Experimental & Theoretical Evidences of Fallacy of Space-time Concept and Actual State of Existence of the Physical Universe

Mohammad Shafiq Khan
H.No. 49, Al-farooq Colony, Rawalpora, Srinagar, Kashmir-190 005, India
shafiqifs@gmail.com

Abstract

The postulate of constancy of velocity of light irrespective of relative uniform motion of the source and the observer introduced by Albert Einstein in the article 'On the Electrodynamics of Moving Bodies' Albert Einstein (1905a) is absolutely consistent with the physical and experimental observations. The other postulate of 'laws by which physical systems undergo change are not affected when referred to different inertial reference frames' is in contradiction with all the derivations in the article. Since the change in any physical system; due to whatever reason; could be mainly in reference to the space and time of that physical system; whereas article derives that space and time of any physical system would be different when referred to different inertial reference frames. This article will establish theoretically as well as experimentally that the concept of length contraction in the direction of motion, as proposed by Lorentz & FitzGerald to explain Michelson-Morley experiment is fundamentally incorrect. Consequently the concept of exchangeability of mass and energy as proposed by Einstein in the article 'Does the Inertial of the Body Depend upon its Energy Content' Albert Einstein (1905b) fails conceptually, theoretically as well as experimentally. The theoretical and experimental evidences against the concept of contraction of space in the direction of motion leads to the failure of space-time concept and every theory and concept associated with it. The obvious conclusions are space is finite & absolute, time is relative & emergent, matter is emergent and radiation is the electromagnetic work capacity dissipated by the matter which propagates in the medium of ether as a wave motion. Consequent upon these experimental and theoretical evidences this unique state of existence of the physical universe emerges which has been partly described in the article 'Foundation of Theory of Everything; Non-living Things & Living Things' Mohammad Shafiq Khan (2010b) and is further discussed herein. This article discusses in detail the experimental evidences of the coordinate transformation between two coordinate systems in uniform motion derived in Mohammad Shafiq Khan (2010b); which in turn shows that Lorentz transformation which Einstein physically interpreted in the article Albert Einstein (1905a) is fundamentally incorrect. Consequently the physics which evolved in twentieth century is shown to be incorrect including the formulae $\mathrm{E}=\mathrm{mC}^2$ and $m_v=\frac{m_O}{\sqrt{1-\frac{\mathrm{V}^2}{\mathrm{C}^2}}}$. The final conclusion is that space is finite & absolute and accordingly the Big Bang Theory is established to be baseless.

Introduction: The secrets of state of existence of the physical universe are hidden in the nature of light/radiation and once the nature of light/radiation is properly understood the secrets unfold. The concept of ether was firstly proposed by a philosopher Rene Descartes in 1683. Newton rejected the concept of ether as the medium of propagation of light. However it was Clerk Maxwell who formally put forward the theory of luminiferous ether in 1864 in 'A Dynamical Theory of the Electromagnetic Field' and in 1873 he wrote a book titled 'A Treatise on Electricity and Magnetism' wherein in one of the chapters namely 'Electromagnetic Theory of Light' he proposed that light is an electromagnetic phenomenon in the luminiferous ether. A historical experiment was carried out by Michelson in 1881; in which a fundamental error was pointed out by Lorentz and accordingly the experiment was repeated in 1887; to experimentally verify the existence of luminiferous ether. The said experiment was misconceived and misinterpreted to conclude the absence of luminiferous ether, which stands shown in the article 'Michelson-Morley Experiment: A Misconceived & Misinterpreted Experiment' Mohammad Shafiq Khan (2011). The experiment has been shown to be misconceived and misinterpreted because of following two reasons: -

01. The luminiferous ether had been virtually presumed to be at rest with respect to the solar system; the sun.

02. A theory & methodology was adopted wherein the orbital motion of the earth was treated as linear motion. If orbital motion was considered as linear motion then classical Doppler Effect should have been taken into account and that was not done.

The misconception and misinterpretation of the Michelson-Morley experiment was a historical turning point in the scientific and philosophical understanding of the state of existence of the physical universe.

Since it was an experimentally established fact that velocity of light is invariable irrespective of the relative motion of the source and the observer and having incorrectly concluded the absence of luminiferous ether; it was Woldemar Voigt in the same year 1887 who showed mathematically that under Galilean transformation of coordinates between two coordinate systems in relative uniform linear motion the D' Alembert's wave equation of space & time dependent scalar wave function is not invariant. Voigt arrived at the similar transformation which later on is very well known Lorentz transformation which Einstein also derived in Albert Einstein (1905a). Voigt's modified transformation is called the Lorentz transformation as Lorentz and FitzGerald could explain the Michelson-Morley experiment by introducing the concepts of length contraction in the direction of motion and the time dilation. The adoption of the concept was the basic scientific error as the result of which neither the nature of light/radiation is correctly understood nor the state of existence of the physical universe is correctly understood.

There is a very well defined transformation between coordinate systems in uniform motion which does not involve any space contraction & under which the wave equation is invariant but such a transformation has to be between two coordinate systems, one of which is the absolute reference system which is at rest with respect to ether. This transformation has been derived in the article Mohammad Shafiq Khan (2010b) wherein only the time frame of the moving coordinate system is affected & that too depends upon the recessional motion of the moving coordinate system. On the basis of this transformation the Michelson-Morley experiment has been explained in the article Mohammad Shafiq Khan (2011). Since the celestial objects are having the spiral motion as such the spherical polar coordinate system has been adopted; because such a coordinate system would describe the motion of the celestial objects in the simplest possible manner. From 1887 up to 1905 none of the physicists could physically interpret the Voigt/Lorentz transformation which involved length contraction in the direction of motion and time dilation besides the dependence of time on space. This task was undertaken by Einstein in his article Albert Einstein (1905a) and this article of Einstein & the concepts put forward in the article are shown to be incorrect beyond any reasonable doubt in this article. Some of the physicists have put forward alternatives but all of those are also irrational or incorrect, but the alternative put forward under Mohammad Shafiq Khan (2010b) is valid and correct would be shown in this article. This article would show as to how and why the article Albert Einstein (1905a) is incorrect and provide experimental evidences that the derivations arrived at in the article are incorrect. Consequently the present scientific and philosophical understanding of the state of existence of the physical universe is shown to be incorrect and alternative scientific and philosophical state of existence of the physical universe as described in Mohammad Shafiq Khan (2010b) is further substantiated and further discussed herein. Article Albert Einstein (1905b) is also shown to be theoretically as well as experimentally incorrect and consequently General Theory of Relativity and Big Bang Theory fails at the fundamental level.

However a very brief historical background of understanding of state of existence of the physical universe would help in comparing the different philosophical and scientific understandings of the state of existence of the physical universe. From the time of Aristotle space was considered as finite & absolute, time was considered as absolute and matter in essence was also considered as absolute. Light was not properly understood. Though a philosopher namely Al-Ghazali showed in his book 'Incoherences of the Philosophers' that such a state of existence of the physical universe could not be correct on the basis of logic but since he had not any alternative view and there seemed to be no possible alternative at that time so his views were rejected. This view of the state of existence of the physical universe continued till about the last decade of nineteenth century. Since the secrets of state of existence of the physical universe are in the nature of light/radiation; two important developments took place in the nineteenth century regarding the understanding of the nature of light. One was the discovery of the Doppler Effect and the other was experimental observations of the constancy or invariance of velocity of light irrespective of the relative motion of the source and the observer. In the early twentieth century because of the articles Albert Einstein (1905a) and Albert Einstein (1905b) there was the change in the understanding of the state of existence of the physical universe under which space and time were considered emergent and interconnected as space-time concept and matter and light or radiation were considered as exchangeable and sum total of matter and light/radiation was considered as absolute. This is the present scientific and philosophical understanding of the state of existence of the physical universe which this article (and the

articles referred in this article) will show theoretically as well as experimentally to be fundamentally incorrect.

Experimental & Theoretical Evidences

The foundation of the present scientific understanding of the state of existence of the physical universe was laid in 1905 by Einstein through the articles Albert Einstein (1905a) and Albert Einstein (1905b). Readers are supposed to have thoroughly gone through and understood these two articles; however it would be appropriate to reproduce hereunder the two postulates, axioms or principles as defined by Einstein.

1. The laws by which the states of physical systems undergo change are not affected, whether the changes of state be referred to the one or the other systems of coordinates in uniform translatory motion.
2. Any ray of light moves in the stationary system of coordinates with determined velocity 'C' whether the ray be emitted by a stationary or by a moving body.

Hence $$\text{Velocity} = \frac{\text{light path}}{\text{time interval}}$$

where time interval is to be taken in the sense as defined in part 'Definition of Simultaneously'.

There is no confusion in so far as the time interval is concerned; as it is the time interval between the time of emission and the time when the observer receives the light pulse according to the clock with the observer. There is a very crucial confusion concerning the light path when the source of the light is in relative uniform motion with respect to the observer. Since the source and the observer are in relative uniform motion it could be safely presumed that the observer is at rest whereas the source of the light is in uniform motion with respect to the observer. This crucial confusion could be explained with the help of a simple figure – 1.

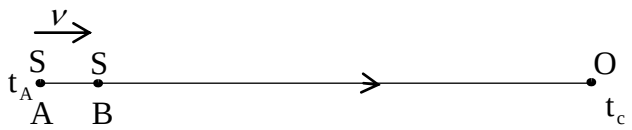

Fig. 1

Let O be the observer; with a clock; who is at rest and let there be a source of light S which is in uniform motion towards the observer with a velocity 'V'. The source of light emits a light pulse at the position A at the time t_A and the same light pulse be received by the observer at the time t_C according to the clock with the observer. Evidently $t_C - t_A$ is the time interval without any dispute or confusion. At the time t_C when the observer receives the light pulse the source reaches a position B. The crucial confusion is that the light path could be taken as AO or BO

Thus

$$\text{Velocity} = \frac{AO}{t_C - t_A} \quad ; \quad \text{Velocity} = \frac{BO}{t_C - t_A}$$

If AO is taken as the light path then in that case velocity of light is presumed to be constant with respect to the space and let it be denoted as 'C_S' and when BO is taken as light path the velocity of light be denoted as 'C'. Evidently the value of C_S and C are different and the relationship between C_S and C in case of the figure – 1

$$C_S = C + V$$

The relationship between C_S and C could be generalized as

$$C_S = C \pm V \qquad \text{(1)}$$

+ve sign when the source and the observer are approaching each other and –ve sign when the source and the observer are receding.

Einstein in his article Albert Einstein (1905a) used this confusion and manipulated/tricked the calculations so as to interpret and derive the Lorentz transformation. The trickery of Einstein actually started from the section 2 'On the Relativity of Lengths and Times'. While he states the formulae

$$t_B - t_A = \frac{r_{AB}}{C - V} \quad \text{(2)}$$

$$t'_B - t_B = \frac{r_{AB}}{C + V} \quad \text{(3)}$$

Einstein uses the constancy of velocity of light with respect to space as he has used C_s rather than C (the terms need not be defined as the same terms have been used which are available in 1923 published. 'The Principle of Relativity' English translation of the article wherein some notations are changed like 'C' denoting the velocity of light instead of 'V' as used by Einstein). For further clarification readers may go through Mohammad Shafiq Khan (2011) wherein same type of formulae have been derived presuming the light having a constant velocity with respect to space/ether.

The real trickery have been made by Einstein in the section 3 of part I of the article namely 'Theory of the Transformation of Coordinates and Times from a Stationary System to Another System in Uniform Motion of Translation Relatively to the Former'. This will be discussed in detail. In this section Einstein introduces two coordinate systems in uniform relative linear motion with a velocity V and defines the coordinate system K as stationary with the coordinates as x, y, z and time t. The moving coordinate system k; moving in the direction of increasing x with a velocity v with the x-axes of both of the coordinate systems coinciding and the other axes of the coordinate systems being parallel. The moving coordinate system k having the coordinates as ξ, η, ζ and time τ. The placement of the source of light and coordinate systems and the points could be very well understood from the following figure 2.

