions if it is to be meaningful and have a mathematical significance. Again only relative or comparative values have a mathematical significance because absolutes cannot be dealt with at all, either mathematically or even logically. How then can a point be described 3 dimensionally so that it can dealt with through numerical values. A unit dimension squared or cubed has the same numerical value and unless one resorts to tagging it with dimensions it would be meaningless. Since Sankhya is based on mere counting of interactions per cycle, an innovative and relativistic method must be developed. Sankhya has identified such a series. In principle if the volume of a cubic object expands to twice its original volume then length, breadth and height is increased equally by the cube root of two. The change due to expansion could be detected , measured or manipulated appropriately through mathematical logic. If the change is labelled as a unit then the internal or original volume will have a relational value as the cube of the reciprocal of cube-root of two minus one. Now this value can be manipulated in a static or simultaneous mode to equate with any volume however large through a logarithmic process as shown below. Then the sequential divisions in it can be read off by expanding it through the binomial theorem as shown below as KV

$$\tau = 1/ (2^{1/3} - 1) = 3.8473221 \quad \theta = \tau^3 = 56.947628 = KV$$

Now $\theta / (\theta-1) = 1+ 1/ (\theta-1) = 1.0178738$

And $(\theta / (\theta-1))^v = \{ 1 + (1 / (\theta-1))\}^v$

Left side = simultaneous static

Right side = simultaneous sequential .

Now the right side can be expanded as follows

Let $A = 1/ (\theta-1) = (1 +A)^v$ then by using the binomial series

$$\{ 1 + (1 / (\theta-1))\}^{v=4} = 1+4 A + 6A^2 + 4A^3 + A^4 = (\theta A)^4$$

The right hand side of the equation can be expanded to any or infinite index that would yield a sequence of simultaneous interactions giving the density or super-positioned states that would be equivalent to the Planck's black body radiation density spectrum. The left side depicts the static values as potential while the right side shows the displacement values reducing to infinitesimal states . This expression shows that it can be extended to infinite levels but a cut off at about 10^{13} provides a limit along each axis.

The relational volume of a unit cube expanding to two units has been shown to be KV

$$\tau = 1/(2^{1/3} - 1) = 3.8473221 \quad \theta = \tau^3 = 56.947628 = \text{KV}$$

The expansion to KV involves a change in cycle time . That can be expressed as the ratio of the radial vaue to the cyclic value in all three directions. The RMS value of all three axis cubed will give the ratio of the change in occupational volume . It could be equated to the change in density or pressure as counts in a cycle as Px.

$$1/(2\pi/(10\sqrt{3}))^3 = 1/20.94798609763 = 0.0477372858345 = \text{Px}$$

The ratio of this change can be equated to the change in rate of expansion or the temperature change per volume change resulting in a change in density or pressure as follows = Tk

$$\text{KV} \times \text{PX} = 56.947628 * 0.0477372858345 = 2.718525213192 = \text{T}\kappa$$

$$(1+1/N)^N = \mathcal{E} = 2.718 \sim \text{T}\kappa$$

AS shown, the equivalence of the fundamental temperature change to e is logically related to a an incremental change. Later the pressure / density Px will be shown to be related to the nuclear state of a hadron – like the neutron.

As shown above simultaneous interactions produce the effect of mass and inertia by super-positioning and also maximises to produce the constant of curvature π. Mathematically it displays the property of flipping, tunnelling or ½ spin states of fermions at the self-similar limit of compressive or super-positioning density of c^{1+x} .

The problem of missing mass, dark matter or open/closed universe does not arise for it shows that space is curved only locally within galaxies where extremely high rates of interactions exist between conglomerate space defined as stellar bodies. The Universe, in the larger perspective, has to be flat mathematically. taking place in Planck time and length to keep the Universe flat and balanced, instantly, locally. There can never be a cosmic bang for the axiomatic laws do not permit it. The boundary of a galaxy is determined again by the same power index 23-24-25. No galaxy can exceed a diameter of a million light years by its own dynamics. Since the singularities in space act in a holographic way, all the laws of interaction are reflection invariant, that is if the variable x holds good inside the singularity then its reciprocal will apply to the external phenomenon.

From the above one can see that every fear and objection of Einstein is removed logically without in any way affecting the relativistic principles applicable to the detectable phenomenon. Because the infinitesimal displacement, the equation of motion, the commencement of clock time and the uncertainty in measuring a cyclic action commences from this point. It provides solutions to singularities of all magnitudes with an algebraic series, that retains the scale-invariant properties of nature at every level. And most of all it provides the most perfect concept of equating all interactions algebraically every instant locally that satisfies the balance needed to keep cosmic interactions ever dynamic everywhere always. Another important consequence is space is not curved and fundamental interactions at primary levels are linear. Euclidean geometry is enough to deal with interactions at the Planckian level. It is extremely logical.

Note: This appendix has been created specifically to highlight the profound aspects of Sankhya without the semantic and linguistic distractions that usually accompany a translation. That is why none of the Sanskrit terms except Purusha has been used to describe phenomena here. A singularity in physics has a different connotation from the term Purusha that epitomises a dynamic singularity in a static state of a hologram in Sanskrit. Any mathematical description of phenomenon in physics etc. is based on movement or displacement and therefore a definition of singularity reflects the state of its movement , whereas the holographic Purusha cannot move in any way. It is indeed a true singularity.

End.