

# Critical analysis of Einstein's relativity principles

## The birth of a new relativity

(These works are protected by copyright, officially registered in IGAC under

N.º 4961/2008 to 5214/2009)

José Luís Pereira Rebelo Fernandes

[RebeloFernandes@sapo.pt](mailto:RebeloFernandes@sapo.pt)

### Abstract

In Einstein's relativity, the 2nd postulate, hyper-deterministic, obligates the value measured for the speed of light to be constant in any referential and with a value which is equal to our referential. This principle never seemed to be correct.

We analyze the principles that led to Einstein's relativity.

After this analysis it is necessary to create a new relativity. The new relativity and all the consequences will be presented below.

**Keywords:** relativity, time, space, gravitational, potential, velocity, speed, energy, mass.

## I

### Critical analysis of Einstein's relativity principles

#### The current paradigm

Einstein's postulates:

##### 1st - Postulate

**The laws of Physics are the same in all inertial referential. This is true both for mechanics and for electromagnetism.**

The laws of Physics are certainly the same in all referential, because if this was not so, we would not have physics.

##### 2nd - Postulate

**The speed of light in a vacuum is constant ( $c \approx 300.000 \text{ km/s}$ ) regardless of the velocity of the observer, (and the source).**

For the 1st postulate there is no repair.

The laws of physics are certainly the same in any reference, as if it were we would not physical.

For the 2nd postulate there are some doubts, which are the reason for writing this article.

### **Einstein's method:**

Now we apply the same reasoning used by Einstein to calculate the curvature of time and the curvature of space.

Let us bring here, the famous example of the observation of a light signal emitted within a train, which is emitted from the floor of the train in the direction of the roof, where there is a mirror that reflects back to the floor of the train.

The phenomenon is interpreted by an observer on the train stopped, referential  $\underline{V}$ , and other in the train in motion, referential  $\underline{Q}$ .

- The observer  $\underline{Q}$  in motion will observe the light path indicated on the left.
- The observer  $\underline{V}$ , stopped, see the route indicated on the right.

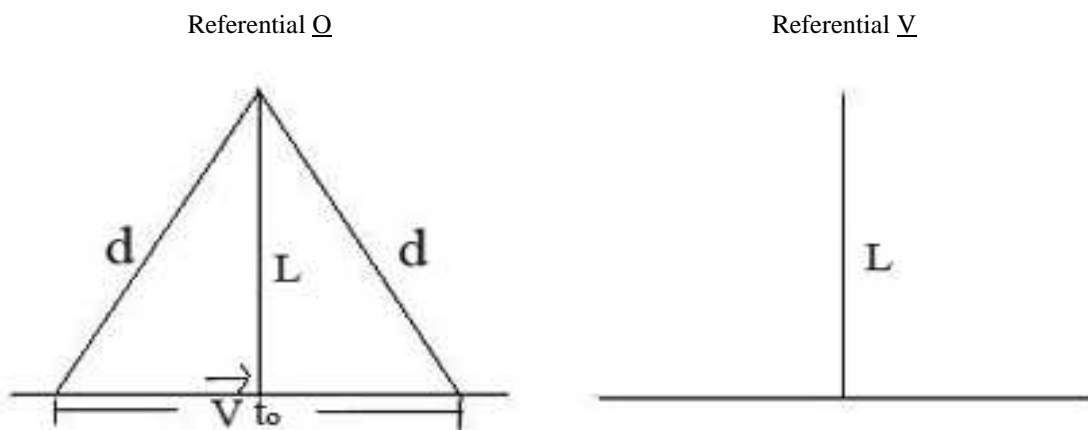


Figure 1:

Our stopped referential  $\underline{V}$ , is the result of an initial in motion referential  $\underline{Q}$ .

To the observer who is in referential  $\underline{V}$  (right).

The time of go and return is given by:

$$L_V = L$$

$$t_V = \frac{2L}{c}$$

$$C = \frac{2L}{t_V}$$

$$2L = t_V C$$

If we look to this model, to the referential moving Einstein uses **L**.

