

Quantum Gravity that lead to demise of Einstein's theories of Relativity*

Satish Malhotra¹

A believer perishes with his false convictions, whereas a scientist, sacrifices his 'creation', a theory for the sake of the progress of science.

Sir Karl Popper

Einstein had similar views. The time has come to pay the best possible tribute to him: ride on his shoulders and replace his ideas, he would have loved it!

Abstract: Einstein told us that gravity has some intrinsic (yet not understood) connection to the geometry of spacetime. To understand this real connection between geometry of space and gravity we restate the postulates (*same postulates explain special theory of relativity as well as the general theory*) *nothing new needs to be added*): a) space and time are the continuing absolute (equivalent to the absoluteness of velocity of light) quantum gravity flow it gives us the meaning to length, mass and time. Working through this postulate, we derive a law of force which tells us that force does not act on the body on which force is applied, but it acts to change the homogeneity and isotropy of space and bodies move in the curved space and time. This is what the Einstein's unknown connection between the gravity and curvature in space is; the curvature is, however, local and not general for the entire space. This is the a new falsifiable version on quantum gravity (which has nothing to do with quantum mechanics) which revolutionizes entire physics).

There is a) an absolute space, a flow of quantum gravity, and b) it is this absolute space that matter curves *only locally, which otherwise i.e. in the absence of matter is flat (inside of a large spreading sphere can only be flat)*! What was rejected by Einstein (the absolute character of space and time) now returns (as an absolute flow of quantum gravity) to solve all the contentious problem physics faces today, including the velocity-curvature relation and the equivalence principle. In the bargain get a common law of force (including gravity) which is not the way Newton applied, or the way Einstein worked with, but which has something from both.

Key words: quantum gravity as an absolute space and time, space and time as flow of energy, absolute units of length mass and time, relative velocity is relative to the absolute velocity, relative units of length mass and time proportionate to its velocity with the absolute velocity, Force view of gravity, forces curve space locally, equivalence principle from local curvature, space is absolutely flat, only Cartesian coordinates valid, simple calculations substitute complex ones of the Einstein's method,

One Sentence Summary: special and general relativity are explainable from the one proposition: Space and time are absolute velocity flow of quantum gravity, length, mass and time are velocity created so velocity dependent and velocity related.

I. Reality of Space and Time

To restate the postulates briefly, we say a) space is a creation of matter itself it is an absolute flow of quantum gravity (gravity in quantized form) and b) it is this flow which gives meaning to length, mass and time. These simple postulates explain issues, in general relativity i.e. without loss of objectivity and absoluteness; the world is not a network of relations, it is a real, objective absolute entity. The absolute flow of quantum gravity (absolute space and time) may be: a) a very tiny part of light (a component of it or a different version of the absolute flow of light from the radiating stars, the difference being the same as the difference between Fermions and Bosons (particles having mass and massless particles) or b) it may be an independent generation as a flow of gravity from binary stars or the black holes or some other process. General relativity theorists, even now, know of the existence of gravitational waves moving with velocity of light originating from black holes or binary stars, what we add to it is that these waves are not of an isolated, fragmented nature, but there is a constant and consistent flow of quantum gravity that is constantly being sustained by more and more quantum gravity energy which started with the universe coming into existence and it is continuing even today. It is the dark energy that has eluded physicists for such a long time. This constant and consistent and continuous flow of gravity (which is matter's own creation), when discovered, will have quantum nature and will necessarily have an absolute velocity (same as that of light) and its quanta will have rotation (absolute kind), which is the equivalent to the delay of the flow from infinite to finite level; $d = v/t$, d is the distance, t time is thus the thing that makes velocity finite (but not 0, zero would have led to static matter, no space). This delay in the value of the flow is the creation of time in the togetherness of the creation of space (not as a mix of the two as in spacetime). This space is a flow of quanta of energy is the unique combination of the fundamental constants of nature, i.e. c (its velocity, that is the velocity of light), G (the force connected to the universal constant), and h (Plank's Constant), and the quanta constituting it also has an absolute non-changeable rotation. Space is thus a gigantic spherical spread (of the kind we apply to light), but the particles constituting it, unlike photons, have mass. This presence of absolute quantum gravity flow is the theoretical necessity of our model (space and time, as absolute flow of quantum gravity), and it ought to be located soon; and we have no hesitation in adding that

it as a falsifiable prediction; this theory remains or falls with its correctness, and it being located; we have not found it till now because we have not looked for it.