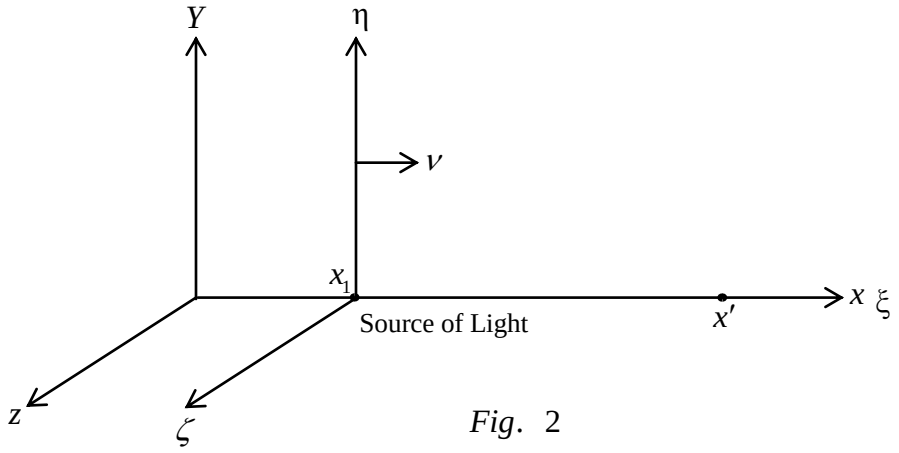

Fig. 2

Now a point on the moving coordinate system k is selected which corresponds to x', y, z where x' =x-vt; which point according to Einstein; is stationary with respect to the moving coordinate system k. For simplicity of explanation let the point x' is placed on the x-axis of both the coordinate systems. Now if the source of light is placed at the origin of the moving coordinate system and if the source of light emits a light pulse at time τ_0 towards the point x'; which is moving with the moving coordinate system such that it is stationary with respect to the origin of the moving coordinate system k; and the light pulse is reflected from the point x' at time τ_1 and the light pulse reaches the origin of the moving coordinate system at the time τ_2 in the clock of the moving coordinate system. The intervals of time would depend upon the velocity of the light because the distance between the origin of the moving coordinate system and point

x' is always the same. Now velocity of light is to be treated as constant but there are two alternatives of adopting the velocity of light; it could be treated as constant with respect to space as c_s has been defined and it could be defined as 'c' is defined. Einstein did not treat the velocity of light as constant with respect to space as he treated the velocity of light as constant 'c' with respect to the point x' at the time when the light pulse is received by the point x' and accordingly the formula $\frac{1}{2}(\tau_0 + \tau_1) = \tau_1$ was adopted.

Now if D is the distance between the point x' and the origin of the moving coordinate which is a fixed distance; so

$$D = c(\tau_1 - \tau_0) \quad \text{(4)}$$

When the light pulse is reflected the distance 'D' remains the same

$$D = c(\tau_2 - \tau_1) \quad \text{(5)}$$

thus $\tau_1 - \tau_0 = \tau_2 - \tau_1$

Hence $\frac{1}{2}(\tau_0 + \tau_2) = \tau_1$ (6)

One of the tricks of Einstein by which he tried to physically interpret the Lorentz transformation and which is foundation of the present main-stream physical sciences is the formula

$$\frac{1}{2}\left[\tau_{(0,0,0,t)} + \tau_{(0,0,0,t+\frac{x'}{c-v}+\frac{x'}{c+v})}\right] = \tau_{(x',0,0,t+\frac{x'}{c+v})}$$

Here Einstein works out the timing of the light pulse at the three points namely the origin of the moving coordinate system, point x' and return timing of the light after it is reflected from point x' and reaches back to the origin of the moving coordinate system, **wherein the velocity of light has been treated as constant with respect to the stationary space;** in the manner c_s has been defined. Though it is explained in a very simple manner and readers must have understood the trick. But since it is such a crucial trick it would be appropriate to describe this trick in detail. Since according to Einstein the point x' is at constant distance from the origin of moving coordinate system k let this fixed distance be denoted by D. Considering the stationary coordinate system K and the propagation of the light pulse therein as shown in the figure – 3

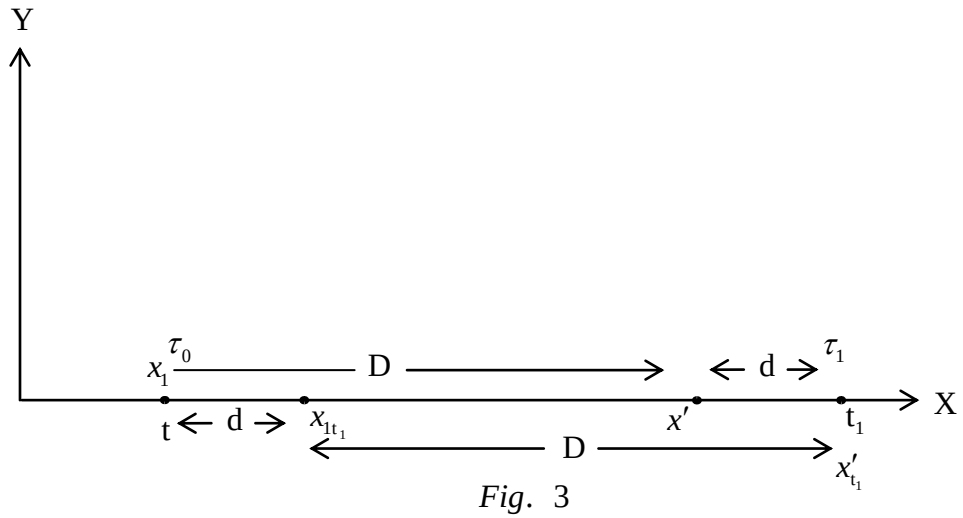

Fig. 3

Let the origin of the moving coordinate system by denoted by x_1 and as the light pulse is emitted from the point x_1 at the time τ_0 in the moving coordinate system and at time t in the stationary coordinate system K; since Einstein here considered the velocity of light constant with respect to the stationary space so as the light pulse is emitted from the point x_1 at time t and by the time light pulse reaches point x', the point x' reaches the point x'_{t_1} away from point x' say by a distance 'd' and let the light pulse be received by the point x' at time t_1. The origin of the moving coordinate system has to be at position x_{1t_1} at a distance D from the point x'_{t_1}. Since Einstein considered the velocity of light constant with respect to space which is denoted by C_s. Thus the light pulse moves a distance $D+d$ during the time $t_1 - t$

Hence $$D + d = C_s(t_1 - t)$$

since the moving coordinate system moves with a velocity v so

$$d = V\ (t_1 - t)$$
$$D + V(t_1 - t) = C_s(t_1 - t)$$
$$t_1 = t + \frac{D}{C_s - V}$$

Since in the moving coordinate system point X' is always at the distance D from the origin of the same coordinate system; hence D is to be replaced by X'

$$t_1 = t + \frac{x'}{C_s - V} \quad \text{_____(7)}$$

The path of the light pulse which is reflected from the point X' towards the origin of the moving coordinate system could be understood from the figure – 4.

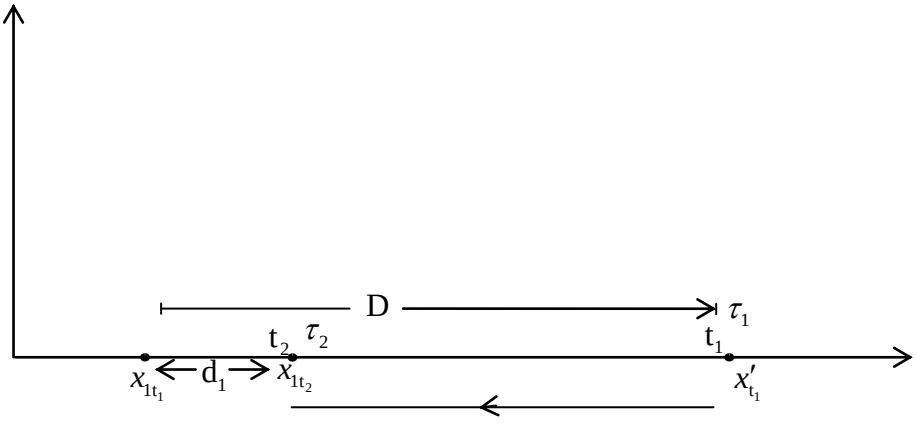

Fig. 4

As the light pulse is reflected from the point x'_{t_1} at time t_1 and it reaches the origin of the moving coordinate system at time t_2 but by the time the light pulse reaches the origin of the moving coordinate system the origin moves to the position x_{1t_2} at a distance d_1 from the original position x_{1t_1}

Hence $D - d_1 = C_S(t_2 - t_1)$

Since the moving coordinate system is moving with a velocity V

$$d_1 = V(t_2 - t_1)$$

$$D - V(t_2 - t_1) = C_S(t_2 - t_1)$$

Hence $$t_2 = t_1 + \frac{D}{C_S + V}$$

Replacing D by x'

$$t_2 = t_1 + \frac{x'}{C_S + V}$$

Applying equation (7) to t_1

$$t_2 = t + \frac{x'}{C_S - V} + \frac{x'}{C_S + V} \quad \text{\_\_\_\_\_(8)}$$

This should explain the trick; because Einstein worked out the timing of the light pulse at the same three points in two coordinate systems by adopting two different velocities of light; thereby Einstein violated the very postulate of constancy of velocity of light irrespective of the motion of the source and the observer which he had introduced in the article.

Now if the timing of the light pulse in the stationary coordinate system is worked out in the same way as had been done in the moving coordinate system; then equation (7) and (8) would be

$$t_1 = t + \frac{x'}{C}$$

$$t_2 = t + \frac{x'}{C} + \frac{x'}{C} = t + \frac{2x'}{C}$$

thus we should have

$$\frac{1}{2}\left[\tau_{(0,0,0,t)} + \tau_{\left(0,0,0,t+\frac{2x'}{C}\right)}\right] = \tau_{\left(x',0,0,\frac{x'}{C}\right)}$$

Hence equation

$$\frac{1}{2}\left(\frac{1}{C - V} + \frac{1}{C + V}\right)\frac{\partial \tau}{\partial t} = \frac{\partial \tau}{\partial x'} + \frac{1}{C - V}\frac{\partial \tau}{\partial t} \quad \text{\_\_\_\_\_(Equation of Trickery)}$$

shall have to be replaced by

$$\frac{1}{2}\left(\frac{2}{C}\right)\frac{\partial \tau}{\partial t} = \frac{\partial \tau}{\partial x'} + \frac{1}{C}\frac{\partial \tau}{\partial t}$$

$$\frac{\partial \tau}{\partial x'} = 0$$

This is the physical basis of incorrectness of the Equation of Trickery and since all the derivations in the article Albert Einstein (1905) are based on the Equation of Trickery as such all the conclusions drawn in the article are incorrect. The article 'On the Electrodynamics of Moving Bodies by Albert Einstein is Based on Trickeries' (Open Letter to Professors, Teachers, Researchers and Students of physics) Mohammad Shafiq Khan (2012b) shows mathematically that Einstein has simply tricked to arrive at the Equation of Trickery to justify the dependence of time on space. To further clarify the trickery; Einstein had introduced x' as a point which is always at fixed distance from the origin of the moving coordinate system k and τ

cannot be function of x' as a variable; hence $\frac{\partial \tau}{\partial x'}$ is mathematically an absurd term in the Equation of Trickery. The climax of trickery in the article Albert Einstein (1905) is when x' is mysteriously replaced by x in the equations to follow, thereby a constant; in so far as the moving coordinate system k is concerned; is replaced by a variable. Thus the inter-dependence of space and time as in the space-time concept is baseless. Having shown as to how Equation of Trickery could be corrected, it seems that physicists of twentieth century including the journal which published the article did not bother as to how Einstein had arrived at the Equation of Trickery in the article. Presently even an undergraduate student of physics would understand that in the Equation of Trickery $\frac{\partial \tau}{\partial x'}$ has been put for no reason whatsoever.