**- L is the length not curved.**

That is the analysis of referential in motion V Einstein used the length not curved.

**To the observer who is in referential Q (left).**

The time of go and return is given by:

$$L_o = L$$

$$S = 2d = 2\sqrt{L^2 + \left(\frac{V t_o}{2}\right)^2}$$

$$t_o = \frac{2\sqrt{L^2 + \left(\frac{V t_o}{2}\right)^2}}{c}$$

$$t_o = \frac{2L}{\sqrt{c^2 - V^2}}$$

$$2L = t_o \sqrt{c^2 - V^2}$$

**He equated the lengths:**

$$L_V = L_o$$

$$2L = 2L$$

$$t_V C = t_o \sqrt{c^2 - V^2}$$

$$t_V = t_o \sqrt{1 - \frac{V^2}{c^2}}$$

$$\frac{t_V}{t_o} = \sqrt{1 - \frac{V^2}{c^2}}$$

**The time curve, with the premise that L not curve.**

The space in this model is not curved.

The value found for the curvature of time is only possible with equal lengths, lengths not curved.

## Einstein's reasoning for lengths.

### The 2nd postulate of Einstein leads, a length.

The distance is given by:

$$L_V = t_V C$$

$$L_O = t_O C$$

$$L_V = \frac{t_V}{t_O} L_O$$

$$t_V = t_O \sqrt{1 - \frac{v^2}{c^2}}$$

$$L_V = t_O \sqrt{1 - \frac{v^2}{c^2}} C$$

$$L_V = L_O \sqrt{1 - \frac{v^2}{c^2}}$$

The space come curved?

This contrasts with the premise to the calculation of the curvature of the time when the space is considered not curved. Consider the constant speed of light in all referential is the source of the problem.

To determine the space curved Einstein enters with the curvature of the time factor that derives from spaced not curved.

In the curvature of the time assumed  $2L_V = 2L$  and  $2L_O = 2L$ . To obtain the value of the curvature was assumed  $2L=2L$ , then  $L_V = L_O$ .

**This famous expression of the curvature of space is a mathematical impossibility.**

**A curved space can't be generated by a space not curved.**

The space in the same model can't be simultaneously, curved and not curved at the same time.

Einstein can't propose a model in which space does not curve, using the curvature of the time generated in this model of equally spaced, to calculate and define a curved space.

## Mathematical proof

$$L_V = \frac{t_V}{t_O} L_O$$

$$L_V = \frac{\frac{2L_V}{C}}{\frac{2L_O}{\sqrt{C^2 - v^2}}} L_O$$

$$C = \sqrt{C^2 - V^2}$$

It's impossible.

If he had considered the length curved, the calculation for the motion referential  $\underline{V}$ , would conclude,

$$t_V = t_o.$$

**Let's see what happens with the speed in this model.**

In the moving referential we have:

$$L_V = t_V C_V$$

In the referential at rest we have:

$$L_o = t_o C_o$$

In equating the lengths:

$$t_V C_V = t_o C_o \quad 1)$$

From the curvature of the time:

$$t_V C = t_o \sqrt{C^2 - V^2} \quad 2)$$

Dividing 1) by 2):