Homogeneity and Isotropy of Space and Time

Relative theorists (and the older Newtonian view) have homogeneity of space and time as one of their essentials, and in spite of differences on many other issues, *we have by and large (on the larger cosmic scale), no quarrel with it.* We have a specific change to seek, that in the vicinity of accelerated velocities and forces, it (homogeneity and isotropy) undergoes changes. This has to happen because a continuous change in velocity cannot otherwise take effect, but this violation is of a local nature, that persists as long as force apply, and they are of tapering nature i.e. as we move away from the forces the effect tapers off. With local violation of the homogeneity and isotropy of space (and time) from out of the law on velocity-units that apply relation, the stress shifts from the velocity of the object to changes in space, which is the analytically meaning full outcome, importance of which is not limited to issues in relativity alone (it allows us to form a general law of force). Based on the new logic of what space and time is, and its leading to velocity created and velocity related units of mass, length, and time, what we get on the issue of relativity of velocities, is that when any frame of reference with velocity 'v' enters this absolute flow, the units that apply in it (locally only for this frame of reference, and only in the direction of its motion) are not to be the same that space flow c is carving out, these have to be the equivalent of velocity c minus v; absolute velocity creates absolute units of mass length and time and other velocities the units that apply have to change proportionally. This is what we have called the local violation of homogeneity and isotropy of space (so far thought to be universal and sacrosanct). Thus deduced for our postulates is the unique force-curvature in space relation we will shortly discuss. This is going to be a game changing entity in physics, which will lead to lots and lots of simplification and unification.

II. Flatness of Space

Space as an absolute flow of quantum gravity has to be absolutely flat; it is the inside of an astronomically large spreading sphere, the curvature of the sphere has to disappear at this large scale. This flat space curves in the presence of accelerated velocities; in special relativity to give effect to the requirement of velocity-changing length, mass and time' could be fulfilled without involvement of space and time (observation of the velocities against the backdrop of space shows the effect), in general relativity the change of velocity (acceleration) affecting length, mass and time cannot take effect without curving space (local curvature in the otherwise flat space spherical spread of quanta connection of gravity). Forces do not affect the objects, it is space which changes

to make way for the movement of the object in the curvature created in absolutely flat space. Along with absoluteness of space and time flows it is this idea that is the central change we have introduced. It may be treated as a separate postulate though it comes from velocity (of the absolute flow of quantum gravity) giving meaning to 'what is the length of distance, density of mass and duration of time'.

Gravity is not curvature; force causes curvature in the absolutely flat space (quantum gravity flow) locally, this curvature tapers off as we move away from the source exerting force. According to Lorentz transformation equations (which are being generalized to include acceleration) there ought to be three changes in this absolute space (and time): change in curvature, in its density, and dilation of time; all the three effects (length contraction mass increase and time dilation) have to happen together. This is the essential feature that give a simplified explanation to all issues in GR.

I have often wondered why physicists could not avoid using different coordinate systems (determine properties of the universe without a coordinate system of reference) and also why it is necessary to apply a transformation from one frame to the other. I understand that they have always wanted to do so but were never able to accomplish it. The reason seems to me to be the following:

- a) They do not have an absolute frame of reference to work with, so they have to study everything by comparing one frame of reference to the other, and
- b) In context of general relativity they have no idea that a) space is absolutely flat, b) the special relativity effect is included in the curvature in space (they study curvature in space-time), and c) forces cause curvature which affects homogeneity and isotropy of space which otherwise is absolutely flat.

All that is needed to examine local curvature in absolute space (and time) is to ensure that there is no import of curvature artificially or any interference with the initial starting conditions describing flatness: this from our point of view means that the only valid coordinate system is the Cartesian coordinate system. All other coordinate systems become ineligible because all of them will interfere with the initial non-deviate able flatness. We cannot even rotate the coordinate system, or move it parallel to itself, so that the real value of force caused curvature which has a distinguishing value at each point, which ought not to be interfered with; it is all an issue related to, as to how, homogeneity and isotropy of space (and the changes happening in it) are correctly studied. Just as absolute velocity of space flow c , available to us to compare other inertial velocities, this reference frame of absolute flatness is needed to study curvature changes (also absolute time to relate time change, absolute density to compare applicable density as all the three changes happen all in one

go) because accelerated velocities change all three via curvature, density of mass or the time duration changes. Under these strict conditions, the only liberty available is that of choosing an arbitrary point in absolute space flow, which may facilitate or be commensurate with any specific study. The choice of an arbitrary point in absolute space serves us well because it is from here that we can begin to draw our Cartesian coordinate (with no rotation or translation allowed, since this change will itself mean our moving to a different state or place on the curvature caused by forces. All in all, flat surfaces (within the only absolute field we work with) and the application of Cartesian coordinate being the only system available to us, is the beginning of the explanation curvature (or density change or time dilation changes) that forces cause. This also tells us that any consideration that makes a beginning from metric tensor will be faulty; metric tensor does not give us the kind of absolute flatness that we need to begin from; metric does not 'provide the desired metric' that is needed to arithmetize objects (in fact not the objects but the happenings in the space and time of our working, which objectifies objects in motion) in space. The rules that led to the beginning from the 'metric' were for a different space and time (spacetime) we have changed it so as to derive correct knowledge of this absolute space and time (spherical spread gravity flow) 'metric' is to be different. We need much stricter parameters to start with (to depict flatness necessary to begin from) than metric provides. We may also add that it is this curving of flat space by forces that is all to the study of general relativity! Curvature does not come from equivalence between gravity and acceleration, both are explained by 'forces cause curvature' principle. Physics now becomes simpler.