After this trickery Einstein simply proceeds to derive the Lorentz transformation under the pretext of so-called principle of relativity and by mysteriously replacing x' with x in the section 3 of the article.

The article Albert Einstein (1905a) is responsible for several unanswerable paradoxes but herein will be discussed the physically verifiable interpretations as theoretical interpretations will be shown to be baseless in the later part of the article.

In the section 4 physical interpretations of moving rigid bodies and moving clocks are discussed.

Now a sphere at rest with respect to a moving coordinate system is considered; the equation of the surface of sphere is stated as

$$\xi^2 + \eta^2 + \zeta^2 = R^2$$

where R is the radius of the sphere and when this sphere is viewed by the stationary coordinate system the equation of the surface would be

$$\frac{x^2}{\sqrt{1-\frac{\mathrm{V}^2}{\mathrm{C}^2}}} + \mathrm{y}^2 + \mathrm{z}^2 = \mathrm{R}^2$$

This is the equation of an ellipsoid. Conversely if the rigid body is a sphere in the coordinate system at rest with the rigid body then any moving coordinate system should observe the moving rigid body as an ellipsoid. If this is applied to the observation of the sun from the earth or any satellite but no such observation has been ever reported. The sun appears as a sphere from wherever it is observed; thereby the concept of space being affected by the motion of the observer is simply not correct. This is verifiable even now.

Now refer the postulate, principle or axiom '1' as introduced by Einstein in the article (1905a). The change in the physical system; due to whatever reason; has to be mainly with respect to the space and the time; which should not be affected if referred to any other coordinate system which is in uniform translatory motion. But through the article Einstein derives a transformation whereby the change in the physical system is quantified and defined. This is self-contradictory which the scientists should have pointed out at the time of publication of the article and even the editor of the journal should have pointed it out and refused publication of the article.

The main verifiable interpretation of the article is the Doppler Effect. Without going into discussion the formula derived in the article for representing the Doppler Effect is

$$\nu' = \nu \frac{1 - \cos\phi . \frac{\mathrm{V}}{\mathrm{C}}}{\sqrt{1-\frac{\mathrm{V}^2}{\mathrm{C}^2}}} \qquad (9)$$

where V the velocity of the observer, ν is the frequency of the light emitted by a distant source and ϕ is the angle which the 'source observer' line makes with the direction of the velocity of the observer and ν' is the observed frequency of the light. There could not be any other better way of testing the Lorentz

transformation and theory of Einstein than the Doppler Effect. The classical formula for the Doppler Effect with some medium in exactly the same situation is

$$\nu' = \nu\left(1 - \cos\phi.\frac{V}{C}\right) \text{\_\_\_\_\_} (10)$$

The only problem is that the velocity which could be generated cannot be comparable to 'C' to draw clear cut conclusion. The controversy between the observed frequency shift under classical formula and relativistic formula has been going on due to the extremely small value of the Lorentz factor i.e. $\sqrt{1-\frac{V^2}{C^2}}$. However the best possible test of Lorentz transformation and theory of Einstein would be when $\phi = 90^o$

then $$\nu' = \frac{\nu}{\sqrt{1-\frac{V^2}{C^2}}}$$

This is transverse Doppler Effect. This means when the observer is moving in a circular motion around the source of the light/radiation. There is a very serious limitation of generating the velocity of the observer which could be comparable to 'C' to experimentally verify the theory put forward by Einstein in the article Albert Einstein (1905a). This serious limitation was the main reason that the theory especially space contraction could not be experimentally verified up to ending twentieth century.

It is very pertinent to state here that the experimental verification of the transverse Doppler Effect would be almost direct experimental verification of the concept of space contraction in the direction of motion or validity of Lorentz transformation.

The limitation of generating the velocity of the revolving observer comparable to the velocity of light could be compensated by the highly accurate instrumentation which could detect the change or shift of the frequency of the reflected light/radiation to the extent of at least one part in 10^{14}. Thus proper verification of the transverse Doppler Effect was possible in 1970's & later when Laser and microwave technology was developed. Several experiments have been carried out to verify the transverse Doppler Effect both in case of matter particles (atoms/ions) as well as light & radiation. The detection of any transverse Doppler Effect in case of light and radiation by experiments with very high sensitivity have failed but some transverse Doppler Effect has been observed in case of particles (ions/atoms) by experiments carried out in the past. The article Albert Einstein (1905a) is concerned with the Doppler Effect including transverse Doppler Effect of light or radiation; hence the experiments carried out in respect of light and radiation only needs to be discussed in detail. There are mainly two series of experiments which have been conducted to observe any transverse Doppler Effect in case of light and radiation. One series of experiments have been carried out with light using the Lasers and the other series of experiments have been carried out with radiation using microwaves with the highest possible sensitivity of one part in 10^{17}, in case of light and frequency shift as small as 10^{-3}Hz which corresponds to the value of $\left(\frac{V}{C}\right)^2 = 5.10^{-14}$. There is not any possibility of doubt about the experimental error with such a high sensitive instrumentation. These experiments are discussed in detail in what follows.

1. **Experiments of Transverse Doppler Effect of Light: -** A series of experiments have been conducted by P.A. Davies & R.C. Jennison of Electronics Laboratories, University of Kent and reported in a Journal of Physics (J. Physics A: Math Gen. Vol 8, No. 9 1975) P.A. Davies & R.C. Jennison (1975). Even as the advocates of theory of special relativity they had not experimentally detected any transverse Doppler Effect for which they had absolutely no doubt whatsoever; keeping in view all possibilities of experimental error. Without describing the experimental set up; one of the experiments revealed that 'this experiment shows that any frequency shift in the beam reflected from the (transversely) moving mirrors is less than two parts in 10^{17}' to quote the article. This experimental value is far less than any predicted relativistic frequency shift. In another experiment the total fringe shift varied from +3 to +5 compared to the

predicted relativistic transverse fringe shift of +150. Thus the experiment established; to quote the article, 'this experiment shows there is no relativistic frequency shift to an accuracy of better than 5%'. Keeping in view all possibilities of the experimental errors the experimenters concluded that there is no transverse Doppler Effect in case of light.

The explanation of the experiment by the experimenters/authors P.A. Davies & R.C. Jennison is interesting. This experiment is mainly concerned with the validity of Lorentz factor. Using the arguments of J.H. Sanders (The Fundamental Atomic Constants) Appendix II (1965) and some strange arguments of R.C. Jennison (1964) on the basis of time dilation they deduced that the observed radius of the moving mirror would be

$$r_B = r\left(1-\frac{\omega^2 r^2}{C^2}\right)^{\frac{1}{2}} \quad \text{(12)}$$

where r_B is the observed radius and r is the actual radius and ω is the angular velocity.

In order to explain the experiment authors have switched over the concept of contraction of space in the direction of motion to the contraction of space in the direction perpendicular to the direction of motion in respect of transverse motion. Secondly on the basis of time dilation they have deduced the change in the angular velocity of the circularly moving mirror as

$$\omega_r = \omega\left(1-\frac{\omega^2 r^2}{C^2}\right)^{\frac{-1}{2}} \quad \text{(13)}$$

where ω_r is the observed angular velocity and ω is the actual angular velocity of the circularly moving mirror and r is the actual radius.

Thus the experimental absence of the transverse Doppler Effect under the theory of special relativity was explained by

i. Contraction of space in the direction perpendicular to the circularly moving objects.
ii. Change in the observed angular frequency of the moving objects

They seem to have explained the Ehrenfest paradox but instead created very serious paradoxes which seem to be impossible, illogical and irrational for reasons discussed as under:

Taking up the equation (12)

$$r_B = r\left(1-\frac{\omega^2 r^2}{C^2}\right)^{\frac{1}{2}}$$

Now if $\omega r = C$

$$r_B = 0$$

This means at $\omega r = C$ the circularly moving object will be at the centre around which it is revolving and the space between the centre and the moving object will vanish. Now under the theory of special relativity nothing can move at the speed of velocity of light except light. But though the object is moving with linear velocity of light but the space between the moving object and the centre has to vanish for no reason whatsoever. At speeds of the circularly moving object lower than $\omega r = C$ there would not be space contraction in the direction of motion but the space between the centre and the moving object will be contracted and the ultimate absurdity will be when $\omega r = C$

Now taking up the equation

$$\omega_r = \omega\left(1-\frac{\omega^2 r^2}{C^2}\right)^{\frac{-1}{2}}$$

This means that the observed angular velocity ω_r at $\omega r = c$ will be infinity with the circularly moving object standing at the centre and at the linear velocity which is very close of c the object will by away from the centre moving with the speed several times the actual angular velocity. This again is preposterous and absurd.

A very serious observation would be very appropriate to be stated here. As it will be seen that Hartwig W. Thim explains the experiment 'Absence of the Transverse Doppler Shift at Microwave Frequency' by the fact that there is no time dilation in case of the circularly moving bodies (conclusion 1 in the Discussion & Conclusion of the article) which is the obvious conclusion for absence of transverse Doppler Effect if we presume that there is no contraction of space in the direction of motion. But Davies and Jennison derives the equations (12) and (13) on the basis of the time-dilation. Thus by adopting the incorrect time-dilation in circularly moving objects these paradoxes were borne. The transformation derived in the article Mohammad Shafiq Khan (2010b) has no Ehrenfest paradox or any other paradox which were borne due to the theories of relativity.

However the series of experiments carried out by R.A. Davies and R.C. Jennison have established the absence of transverse Doppler Effect beyond any reasonable doubt keeping in view all the possibilities of the experimental error. Thus this should be sufficient experimental evidence that the Einstein's theory is baseless and Lorentz factor is not real.

2. **Experiments of Transverse Doppler Effect of Radiation:** A series of experiments have been carried out by Hartwing W. Thim regarding experimental detection of transverse Doppler Effect in respect of microwaves and reported in IEEE Instrumentation & Measurement Technology Conference, Anchorage, AK, USA, 21-23 May 2002 under the tittle 'Absence of the Transverse Doppler Shift at Microwave Frequency' Hartwig W. Thim (2002) and the article 'Absence of the Relativistic Transverse Doppler Shift at Microwave Frequencies' published in IEEE Transaction on Instrumentation and Measurement Vol. 52, No. 5, October 2003 Hartwing H. Thim (2003).

The sensitivity of the apparatus used has been tested to be sufficient for detecting frequency shifts as small as 10^{-3} Hertz which corresponds to the value of $\left(\frac{V}{C}\right)^2 = 5.10^{-14}$. Without discussing the experimental set up and precautions taken for any possibility of experimental error, to quote the article 'the expected transverse Doppler shift thus could not be detected. Instead, a null result was measured which was not due to instrumental deficiencies….' The experimenter and the author Hartwig W. Thim was partly in error while drawing the conclusions from the experiment. The conclusions drawn by him are

a. Time dilation does not exist implying that the Lorentz transformations are not applicable (at least to rotating transmitters, antennas and detectors).
b. Time dilation exists only in preferred frame of reference (microwave background) but cannot be detected by the used experimental set up as in the case with many other experiments which attempt to test local Lorentz invariance of time, length or mass.

The first conclusion is correct to the extent that time dilation does not exist in revolving or rotating detectors, whereas the second conclusion is partly right.

There is a very sound reason that this experiment has not received due attention in the scientific studies because the experiment demonstrated that there is no time dilation which the author generalized; though it is correct for circular motion only; whereas there are several experiments which have detected the time dilations in respect of linear motion.

Basically the transverse Doppler Effect is concerned with the Lorentz factor but the author drew the conclusion that there is no time dilation.

However the experiments of detecting the transverse Doppler Effect at microwave radiations as conducted by Hartwig W. Thim establishes the absence of transverse Doppler Effect with sufficient accuracy of the experiment. This is the additional evidence that the Lorentz factor is not real and simply the result of misconception, misinterpretation and trickery in article Albert Einstein (1905a).

On the other hand the experiments discussed herein above are the experimental evidences of theory and the transformation derived in article Mohammad Shafiq Khan (2010b). The transformation of time derived in Mohammad Shafiq Khan (2010b)

$$t' = \gamma t \qquad (14)$$

where $$\gamma = \frac{1}{1+\frac{\hat{c}.\vec{V}}{C}}$$

where $\hat{c}$ is the unit directional vector of velocity of light, source of which is at the centre and $\vec{V}$ is the velocity (linear) of the observer in its own time frame. Now from equation (14) we have

$$\Delta t' = \gamma \Delta t$$

Since for the revolving observer

$$\hat{c}.\vec{v} = 0$$

So $$\Delta t' = \Delta t \quad \text{_____(15)}$$

This is what Hurtwig W. Thim had derived and demonstrated in his article Hartwig W. Thim (2003) and this should be the experimental evidence that the article Albert Einstein (1905a) is not correct and the Lorentz factor is not real and had been incorrectly introduced by Lorentz.

Both the experiments namely P.A. Davies & R.C. Jennison (1975) and Hartwig W. Thim (2003) are the experimental evidences which show that the transformation of coordinates derived in the article Mohammad Shafiq Khan (2010b) is exact and correct.

There is another verifiable interpretation of the article Albert Einstein (1905a) and which could also play a significant role for deciding about the fallacy of the article Albert Einstein (1905a). This is the formula and experimental verification of law of aberration. In the article the formula for law of aberration as derived by Einstein is

$$\cos\phi' = \frac{\cos\phi - \frac{V}{C}}{1 - \frac{V}{C}\cos\phi} \quad \text{_____(16)}$$

The law of aberration shall be now derived under the transformation derived in the article Mohammad Shafiq Khan (2010b). The transformation under spherical polar coordinate is

$$\vec{r}' = \vec{r} - \vec{v}t'$$

$$\& \qquad t' = \gamma t \qquad \text{where} \qquad \gamma = \frac{1}{1+\frac{\hat{c}.\vec{V}}{C}}$$

Now if v is the velocity assigned along the x-axis

$$x' = x - vt' \quad \text{_____(17)}$$

Now

$$\cos\phi' = \frac{x'}{r'} = \frac{x - vt'}{\hat{c}.\vec{r} - \hat{c}.\vec{v}t'}$$

t' being the time frame of the solar system and $\hat{c}$ being the unit directional vector of light from the star (assumed to be at rest reference frame).

$$\cos\phi' = \frac{x - vt'}{r - v\cos\phi t'}$$

Dividing numerator & denominator by r

$$\cos\phi' = \frac{\frac{x}{r} - v\gamma\frac{t}{r}}{1 - v\cos\phi\gamma\frac{t}{r}}$$

Applying law of invariability of velocity of light

$$\cos\phi' = \frac{\cos\phi - \gamma\frac{V}{C}}{1 - \gamma\frac{V}{C}\cos\phi}$$

Since

$\gamma = \frac{1}{1+\frac{V_r}{C}}$ where V_r is net recessional velocity of the solar system

$$\cos\phi' = \frac{\cos\phi - \frac{\frac{V}{C}}{1+\frac{V_r}{C}}}{1 - \frac{\frac{V}{C}\cos\phi}{1+\frac{V_r}{C}}}$$

$$\cos\phi' = \frac{(1+\frac{V_r}{C})\cos\phi - \frac{V}{C}}{1+\frac{V_r}{C} - \frac{V}{C}\cos\phi} \quad \text{(18)}$$

And for $\phi = 90°; (1+\frac{V_r}{C}) \simeq 1$ as $\frac{V_r}{C}$ is very small

$$\cos\phi' = -\frac{V}{C} \quad \text{(19)}$$

This was the Bradley observation. The formula (18) is verifiable as it an established fact that formula (16) does not represent the law of aberration correctly if compared with the data available with NASA.

The advantage of the transformation derived in article Mohammad Shafiq Khan (2010b) is that it proves the invariability of velocity of light but in the time frame of the observer and resolves the long standing confusion between corpuscular theory and wave theory of light which is discussed in the chapter 2.5 'Stellar Aberration' of the book 'Reflections on Relativity' by Kevin Brown.

At least now the proper explanations of the experiments conducted for transverse Doppler Effect and the stellar aberration have shown that the article Albert Einstein (1905a) is incorrect. There is other theoretical evidence that the article Albert Einstein (1905a) is incorrect. The equation generally adopted for invariability of velocity of light in Quantum Mechanics and even in theories of relativity for the

propagation of wave motion of light/radiation in two coordinate systems in Cartesian coordinates with coordinates of space & time as x, y, z, t, & x', y', z', t' in relative motion are

$$x^2 + y^2 + z^2 = c^2 t^2 \quad \text{(20)}$$

$$x'^2 + y'^2 + z'^2 = c^2 t'^2 \quad \text{(21)}$$

Admittedly the Lorentz transformation does satisfy these equations but for more than one and a half decades none of the physicists could physically interpret the Voigt/Lorentz transformation. These two equations in no case define the invariability of velocity of light with respect to space but these equations define the invariability of velocity of light with respect to the coordinate systems or observers. Whereas, as described, Einstein equated the velocity of light with respect to space and the observer to physically interpret the Lorentz transformation.

The long pending task has been accomplished in the article Mohammad Shafiq Khan (2010b) and the experimental evidence of the fact that the transformation is absolutely correct are the experiments of transverse Doppler Effect described in this article. Though the transformation derived in the article Mohammad Shafiq Khan (2010b) has been physically interpreted in the said article and also in article Mohammad Shafiq Khan (2011) and shown to satisfy the wave-equation in the coordinate systems in relative motion of any nature. But the application of the transformation derived in the article Mohammad Shafiq Khan (2010b) would be done in the Cartesian coordinate systems in this article which would further clarify the physical interpretation of the transformation. The transformation was derived in the spherical polar coordinates wherein the transformation was between the absolute reference frame of ether at rest and the moving reference frame with the velocity V in the time frame of the moving reference frame. The transformation is

$$\vec{r}' = \vec{r} - \vec{v}t' \quad \text{(22)}$$

$$t' = \gamma t \quad \text{(23)}$$

where $$\gamma = \frac{1}{1 + \frac{\hat{c}.\vec{v}}{c}} \quad \text{(24)}$$

where $\hat{c}$ is the unit directional vector of velocity of light the source of which is at the origin of the coordinate system which is at rest with respect to ether. Here in spherical polar coordinates $r \geq 0, 0 \geq \theta \geq 180^\circ \; and \; 0 \geq \phi \geq 360^\circ$. The transformation could be safely described with $\theta = 0$ which does not involve any over-simplification. Now the moving coordinate system could be in motion in any direction circular or linear or spiral; keeping in view the fact the $\theta = 0$. The velocity vector of the moving coordinate system could be represented as

$$\vec{v} = \vec{v}_c + \vec{v}_s$$

where $\vec{v}_c$ is the circular component of the velocity and $\vec{v}_s$ is the component of the velocity due to which there is receding or approaching motion. Thus

$$\hat{c}.\vec{v} = \hat{c}.\vec{v}_c + \hat{c}.\vec{v}_{S(RorA)}$$

since $$\hat{c}.v_c = 0$$

Thus $$\hat{c}.\vec{v} = \hat{c}.\vec{v}_s$$

This means that the circular component of the motion of moving coordinate system has no effect on the transformation of time and for any circular motion time frames of the ether at rest frame of reference and the moving reference frame in the circular motion with respect to ether at rest frame of reference are the same. This principle was applied to explain the Michelson-Morley experiment in the article Mohammad Shafiq Khan (2011). General rule follows from the transformation that circularly moving reference frames around a point will have the same time frame as that of the point. This is confirmed by the experiments of transverse Doppler Effect. The time frames of the ether at rest frame of reference and the moving reference frame which have the receding or approaching motion are different.

Now consider the moving coordinate system and the ether at rest coordinate system having the coordinates as x', y', z', and time frame as t' and x, y, z & time frame as t respectively and the two coordinate systems are aligned such that x-axes of both coordinate systems are coinciding and the approaching or receding motion of moving coordinate system along the x-axes with the velocity V_s as depicted in figure - 5

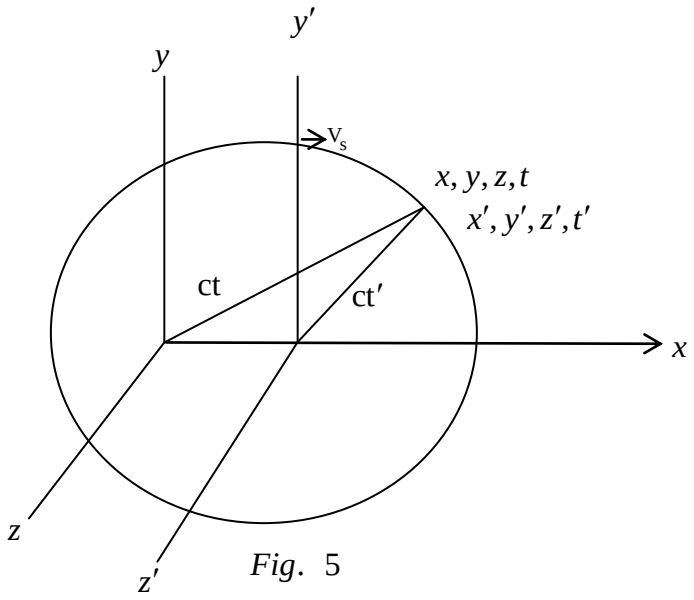

Fig. 5

A source of light is located at the origin of the ether at rest frame of reference of coordinate. The wave front of the light pulse emitted by the source could be defined by the following two equations, keeping in view the invariability of velocity of light

$$x^2 + y^2 + z^2 = c^2 t^2 \quad \text{(25)}$$

$$x'^2 + y'^2 + z'^2 = c^2 t'^2 \quad \text{(26)}$$

Since $r^2 = x^2 + y^2 + z^2$

Hence equation (25) could be written as

$$r^2 = c^2 t^2$$

Thus $r = ct$

This is perfectly alright, that the wave front has the velocity $\frac{r}{t} = c$ in the ether at rest frame of reference.