III. Why Forces Curve Space Locally: Force Curvature Relation

The fundamental of the force caused curvature in space (or density changes or time dilation changes) is the duration of the time change. 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 (curve or warp) 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 rotation,



The chain only bends to accommodate the change in the units of mass, length and time.

Fig 1. 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 a) where velocity is not changing there is no curvature and b) 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.

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 is different for different quantum of force (any force), it is this difference that shows and paves the way to this distinction.

IV. 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 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 in both cases— formation of curvature (and gravitational forces curving space (locally) and the requirement of forces for moving things up the curvature-- it is the same curvature that rules the laws of motion, and 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 2: Geniuses of the Equivalence Principle

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

Objects fall under gravity and from where for upwards movement equivalent force is needed. When we need to move the article lying in the pit (at the bottom), the same amount of force is needed as was applied by the force of gravity when it came down.

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.

V. Simplifying general relativity calculations: mathematising the above descriptive conclusions

All in all, the conclusion is that the study of curvature in absolutely flat space can be examined in many simple ways (simpler than currently employed in GR) as follows where all of them with all with similar results:

- 1) Stress and strain in space
- 2) Density of mass changes
- 3) Curvature changes
- 4) Changes in potential,
- 5) Time duration changes, or

- 6) The tried, unfillable tested, tensor analysis that explains the changing local curvature in absolutely flat space, described by nine (six if you take out the duplicates) coefficients tensor, in three-dimensional space (much simpler than what is employed in Einstein's field equations)

Each of the simpler methods is bound to give the same results as that are reached by the complex Einstein's methods! There are only two variables that tensors have to depict: one is the force and the other is the curvature! But it is a change which is different at each point in space and different in different directions. Beginning with homogeneous and isotropic (absolutely flat and same at each point and in all directions), we have to show how the flatness is changing at each point in all the three directions.

Let us treat the general cases of a force changing the curvature of absolute space (beginning at the flat geometry of space and time). In the vicinity of celestial bodies (say earth) the flat space in its vicinity because of the gravitational force of earth will curve or warp (so that earth can move within, reason being the required change in the length, mass and time units), the curvature that will taper off as we move away from the earth. It is clear that curvature will be different at different points. Force applied will also have components in F_x , F_y and F_z in the direction x , y , and z , different at different points; let the proportionality factor for change in curvature at a point be, g , which too will have components in x , y and z directions, as g_x , g_y and g_z . The tensor equations representing the change of Force leading to change in Curvature C , will be as follows.

In the x direction the relation is $C_x = g_{xx} F_x$, $C_y = g_{xy} F_x$, $C_z = g_{xz} F_x$; What we are saying is that force F in the x direction may cause curvature changes in different direction (the most general case) and we are calling constant of proportionality g_{xx} , g_{xy} , g_{xz} (first letter in the sub-scrip telling us the component of force, and the second the direction of the curvature)

Similarly in the y direction the relation is $C_x = g_{xy} F_y$, $C_y = g_{yy} F_y$, $C_z = g_{yz} F_y$;

In the z direction we get the relation $C_x = g_{zx} F_z$, $C_y = g_{zy} F_z$, $C_z = g_{zz} F_z$.

Converting to g in all the three directions we get

$$C_x = g_{xx} F_x + g_{xy} F_y + g_{xz} F_z; \quad C_y = g_{yx} F_x + g_{yy} F_y + g_{yz} F_z; \quad \text{and} \quad C_z = g_{zx} F_x + g_{zy} F_y + g_{zz} F_z$$

The nine values at each point: g_{xx} , g_{xy} , g_{xz} , g_{yx} , g_{yy} , g_{yz} , g_{zz} , g_{zx} , g_{zy} , completely describe the curvature, in symmetric situations we can cancel the duplicates, we get the important six components of curvature as g_{xx} , g_{xy} , g_{xz} , g_{yy} , g_{zz} , g_{zy} .

This is the most general case of curvature representation which does not need any transformation and includes within it all that special and general relativity stands for (worth noticing is that special relativistic effects is what have been generalized, so no need for them to be separately applied)!