Now consider the transformation derived in the article Mohammad Shafiq Khan (2010b)

$$\vec{r}' = \vec{r} - \vec{V}\gamma t$$

where $\gamma = \frac{1}{1 + \frac{\hat{c}.\vec{v}}{c}}$

Now $\hat{c}.\vec{r}' = \hat{c}.\vec{r} - \hat{c}.\vec{v}\,\gamma t$

$$r' = r - v_s\,\gamma t$$

As here $\hat{c}.\vec{v} = v_s$

For the light wave front $t = \frac{r}{c}$

$$r' = r - \frac{v_s}{c} r\ \gamma$$

$$r' = \left(\frac{1 - \frac{v_s}{c}}{1 + \frac{v_s}{c}} \right) r$$

so $r' = \gamma r$

Now $r'^2 = \vec{r}'.\vec{r}' = c^2 t'^2$ (invariability of velocity of light)

$$x'^2 + y'^2 + z'^2 = \gamma^2 \left(x^2 + y^2 + z^2 \right) = c^2\,\gamma^2\,t^2$$

dividing by γ^2

$$\left(\frac{x'}{\gamma} \right)^2 + \left(\frac{y'}{\gamma} \right)^2 + \left(\frac{z'}{\gamma} \right)^2 = x^2 + y^2 + z^2 = c^2\,t^2$$

Hence $x'^2 = \gamma^2\,x^2$

$$x' = \gamma\,x \quad \text{(27)}$$

$$y'^2 = \gamma^2\,y^2$$

$$y' = \gamma\,y \quad \text{(28)}$$

$$z'^2 = \gamma^2\,z^2$$

$$z' = \gamma\,z \quad \text{(29)}$$

where $t' = \gamma t$ _____(30)

These equations being for wave front but the general transformation in the Cartesian coordinates would be

$$x' = x - v_S \gamma t \_\_\_\_\_(31)$$

$$y' = \gamma y \_\_\_\_\_(32)$$

$$z' = \gamma z \_\_\_\_\_(33)$$

where $t' = \gamma t$ _____(34)

When the coordinate system x', y', z' is moving with a velocity v_s (the receding/approaching velocity v_s) in the direction of x-axis with the time frame of t'

where $$\gamma = \frac{1}{1 + \frac{v_s}{c}} \_\_\_\_\_(35)$$

v_s is positive if the reference frame or the moving coordinate system is receding and v_s is negative if the reference frame moving coordinate system is approaching. The physical interpretation of the transformation derived in the article Mohammad Shafiq Khan (2010b) and the same derived herein in the Cartesian coordinate system is that if the measurements are carried out with the help of light/radiation then transformations derived and represented are equations (31) to (34) where the factor γ is given by equation (35). Now if it is possible to carry out measurements directly & physically without the help of light/radiation from the moving coordinate system then the transformations would be

$$x' = x - v_S \gamma t \_\_\_\_\_(36)$$

$$y' = y \_\_\_\_\_(37)$$

$$z' = z \_\_\_\_\_(38)$$

$$t' = \gamma t \_\_\_\_\_ (39)$$

The equations (37) and (38) are different because here the factor γ will not be called into play because the velocity of light which is the same as 'c' but on the time frame of the moving coordinate system which depends on the receding or approaching motion of the moving coordinate system. Thus it should be clear that the due to motion of the coordinate system only the time frame of the moving coordinate system is affected which would depend upon the approaching or receding motion of the moving coordinate system with respect to the absolute reference frame or ether at rest frame of reference or coordinate system.

The presumed experimental evidence for the absence of ether and the space contraction in the direction of motion till date is only Michelson-Morley experiment. The article Mohammad Shafiq Khan (2011) shows that the conclusions about the absence of ether and contraction of space in the direction of motion are absolutely baseless. The theoretical and experimental evidences discussed herein shows beyond any doubt whatsoever that the Lorentz factor is not real and accordingly the time dilation as derived by Lorentz and Einstein in the article Albert Einstein (1905a) is not correct.

Though there is no direct experimental evidence of space contraction till date but there are hundreds of experimental evidences of time dilation and in the history of physical sciences only the theories of relativity put forth by Einstein predicted the time dilation. Consequently the theories of relativity were adopted in physical sciences and have found way in every branch of physical sciences in one form or the other. During whole of the twentieth century no alternative theory was put forward but now when the alternative theory has been put forward under article Mohammad Shafiq Khan (2010b) with sufficient theoretical and experimental evidences produced in the article Mohammad Shafiq Khan (2011) and herein; delay in discarding the entire physical sciences based on Einstein's concepts and theories including the space-time concept would be simply irrational and unscientific.

The obvious consequence of the incorrect article Albert Einstein (1905a) was the article 'Does the Inertia of a Body Depend upon its Energy Content' – Albert Einstein (1905b). The terms stand already introduced in this article and without defining the terms; taking up the main equation in the said article

$$l^* = l\frac{1-\frac{V}{C}\cos\phi}{\sqrt{1-\frac{V^2}{C^2}}} \quad \text{_____(40)}$$

Where l represents the energy of the light pulse in the at rest frame of reference with coordinates x, y, z and l^* represents the energy of the same light pulse in the moving frame of reference with coordinates ξ,η,ζ which is in uniform parallel translation velocity V with respect to the x, y, z coordinate and ϕ is the angle which the direction of the light pulse makes with the direction of x – axes. From formula (40) it will be shown theoretically and experimentally that the transformation derived in the article Mohammad Shafiq Khan (2010) is correct. The formula (40) could be written as

$$h\nu^* = h\nu\frac{1-\frac{V}{C}\cos\phi}{\sqrt{1-\frac{V^2}{C^2}}} \quad \text{_____(41)}$$

It is presumed that h is a constant as Einstein had presumed. Now if $\phi = 90°$

$$\nu^* = \frac{\nu}{\sqrt{1-\frac{V^2}{C^2}}}$$

But the experiments of transverse Doppler Effect discussed in this article have shown that there is absolutely no change in the frequency of the light or radiation; thereby proving experimentally that the Lorentz factor $\sqrt{1-\frac{V^2}{C^2}}$ is not real and has been wrongly adopted. It would be very appropriate to mention here that the consequences of rectifying this incorrect concept are so immense and important that it would change the scientific views of all the physical sciences which are presently held by the main-stream science.

Thus since it is experimentally verified that the Lorentz factor is not real accordingly equation (41) could be written as

$$\nu^* = \nu\left(1+\frac{\hat{c}.\vec{V}}{C}\right) \quad \text{_____(42)}$$

here the $\hat{c}$ is the unit directional vector of light in the reverse direction.

Frequency of the light/radiation is simply the number of waves passing through a point per unit time. If t is the time period in the stationary coordinate system in which N number of waves passes through a point; the time t^* in the moving coordinate system in which same number (N) of waves passes in the moving coordinate system would be governed by the equation (42)

$$\frac{N}{t^*} = \frac{N}{t}\left(1+\frac{\hat{c}.\vec{V}}{C}\right)$$

Hence $$t^* = \frac{t}{1+\frac{\hat{c}.\vec{V}}{C}} \quad \text{(43)}$$

or $$t^* = \gamma t$$

Where $$\gamma = \frac{1}{1+\frac{\hat{c}.\vec{V}}{C}}$$

There could not be any simpler way of proving experimentally & theoretically that the transformation derived in the article Mohammad Shafiq Khan (2010b) is correct; as per which only the time frame of the moving coordinate system is affected and that too if the moving coordinate system has the receding or approaching component of motion and in no way space is affected/involved. Admittedly this is consistent with classical physics but under classical physics the constancy of velocity of light cannot be explained.

Now taking up the equation

$$h\nu^* = h\nu\left(1+\frac{\hat{c}.\vec{V}}{C}\right)$$

Let the energy [actually the work capacity as per the article Mohammad Shafiq Khan (2010b)] of the light pulses be W and W^* in the two coordinate systems would be

$$w^* = w\left(1+\frac{\hat{c}.\vec{V}}{C}\right)$$

$$\gamma w^* = w$$

Thus work capacity (energy of the present main-stream science) is conserved in the absolute reference frame of ether at rest. Different coordinate systems quantify the work capacity (energy) differently depending upon the time frame of the moving coordinate systems. Thus the first postulate of Einstein introduced in the article Albert Einstein (1905a) cannot be correct.

It is stated in the article Mohammad Shafiq Khan (2010b) that discovery of the Doppler Effect in the nineteenth century was the historical and most important discovery and proper understanding of Doppler Effect would have been of great help in understanding the state of existence of the physical universe. The secret of existence of luminiferous ether and more importantly the secret of nature of time was in the Doppler Effect which unfortunately for humanity was not correctly studied and interpreted. The misinterpretation of Doppler Effect by Einstein in the article Albert Einstein (1905b) lead to the derivation of the formula $E = mc^2$ which quantifies the relationship between inertia and the energy (work capacity) content of a body. Conceptually, logically and scientifically it is an incorrect theory/concept which forms the basis of the present main-stream physical sciences. The whole confusion is because of the Lorentz factor which was theoretically derived in the article Albert Einstein (1905a) with the help of trickery and for which the misconceived and misinterpreted Michelson-Morley experiment served the experimental basis. The formula in the Albert Einstein (1905b) under the same premises and the same notations and same situation as has been adopted in the article Albert Einstein (1905b) but without the Lorentz factor which has been shown to be not real; (it needs to be born in mind that premises of Doppler Effect; the relativistic Doppler Effect; as held by Einstein and also the same under classical physics are fundamentally not correct) could be rewritten as

$$E_0 = E_1 + \frac{1}{2}L + \frac{1}{2}L \quad \text{(44)}$$

Now $$H_0 = H_1 + \frac{1}{2}L\left(1-\frac{V}{C}\cos\phi\right) + \frac{1}{2}L\left(1+\frac{V}{C}\cos\phi\right)$$

$$H_0 = H_1 + \frac{1}{2}L + \frac{1}{2}L \quad \text{(45)}$$

Hence

$$H_0 - E_0 - (H_1 - E_1) = 0 \quad \text{(46)}$$

Assuming as in the article Albert Einstein (1905b)

$$H_0 - E_0 = K_0 + C$$
$$H_1 - E_1 = K_1 + C$$

so

$$K_0 - K_1 = 0 \quad \text{(47)}$$

Hence the conclusion of Einstein that

$$K_0 - K_1 = \frac{1}{2}\frac{L}{C^2}v^2 \quad \text{(48)}$$

which corresponds to $mC^2 = L$ (presently known as the formula $E=mc^2$) is untrue as the same is based on the incorrect article Albert Einstein (1905a) and for which experimental evidences have been discussed in this article. Before the significance of equation (47) is discussed, it could be safely concluded that the absolute and unquestionable proof against the present main-stream understanding of the physical universe is the Doppler Effect. Now if it is presumed that the source of light is at rest in ether at rest frame of reference or otherwise in an at rest coordinate system and the energy (work capacity) of the light pulse in three coordinate systems which are at rest with the coordinate system of the source, receding with respect to coordinate system of the source and approaching with respect to the coordinate system of the source respectively are

$$w = h\nu \quad \text{(49)}$$
$$w_r = h\nu_r \quad \text{(50)}$$
$$w_a = h\nu_a \quad \text{(51)}$$

Since ν_r is the frequency under the receding condition which is red-shifted hence $\nu_r < \nu$ and ν_a is the frequency under the approaching condition which is blue-shifted hence $\nu_a > \nu$. There is absolutely no reason for the light pulse to loose or gain work capacity (energy) due to the motion of the coordinate system. If it is presumed that space and time is affected by the motion of the coordinate systems then a logical and rational question arises where from and where the light pulse gains or loses the work capacity (energy). This should show as to what extent the present main-stream science is irrational and illogical. Now if it is presumed that the characteristics of the light pulse changes due to contraction of space in the direction of motion; then since there is contraction of space in the direction of motion whether the observer coordinate system is receding or approaching then there should have been blue-shifting whether the observer coordinate system is approaching or receding the source of light. Thus Doppler Effect had been an experimental proof that Voigt mathematical solution of the wave equation for the transformation between two coordinate systems in relative uniform motion, Lorentz transformation and Einstein's physical interpretations of the Lorentz transformation are incorrect. Doppler Effect is the proof that there is a very well defined medium in which the light/radiation propagates and that there are different time frames of the observers which have receding or approaching motion with respect to the ether at rest frame of reference and also space in no way is affected due to the motion of the observers.

It has been stated in the article Mohammad Shafiq Khan (2010b) that there are no free electrical charges in nature but it is a very strange coincidence that Maxwell arrived at the wave-equation for electric field & magnetic field to represent the electromagnetic phenomenon of light. For simplification it could be presumed that magnetic field does exist but the main concern would be the communication of the field to the bodies through the medium. The magnetic fields could be communicated through the medium of ether, the electric dipoles, only due to the difference of time frames of the interacting bodies and since matter is stated to be consisting of magnetic dipoles and the magnetic fields would be

transmitted between the interacting bodies only when the bodies have difference of time frames and the difference of time frame depends upon the relative approaching or receding motion of the bodies. Thus it has been shown in article Mohammad Shafiq Khan (2010b) that gravitation is basically the electromagnetic force and is called into play only when the bodies have recessional accelerating or decelerating motion.

Coming to the physical interpretation of the equation (47); the equation (47) very clearly shows that there is no change in the kinetic energy of a body when referred to two coordinate systems in relative uniform motion (including the circular motion) even under the premises of Einstein which are not fundamentally correct. Though work capacity (energy in the present main-stream science) is quantified differently in different reference frames depending upon the time-frame of the reference frame but there is no kinetic energy or kinetic work capacity when the body is in uniform motion (linear & circular) as the inertia is called into play when the body has accelerating or decelerating motion. Thus the mass or inertia of a body when in the uniform motion with respect to ether at rest frame of reference is zero. This is exactly what is shown in the article Mohammad Shafiq Khan (2010b); that the inertia of the body is called into play when the body is in accelerated or decelerated state of motion with respect to the ether at rest frame of reference. It is stated in the article Mohammad Shafiq Khan (2010b) under the section Foundation of Theory of Everything (Non-living Things) that 'Einstein did not even dream of the fact that because of the recessional accelerations of the astronomical bodies there is gravitation. Einstein believed that because of the gravitation the objects are forced to accelerate'. But the gravitation in fact is the electromagnetic force and is called into play when the objects have recessional accelerating or decelerating motion due to which there is difference of the time-frames between the bodies and the medium as the result of which the magnetic interaction is communicated. Newton did not imagine the possibility of such a scenario and he thought that gravitation is the universal & inherent nature of matter and same perspective of gravitation continues even with the present main-stream physicists under which imaginary concepts like black holes have been introduced. In the solar system the gravitation would depend upon the recessional motion of the sun and if the sun is in the uniform motion (linear or circular) there would not just be any gravitation between sun and planets and even between the matter particles (the magnetic dipoles) as the magnetic force could not be communicated by the medium. Thus gravitational constant which is presumed to be universal cannot be a universal constant but would depend upon the recessional motion of the stars. To substantiate this if there is an object which produces 'B' magnetic field and is in motion with respect to the ether at rest frame of reference with the velocity V (V is the velocity of the moving object in the ether at rest frame of reference in the time frame of ether at rest frame of reference (differentiation has to be born in mind that in the transformation derived in the article Mohammad Shafiq Khan (2010b) the velocity V is the velocity of the moving frame of reference in the time frame of the moving frame of reference) then the 'B' as experienced by the medium will be 'B'' which would be

$$\vec{B}' = \frac{\vec{B}}{\gamma} \qquad \text{where} \qquad \gamma = \frac{1}{1+\frac{\hat{c}.\vec{V}}{C}}$$

$$\vec{B}' = \left(1+\frac{\hat{c}.\vec{V}}{C}\right)\vec{B} \qquad \hat{c}.\vec{V} = \frac{\partial r}{\partial t}$$

$$\vec{B}' = \left(1+\frac{1}{C}\frac{\partial r}{\partial t}\right)\vec{B}$$

now since

$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$

Since the medium consists of the electric dipoles; the magnetic field could be transmitted if

$$-\frac{\partial \vec{B}}{\partial t} \neq 0$$

$$\frac{\partial B'}{\partial t}=\frac{\partial B}{\partial t}+\frac{1}{C}\frac{\partial r}{\partial t}\frac{\partial \vec{B}}{\partial t}+\frac{1}{C}\vec{B}\frac{\partial^2 r}{\partial t^2}$$

since $\vec{B}$ is constant with respect to time

$$\frac{\partial \vec{B}'}{\partial t}=\frac{1}{C}\vec{B}\frac{\partial^2 r}{\partial t^2}$$

If $\frac{\partial r}{\partial t}$ = constant (uniform linear or circular motion) with respect to ether at rest frame of reference) then $\frac{\partial^2 r}{\partial t^2}=0$ .Thus no magnetic field could be transmitted if the object is in uniform (linear or circular) motion. Therefore magnetic field could be transmitted only if $\frac{\partial^2 r}{\partial t^2}\neq 0$; which means the receding or approaching motion. Thus gravitation besides being electromagnetic force could be attractive as well as repulsive force but since it has been shown in the article Mohammad Shafiq Khan (2010b) that there could be only receding motion of stars due to the continuous emission of electromagnetic radiation as the result of which there is attractive mode of gravitation observable in the universe. The positive or negative value of $\nabla\times\vec{E}$ means creation of angular velocity of the electric dipoles of the ether like whirlpools of water directed towards or outwards to the magnetic body having the receding or approaching motion as the result of which the magnetic object is pulled towards or pushed away from the receding or approaching magnetic body. Thus gravitation need not be due to exchange of gravitons or spheretons etc.

In the article Albert Einstein (1905a) it is interpreted that if a sphere of radius R is viewed from a uniformly moving coordinate system with the velocity V, then the sphere will be observed as ellipsoid of dimensions $R\sqrt{1-\frac{V^2}{C^2}}$, R, R as having contracted by a factor $\sqrt{1-\frac{V^2}{C^2}}$ in the direction of motion. For velocity $V=C$ all the moving objects viewed from the stationary system, shrivel up into a plane without any volume. The natural consequence of this absurd interpretation is the formula

$$m_v=\frac{m_o}{\sqrt{1-\frac{V^2}{C^2}}} \qquad (52)$$

The formula could be derived as under.
If M is the volume of a body when in rest then

$$m_o=M\rho$$

where ρ is density of the body. Density remaining the constant, the mass of a body when in motion with a linear velocity v would be

$$m_v=M_v\rho$$

Since according to the article Albert Einstein (1905a)

$$M_v = \frac{M}{\sqrt{1-\frac{V^2}{C^2}}}$$

$$m_v = \frac{M\rho}{\sqrt{1-\frac{V^2}{C^2}}}$$

Applying value of $m_0 = M\rho$

$$m_v = \frac{m_0}{\sqrt{1-\frac{V^2}{C^2}}}$$

Since it has been shown theoretically as well as experimentally that Lorentz factor $\sqrt{1-\frac{V^2}{C^2}}$ is not real; hence the formula (52) is also an incorrect formula as the matter has no inertia when in the uniform linear or circular uniform motion. Inertia is called into play when the objects have recessional acceleration or deceleration motion and that is due to the interaction of the matter and the medium.

In the article Mohammad Shafiq Khan (2010b) two very important formulae have been derived which define the Quantum Mechanics under which studies could be made; which are

$$\nabla^2\rho = \frac{1}{c^2}\frac{\partial^2\rho}{\partial t^2} \quad \text{_____(53)}$$

$$\nabla^2\vec{J} = \frac{1}{c^2}\frac{\partial^2\vec{J}}{\partial t^2} \quad \text{_____(54)}$$

where ρ is the charge density and $\vec{J}$ is the alternating current density induced by the electromagnetic radiation in the medium of electric dipoles of ether. The time 't' would be the time frame of the reference frame in which the studies are to be made. The transformation between the absolute reference frame of ether at rest and any other reference frame is

$$\vec{r}' = \vec{r} - \vec{v}t'$$

$$\text{and} \qquad t' = \gamma t \qquad \text{where} \qquad \gamma = \frac{1}{1+\frac{\hat{c}.\vec{v}}{C}}$$

where in the transformation t is the time in absolute reference frame and t' is the time in the reference frame which is moving with the velocity v with respect to the absolute reference frame.

Demolition of Big Bang Theory: - According to the Greek philosophy space was finite and absolute, time was absolute and matter in essence was also considered as absolute but nature of light/radiation or heat was not properly understood. Till Newton there were several philosophical discourses which challenged the Greek philosophy but in absence of the logical and reasonable philosophy all the alternatives were logically rejected. Newton also held absolute time, finite and absolute space and absolute matter philosophy but additionally Newton rejected the concept of ether as introduced by Descartes and adopted the corpuscular theory of light and rejected the wave theory of light.

The actual scientific developments started in the second half of the nineteenth century which had the potential of challenging the Greek philosophy of state of existence of the physical universe. The important scientific events which are worth mentioning are discovery of Doppler Effect, Maxwell's theory of luminiferous either and light being the electromagnetic wave motion, Michelson–Morley experiment, Lorentz transformation and Voigt's solution of the invariance of the wave equation under two coordinate systems in uniform linear motion. For about more than one and a half decades none of the scientists/physicists could physically interpret the Voigt/Lorentz transformation and it was through two articles Albert Einstein (1905a) and Albert Einstein (1905b), Einstein tried to physically interpret the Lorentz transformation and introduced the consequences of the Lorentz transformation. Greek philosophy was demolished and whole philosophy of the state of existence of the physical universe changed. The four physically perceivable constituents of the universe namely space, time, matter and light/radiation were reduced to the two by introducing space-time concept and matter & energy transmutable concept. Space and time was now presumed to be emergent and interconnected and matter & energy presumed to be exchangeable and sum total of matter & energy presumed to be absolute. This article has established theoretically as well as experimentally that the Lorentz factor is not real consequently the philosophy of Einstein by which Greek philosophy was presumed to be demolished is not based on scientific method.

Under the influence of theories of relativity the obvious conclusions; keeping in view the Hubble observations and the existence of Cosmic Microwave Background Radiation; lead to the almost adoption of the Big Bang Theory and final rejection of the Steady State Theory of cosmology. Since the theories of relativity are shown to be fundamentally incorrect so Big Bang Theory; despite shown to be consistent with manipulated mathematical representations and also manipulated experimental observations; has to be fundamentally incorrect. Having shown that Lorentz factor is not real the concept of space-time obviously fails.

The concepts of theories of relativity have found way in every branch of physical sciences directly as well as indirectly. Due to the theories of relativity Maxwell's work on electromagnetism was neglected as Maxwell's work contained the clue that gravitation could be an electromagnetic interaction. But there had been one problem with Maxwell's theories and that is he adopted the Newtonian concept of absolute time. Had Maxwell visualized that time could be relative humanity would have known the actual state of existence of the physical universe. The concepts of theories of relativity were adopted only because there was only one theory in the history of science which proposed the time dilation and for which there are sufficient experimental evidences gathered during the experimentation of twentieth century which show time depends upon the motion of the reference frames. Under this illusion the concepts of theories of relativity have been almost accepted and as the result the nature of things including the state of existence of the physical universe remained in the curtains for whole of the twentieth century. Article Mohammad Shafiq Khan (2010b) and the contents of this article with the support of article Mohammad Shafiq Khan (2011) show with sufficient theoretical and experimental evidences that space is absolute, time is relative and emergent and matter is also emergent. Thus the series of articles mentioned herein demolishes the Greek philosophy and the philosophy which emerged as the consequence of theories of relativity. The concept of emergent space being fundamentally incorrect; thus the Big Bang Theory in no case could describe the origin and state of existence of the universe correctly. The two most important experimental evidences which were presumed to be in favour of the Big Bang Theory being existence of Cosmic Microwave Background Radiation (CMBR) and Hubble observations and these experimental evidences need to be discussed in detail. Hubble observations are simply the observations of the Doppler Effect of the visible spectrum of the light which reach the planet earth from the galaxies.