Einstein's field equation have four dimensions to deal with, have not the input of absolute flat universe, no knowledge of force-length, mass and time relation, and forces cause local curvature in space, thus, there are several not needed entities in it. Leave aside other complication even the four vector space will need sixteen equations (4 values of each for μ and ν). Since we have an absolute *three*-dimensional space (that is a flow of energy quantum gravity and everything happen within it), the local curvature explanation (space relation to matter and energy) in three dimensions; only nine equations (reduce to six under specific circumstances). The analysis is simple, it may be that analysis of a vector field (of the gravitational force of large celestial bodies curve space locally in proportion to their mass and simply solution is possible (from Poisson's equation, stresses and strain in an elastic body or the potential of thickness to thinness via Laplacian) but even if we suppose this is not workable, simpler tensors analysis would suffice. The complications of the Einstein's Field equations appears unnecessary

In short it may be said that reducing dimensions of three (no spacetime but space and time) and absoluteness of flat space takes string out of the Einstein's field equations

The set of nine coefficients tensor explains all that is needed to express the curvature in space, this is the most general case of curvature representation which does not need any transformation and includes within it all that special and general relativity stands for (worth noticing is that special relativistic effects have not to be separately applied)! Further still, it looks that the field (there are to be no separate field for separate forces, only one field of space in which forces cause changes suffices) generated by the force is scalar field, for scalar field things get simplified even further; the results that are the equivalence of scalar potential wherein the second derivation is the Laplacian (which we have known to be smitten all over physics!). Significant to notice again is the fact that this simple form of analysis includes all that special and general relativity asks for! Period. GR redefined. Simplified. QED

Reaching the Proofs of General Relativity the Simple Way

It is easy to conclude that this process of calculation described above (or even simpler methods) will gives us the same results on the Bending of Light in the vicinity of Sun (any heavy mass), Advance of Perihelion of Planet Mercury, Gravitational Shift of Spectral Lines or any other results from Einstein's GR, only our calculations will be easier and simpler but as accurate. Detailed

mathematical calculations are needed—from the foundational principle that force warp space-- which it is one of the purposes of this paper**.

End Note

This way of analyzing GR solves many problems physics faces today, including the finding common grounds between general relativity and Quantum Mechanics (in quantum mechanics return to realism will be the key advantage). Other advantages include emergence of a common law of force, velocity-curvature relation, return to objectivity, absoluteness (relativistic world is an error), correct logic (a priori logic) and causality (regularity of sequences), perception of reality (physics) first, the necessity to treat mathematics as subordinate entity to explain physics and to be utilized only when explanation of ideas calls for it (no beginning can be made from mathematical logic or mathematical abstraction, no abstract vector spaces. only real and absolute space and time), and last but not the least the idea of the application of falsifiability to all that is concluded from the postulates (on which we base the explanation of special and general theory of relativity). In short it is the recall of the essential ideas that physicists have allowed to fade away for a long long time.

1. Freelance Researcher, No affiliations

***it also is the demise of the entire non-real quantum mechanics but that we are not discussing in this paper**

** I do not have the mathematical competence to do the actual calculation of the Equations of motion through force-Curvature relation (or dwell on the revised calculations of the four proofs of the theory of relativity) and show the result match those observed, nor has I been able to find a person to do these apparently simple calculations. Einstein, for the evolving of his field equations, had the help of best mathematicians of the time. Our equation of motion—to replace complicated field equations and Newton's $F=ma$ —will be far simpler, but unfortunately I have not been able to find anyone who could help me (in spite of having set a reward of Rupees ten thousand for the person helping me find the revised and correct equation of motion). I hope mathematicians reading this paper will take up the challenge!

Inspiration

1. Popper, Karl, Sir, (1972), *Objective Knowledge* (subtitle, *An Evolutionary Approach*), Oxford University Press.
2. Drucker, Peter (1980), 'Towards Next Economics' in *Towards Next Economics and Other Essays*, Allied Publishers Private. Ltd New Delhi
3. Daya Krishan, *Social Philosophy*, Institute of Advance Study' Shimla, India

My References (Main, in the context of this paper)

S.K. Malhotra (2016), *Smolin Sir, I have the Answers-I (Giving up Determinism: Return to Objectivity, Realism and Absoluteness in Physics: back to 1892)*, Shakuntala Devi Memorial Trust, E-162 Kalkaji, New Delhi-110019

My References (Others)

1. Malhotra, S.K (2008): *Next Economics: Simple Assumption-less, Falsifiable*, Shakuntala Devi Memorial Trust, E-162, Kalkaji, Delhi-19
2. 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
3. Malhotra, S.K. (2015), 'Freedom: Teleological Causality of the Universe: Common Origin of Science and Religion' Presentation made at Religion and Science conference, held at SUF-2015, Vienna.