It is established in the article Mohammad Shafiq Khan (2010b) that stars and galaxies continuously emit radiation due to formation of neutrons and atoms (mostly hydrogen) as the result of

which stars loose magnetic polarity continuously with time resultantly the stars have the spiral motion with the outward component of linear velocity. Thus the galaxies are expanding and the distances between the galaxies are also increasing with time. The visible spectrum of the radiation is emitted due to the formation of atoms in the stars and thereby the magnetic work capacity of matter is converted into electromagnetic work capacity in the form of radiation. Every star has its own time frame which is slower than the time frame of the ether at rest frame of reference. Thus the frequency of the light as received by the ether would be more but when the same light is received by the earth (the time frame of the sun and the earth being the same) the frequency of the light will be less than the frequency of the light in the ether at rest frame of reference because of the receding motion of the sun. Now when the red-shifting is compared with the spectrum of light of sun; there has to be red-shifting of the light from other stars if the receding motion of the other stars is more; which the far off galaxies and stars do have. Doppler Effect or Hubble observations do establish that the distances between the far off galaxies are ever increasing with time. There could be two reasons for increasing distances between the galaxies.

1. The universal matter is moving such that distances between the galaxies and stars are ever increasing.
2. The space is expanding and accordingly the matter in the form of stars and galaxies are receding with respect to one another.

On the basis of nominal and indirect experimental evidence of Michelson–Morley experiment it was presumed that space could be an emergent concept and accordingly the second alternative was adopted with sufficient mathematical misrepresentations as the cause of the ever increasing distances between stars & galaxies under the Big Bang Theory. The article Mohammad Shafiq Khan (2011) shows that Michelson–Morley experiment was misconceived and misinterpreted to conclude the absence of luminiferous ether. Having shown that Lorentz factor is not real and a baseless concept consequently the concept of space-time and Big Bang Theory fail. Thus there could be only one reason for ever increasing distances between stars and galaxies and that has to be the universal matter is moving such that distances between the galaxies and stars is ever increasing. This could be represented by the following figure 6

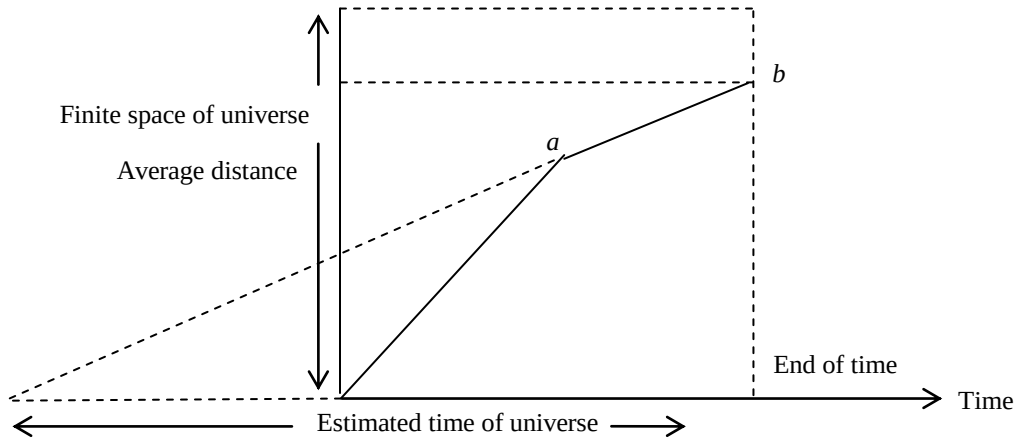

Fig. 6

The figure 6 depicts the actual origin and the state of existence of the physical universe. At the moment the electric dipoles of matter were converted into the magnetic dipoles of matter by imparting

spin to the electric dipoles of matter; the time, as humans perceive it, started. The work capacity was thereby released as discussed in the article Mohammad Shafiq Khan (2010b) and the magnetic dipoles of matter in the form of electrons and protons started accelerating and due to the accelerating motion of the electrons and protons (as magnetic dipoles) the magnetic interactions between the particles started and stars started forming till the uniform motion was attained by the stars. The clustering of the nearby stars also started subsequent to the star formation while the magnetic dipoles were still in the accelerating state of motion and the galaxies came into being. The process of galaxy formation ended when the particles and stars attained a uniform motion. Due to continuous emission of radiation by the stars the magnetic polarity of the stars within the galaxies would be reduced continuously as the result of the reduction of magnetic polarity; the stars within the galaxies are interacting such that stars within the galaxies are receding from one another and resultantly the galaxies are expanding. This applies to the galaxies also thus as the result of the magnetic interaction of stars and galaxies the universal matter is expanding with time. It stands already explained in the article Mohammad Shafiq Khan (2010b) that large space was created towards the periphery of the universe as the magnetic dipoles started accelerating towards the centre of the universe due to the magnetic interaction between the particles. Since the magnetic interaction is transmitted between the magnetic bodies by the ether only when the magnetic bodies are in the accelerating or decelerating motion and till the point 'a' is reached in the figure – 6 the star formation and galaxy formation is almost complete and subsequently the distances between the stars and galaxies are increasing only due to emission of the radiation by the stars. At the point 'b' the time, as humans perceive, will end and matter will again be transformed into the electric dipoles. By extending the 'a' 'b' line towards the time line, the age of the universe was wrongly estimated using the Hubble constant and consequently the space was presumed to be zero at the time of Big Bang.

So far as the Cosmic Microwave Background Radiation is concerned its existence, anisotropy and fluctuations are adequately discussed in the article Mohammad Shafiq Khan (2010b). The COBE data reveals the Gaussian distribution of the intensity verses frequency.

This distribution actually represents the variation of time frame of the COBE during the period of data collection. Thus the variation in the frequency of CMBR is because of the variation of the time frames of COBE rather than the CMBR being relic thermal radiation. It is very well known that CMBR suffers from anomalies like very great scale anisotropies, anomalies of alignment and non-Gaussian distribution as concluded from the precise measurements carried out by WMAP. These anomalies clearly suggest that CMBR is not the relic thermal radiation of the Big Bang but favour the model of the origin and existence of physical universe as put forward under the article Mohammad Shafiq Khan (2010b).

Discussion & Conclusion: - It would be very pertinent to clarify the confusion regarding the article 'Michelson-Morley Experiment: A Misconceived & Misinterpreted Experiment' Mohammad Shafiq Khan (2011). It needs no over-emphasis that classical physics has absolutely no explanation of Doppler Effect and it is because of this main factor the theories of relativity came into being. The intervention of Doppler Effect in the Michelson-Morley experiment could be incorporated by two methods.

I. By taking the change in the wave length of the light into consideration without taking the frequency of the light into account.
II. By taking the change in the frequency of the light into consideration without taking the wavelength of the light into account.

In the article 'Michelson-Morley Experiment: A Misconceived & Misinterpreted Experiment' Mohammad Shafiq Khan (2011) the method I was applied but it is admitted that the method II would have been more appropriate as when the Galilean transformation is applied to the wave-motion of the light the frequency and velocity of the light is affected. But experimentally the wave-length as well as

the frequency of the light is affected due to the relative motion of the source and the observer. But under the theory and methodology of Michelson-Morley the velocity of the light with respect to mirrors is shown to be affected as the velocity of light is assumed to be constant with respect to the ether and accordingly change in the frequency would have been a better method of describing the intervention of Doppler Effect. The results of applying the methods I & II are the same; is demonstrated as follows.

For applying the method II the relation between observed number N of the waves which would fill an arm of the Michelson-Morley instrument.

N = time of travel multiplied by frequency

The time of travel of the light in the horizontal arm is given by the equation (3) and (7) of the article. While the light pulse proceeds from semi-silvered mirror to the mirror M_1, the mirror M_1 is approaching the point of emission of light from semi-silvered mirror; if it is presumed that light moves with a constant velocity 'c' with respect to ether at rest. Since the formula of Doppler Effect in classical physics is

$$\nu^* = \nu_0(1-\frac{\mathrm{v}}{\mathrm{c}}\cos\phi)$$

where ν^* is the observed frequency and ν_0 is the frequency in the stationary reference frame. Under the approaching condition $\phi = 180^o$ and under receding condition $\phi = 0^o$. Thus N_H instead of equation (20) in the article would be

$$N_H = \frac{D}{\mathrm{c}+\mathrm{v}}\ \nu_0(1+\frac{\mathrm{v}}{\mathrm{c}}) + \frac{D}{\mathrm{c}-\mathrm{v}}\nu_0(1-\frac{\mathrm{v}}{\mathrm{c}})$$

$$N_H = \frac{2D\nu_0}{\mathrm{c}} = \frac{2D}{\lambda_0}$$

This is the same result as equation (23)

The time of travel in the vertical arm while going to mirror M_2 and coming back to the semi-silvered mirror is given by the equation (16) in the article as

$$2t = \frac{2D}{\mathrm{c}\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}^2}}}$$

Velocity of receding in respect of the vertical arm as derived in the article under equation (23) could be written as

$$\text{Velocity of receding} = \mathrm{c} - \mathrm{c}\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}^2}}\ \simeq \frac{1}{2}\frac{\mathrm{v}^2}{\mathrm{c}}$$

Now the Nv instead of equation (26) could be derived as under; here $\phi = 0^o$

$$N_{\mathrm{v}} = \frac{2D}{\mathrm{c}\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}}}}\ \ \nu_0\left\{1-\frac{\mathrm{c}-\mathrm{c}\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}^2}}}{\mathrm{c}}\right\}$$

$$N_{\mathrm{v}} = \frac{2D}{\mathrm{c}\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}^2}}}\ \nu_0\sqrt{1-\frac{\mathrm{v}^2}{\mathrm{c}^2}}$$

$$= 2\frac{D\nu_0}{\mathrm{c}} = \frac{2D}{\lambda_0}$$

Hence the result is the same. Thus when the instrument is revolved by 90° same number of observed waves fill the arms of the instrument as such there has to be 'null' result of the experiment even when method II is applied.

Without a thorough discussion the significance and importance of this article and the theory put forward under the article Mohammad Shafiq Khan (2010b) could neither be realized nor properly understood. Aristotle and Newton had no reason whatsoever to visualize that time could be a relative and emergent concept. It was in the nineteenth century the two most important facts about the nature of light were known; firstly the constancy of the velocity of light/radiation irrespective of the motion of the source and the observer and secondly the Doppler Effect of light. By a strange coincidence Maxwell had proposed the theories of the luminiferous ether and the electromagnetic theory of light. Stage was set when the state of existence of the physical universe could have been known but unfortunately misconception and misinterpretation of Michelson-Morley experiment in 1887 changed the whole scenario. It was in the same year Voigt in his article 'On the Principle of Doppler' Woldemar Voigt (1887) derived the general transformation between two coordinate systems; with space and time coordinates as $x, y, z \& t$ and $\xi, \eta, \zeta \& \tau$ in uniform motion with the velocity V in the direction of x-axis such that the wave equation is invariant. The general transformation being

$$\xi = n_1 x + n_2 y + n_3 - \nu t$$
$$\eta = (n_4 x + n_5 y + n_6 z) q$$
$$\zeta = (n_7 x + n_8 y + n_9 z) q$$
$$\tau = t - \frac{\nu}{c^2}(n_1 x + n_2 y + n_3 z)$$

where $q = \sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}$ & n_1 to n_9 are arbitrary constants (symbol for constants and velocities changed as compared to the original article of Voigt).

This was and is a correct mathematical possibility but having retained the Newtonian absolute time; the transformation disturbs the absolute nature of space and secondly the time in the moving coordinate becomes dependent on the space coordinates and velocities of the moving coordinate system and that of the light.

Voigt's transformation; when the moving coordinate system $\xi, \eta \& \zeta$ is moving along the x-axis reduces to

$$\xi = n_1 x - \nu t \quad \text{(55)}$$
$$\eta = n_5 y q \quad \text{(56)}$$
$$\zeta = n_9 z q \quad \text{(57)}$$

$$\tau = t - \frac{\mathrm{v}}{\mathrm{c}^2} n_1 x \quad \text{(58)}$$

where $q = \sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}$ and $\mathrm{n}_1 = n_5 = n_9; n_1, n_5$ and n_9 being the arbitrary constants. Voigt decided on $n_1 = n_5 = n_9 = 1$; on the basis of correlation with the Galilean transformation.

Accordingly the Voigt transformation is

$$\xi = x - vt$$

$$\eta = yq$$

$$\zeta = zq$$

$$\tau = t - \frac{vx}{c^2}$$

Thus Voigt transformation; admittedly a mathematical possibility; under which Newtonian absolute time and the absolute reference frame with the time t was retained but the absolute nature of space is disturbed and the time in the moving coordinate system is dependent on velocities of the light and the moving coordinate system with respect to the absolute reference frame and space. This transformation was as the consequence of adoption of absence of existence of lumniferous ether in the space.

Without going into the controversy whether Lorentz had the knowledge of the Voigt's article or not; Lorentz arrived at the same equation as (55) to (58) but he equated $n_1 = n_5 = n_9 = \frac{1}{\sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}}}}$ and thereby rejected the Newtonian absolute space & time and equated $t = \frac{t}{\sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}}$ and accordingly following Lorentz transformation was arrived at

$$\xi = \frac{1}{\sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}} (x - vt) \quad \text{(59)}$$

$$\eta = y \quad \text{(60)}$$

$$z = z \quad \text{(61)}$$

$$\tau = \frac{1}{\sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}} (t - \frac{x\mathrm{v}}{\mathrm{c}^2}) \quad \text{(62)}$$

The basis of adopting $t = \frac{t}{\sqrt{1 - \frac{\mathrm{v}^2}{\mathrm{c}^2}}}$ the time dilation and the length contraction in the direction of motion by the Lorentz factor was the Michelson–Morley experiment as the experiment in the classical

physics could be explained by doing so when the Doppler Effect is not taken into account. Under the premises of the classical physics the null result of Michelson–Morley experiment could be explained by taking classical Doppler Effect into account and there being no need of space contraction. The said experiment is very aptly explained under the transformation derived in the article Mohammad Shafiq Khan (2010b). In the scientific history the adoption of this totally unrealistic transformation has been the most serious scientific error due to which humanity was deprived of the knowledge of the state of existence of the physical universe for more than one hundred and seven years. This transformation challenges the absolute space, absolute time and existence of the absolute reference frame besides it makes time dependent on velocity of light, relative velocities between coordinate systems and space. This transformation makes the relative velocity between two reference frames as absolute; independent of the time frames of the reference frames. This transformation was explained by Lorentz & FitzGerald by contraction of space in the direction of motion and time dilation by the Lorentz factor but additionally time is dependent on space. The physical interpretation of contraction of space in the direction of motion and time dilation by the Lorentz factor is understandable but the most difficult task was the physical interpretation of the dependence of the time on the velocities of light & relative velocity of coordinate systems and space. This most difficult task was accomplished by Einstein through the article Albert Einstein (1905a) with the help of trickeries. Thus article Albert Einstein (1905a) justified the Lorentz factor and dependence of time also on space and consequently the space-time concept was born. Lorentz transformation and articles Albert Einstein (1905a) & Albert Einstein (1905b) laid the foundation of entirely different philosophy where under the four perceivable constituents of the universe namely space, time, matter & radiation/light were reduced to two namely space-time concept; wherein space is emergent and time is relative & dependent on space and matter & energy (light/radiation) are exchangeable and sum total of matter & energy is absolute. Unfortunately this philosophy was adopted and all the physical sciences were based on this philosophy. Thus an unrealistic mathematical possibility was adopted and the quest for any other possibility ended and none of the physicists bothered to look for any other philosophy of state of existence and the origin of the physical universe. The drama which started with Michelson-Morley experiment and Voigt wherein Doppler Effect was the deciding factor, has to end with the alternative philosophy of state of existence of the physical universe put forward under article Mohammad Shafiq Khan (2010b) where under space is finite and absolute and filled up with ether (ether consisting of the electric dipoles), time is emergent and relative depending upon the motion of the frame of reference with respect to the ether at rest frame of reference; the absolute reference frame; matter is emergent and consisting of magnetic dipoles and matter will seize to exist as and when the magnetic dipoles will be converted back to the original form of electric dipoles and light/radiation is the electromagnetic work capacity dissipated to the medium of ether by the matter as the result of loss of magnetic work capacity of the matter which propagates in the medium of ether as a wave motion. Coincidently the experimental evidence of the alternative philosophy is the Doppler Effect which was not correctly understood under the classical physics or relativistic physics. Under the alternative philosophy of state of existence of the physical universe all the forces in nature have been shown to be electromagnetic forces including the gravitational force which is being transmitted through the medium of ether due to the difference of time frames of the moving bodies.

Before concluding this article it would be very interesting to show that under the theory put forward under article Mohammad Shafiq Khan (2010b) matter cannot attain or exceed the velocity of light with respect to the ether at rest frame of reference. It would be also interesting to discuss the actual meaning of the energy as adopted in the article Mohammad Shafiq Khan (2010b) and as to how the time has been defined to be emergent besides relative and also as to how the space has been defined to be finite besides absolute.

The transformation of time as derived in the article Mohammad Shafiq Khan (2010b) being

$$t' = \frac{1}{1+\frac{\hat{c}.\vec{v}}{c}}t$$

The value of $\hat{c}.\vec{v}$ would vary from $-v$ to $+v$; v being the velocity of the moving body with respect to the ether at rest frame of reference in the time frame of the moving body. Now for $\hat{c}.\vec{v}$ = -v

$$t' = \infty$$

and under the approaching condition if the velocity of the moving body is more than velocity of light $\frac{\hat{c}.\vec{v}}{c}$ is less than -1 so t' is -ve. Thus since time frame of a moving body cannot be negative or infinite; hence no moving body can have velocity equal to or more than velocity of light with respect to the ether at rest frame of reference.

Since when electron and a proton join a neutron is formed and according to the present main stream physics neutron carries no charge whereas under the theory put forward under article Mohammad Shafiq Khan (2010b) neutron has no magnetic polarity. This indicates that neutrons is made up of a substance wherein opposite charges or opposite magnetic polarities are nullified and what remains is the substance and this basic substance has been defined as the energy and this basic substance is absolute and matter being the manifestation of the energy. Thus basic substance which carries the charged entities of the electrons and protons has been defined as energy. The article Mohammad Shafiq Khan (2010b) defines the time to be relative and emergent but the article shows the time is relative and the relativity of time varies from $\frac{t}{2}$ to any real finite value; where t is the time of the ether at rest frame of reference. If by some mechanism the electromagnetic properties of the ether could be changed the time frame of the ether at rest frame of reference is subject to change. Taking up the wave equation of light/radiation

$$\nabla^2\rho = \frac{1}{c^2}\frac{\partial^2\rho}{\partial t^2}$$

ρ is the charge density of the ether.

Now $$\nabla^2\rho = \frac{\partial^2\rho}{(\partial ct)^2}$$

Since Laplacian is in relation to the absolute space hence the operator $\left(\frac{\partial}{\partial ct}\right)^2$ should also be in relation to an absolute quantity. 'c' depending upon the electromagnetic properties of the medium of ether and accordingly 't' would also depend upon the electromagnetic properties of the ether. Thus time has to be an emergent concept keeping in view the mechanism of change of electromagnetic properties of ether. The universal creator being the special energy having no electromagnetic properties thus time is not a dimension with the universal creator. However the universal creator must be in a position to manoeuvre His energy to develop some electromagnetic properties so as to modify the electromagnetic properties of other types of energies. Article Mohammad Shafiq Khan (2010b) defines space to be finite and absolute but the article shows that space is absolute. In order space to be finite if

the space of the universe is Euclidean then the space which surrounds the universe; the place of special energy of the universal creator; has to warped.

The final conclusion is that Aristotelian/Newtonian and Einstein's philosophies of state of existence of physical universe originated because physical constituents of the universe & natural forces were trivialized and made subservient to mathematics and these philosophies are fundamentally incorrect and consequently the physics based on these philosophies does not describe the physical universe correctly and as such the physics has to be rewritten based on the philosophy put forward under article Mohammad Shafiq Khan (2010b) and this article.

Acknowledgement: - I openly acknowledge the help of God who inspired me to pursue this research as my sole concern is that 'truth should prevail'.

Reference:-

1. Albert Einstein (1905a) 'On the Electrodynamics of Moving Bodies'. Published in the book 'The Principle of Relativity' by Methuen and Company, Ltd. of London.
   (Origin paper published as 'Zur Elecktrodynmik bewegter Korper' in Annalen der Physik 17:891, 1905).
2. Albert Einstein (1905b) 'Does the Inertia of a Body Depend upon its Energy Content'. Published in the book 'The Principle of Relativity' by Methuen and Company, Ltd. of London.
   (Original paper published as lst die Tragheit eines Korpers Von seinem Energiegehalt abhangig. in Annalen der physik 18:639, 1905).
3. Clerk Maxwell J (1864) 'A dynamical theory of the electromagnetic field' Philosophical Transactions of the Royal Society of London, 155, 459-512.
4. Clerk Maxwell J (1873) Book 'A Treatise on Electricity and Magnetism' (Public domain) available on en-wikisource.org/wiki/A_Treatise_on_Electricity_and_Magnetism.
5. Hartwig H. Thim (2002) 'Absence of the Transverse Doppler Shift at Microwave Frequencies' IEEE Instrumentation and Measurement Technology Conference Anchorage, AK, USA, 21-23 May 2002. Available at www. ieeexplore.ieee.org
6. Hartwig H. Thim (2003) 'Absence of the Relativistic Transverse Shift at Microwave Frequencies' IEEE Transactions on Instrumentation and Measurement, Vol. 52, No. 5, October 2003-1660-1664.
7. Kevin Brown (2010)Book 'Reflections on Relativity' available at mathpages.com/rr/rrtoc/htm.
8. Mohammad Shafiq Khan (2010a) 'Energy Theory of Matter & Cosmology' Published in Indian J. Sci. Technol. 3(8) 943-947; Available on www.indjst.org.
9. Mohammad Shafiq Khan (2010b) 'Foundation of Theory of Everything: Non-living Things & Living Things' Published in Indian J. Sci. Technol. 3(9), 955-981; Available on www.indjst.org.
10. Mohammad Shafiq Khan (2011) 'Michelson-Morley Experiment: A Misconceived & Misinterpreted Experiment' Published in Indian J. Sci. Technol. 4(10), 1347-1357 available at www.indjst.org .

11. Mohammad Shafiq Khan (2012b) ‘On the Electrodynamics of Moving Bodies by Albert Einstein is Based on Trickeries’ (Open Letter to Professors, Teachers, Researchers and Students of Physics) Published in Elixir Online Journal 43 (2012), 6694-6695 available on www.elixirjournal.org.
12. P.A. Davies & R.C. Jennison (1975) ‘Experiments involving mirror transponders in rotating frames’ 1975 J. Phys. A: Math. Gen 8 1390 available on iopscience.iop.org/0305-4470/9/007.
13. Woldemar Voigt (1887) ‘On the principle of Doppler available on en.wikisource.org/wiki/on_the_principle_of_Doppler?match=de