$$\frac{C_V}{C} = \frac{C_o}{\sqrt{C^2 - V^2}}$$

$$C_V = \frac{C_o}{\sqrt{1 - \frac{V^2}{C^2}}}$$

**We conclude that within this model we find, the relativity between the speed of light.**

**Let us now consider what will happen when the direction of light coincide with the direction of displacement V.**

**Einstein's reasoning.**

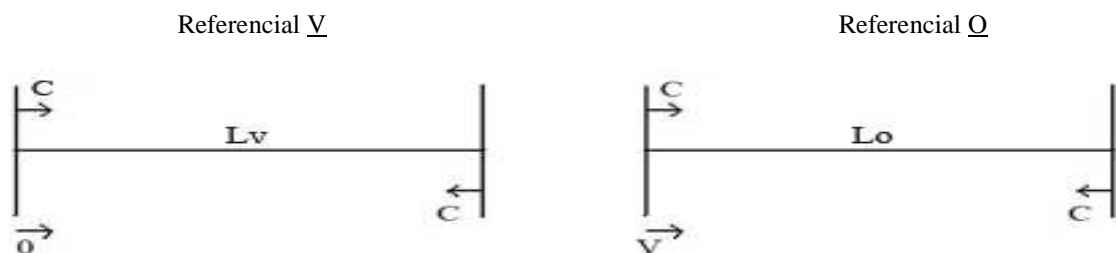


Figure 3

To the observer who is in referential  $\underline{V}$ , (left).

The time of go and return is given by:

$$t_v = \frac{2L}{c}$$

$$2L = t_v c$$

To the observer who is in referential  $\underline{Q}$ , (right).

The time to go is given by:

$$t_{01} = \frac{2L}{c-v}$$

The time to return is given by:

$$t_{02} = \frac{2L}{c+v}$$

$$t_0 = t_{01} + t_{02} = \frac{2Lc}{c^2 - v^2}$$

$$t_0 = \frac{t_v c}{c^2 - v^2}$$

$$\frac{t_v}{t_0} = \frac{c^2 - v^2}{c^2}$$

### Einstein's reasoning for lengths.

Einstein goes further.

$$\frac{t_v}{t_0} = \frac{c^2 - v^2}{c^2}$$

$$t_v c = t_0 \sqrt{c^2 - v^2} \frac{\sqrt{c^2 - v^2}}{c}$$

$$L_v = t_v c$$

$$L_o = t_0 \sqrt{c^2 - v^2}$$

$$L_v = L_o \frac{\sqrt{c^2 - v^2}}{c}$$

But if you look at the 1st model:

$$t_v c = t_0 \sqrt{c^2 - v^2}$$

$$L_v = L_o$$

$$L_o = L_o \frac{\sqrt{c^2 - v^2}}{c}$$

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

$$c = \sqrt{c^2 - v^2}$$

It's impossible.

### **The 2nd postulate of Einstein leads, a length.**

The distance is given by:

$$L_V = t_V C$$

$$L_o = t_o C$$

$$L_V = \frac{t_V}{t_o} L_o$$

$$L_V = \frac{c^2 - v^2}{c^2} L_o$$

This curvature of space has nothing to do with what we are accustomed.

### **But we can't lose the principle of reasoning.**

In the first model, Einstein, study the curvature of time and concludes:

$$\frac{t_V}{t_o} = \sqrt{\frac{c^2 - v^2}{c^2}}$$

We maintain consistency, and to study the curvature of time for the 2nd model.

As we have seen:

$$\frac{t_V}{t_o} = \frac{c^2 - v^2}{c^2}$$

We found one, bending time, different from the 1st model.

If we notice the different curves we find for the time, are for different angles between the direction of displacement and direction of the ray of light.

Einstein chose to analyze the angle  $\frac{\pi}{2}$  between the displacement and the ray of light to study the curvature of time, without realizing the selection criterion.

Why not the angle 0 to study the curvature of the time?

Why not another any angle, through, in random order?

The curvature of time can't depend on the direction of displacement, only depends on the speed, regardless of their direction.

There must be any one phenomenon that has not yet managed.

We now need to study the model in all its dimensions.

Let us study the model in which the angle between the ray of light and the displacement is a variable.

Perhaps looking at the general term we reach any conclusion.

### For the time and space

Let us bring here, the famous example of the observation of a light signal emitted within a train, which is emitted from the floor of the train in the direction of the roof, where there is a mirror that reflects back to the floor of the train.

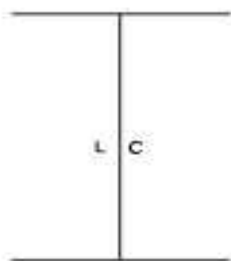
Let's allow the movement of the train is not only in the direction perpendicular to the ray of light or the direction of the light ray itself.

We deduce the general expression of the curvature of time, depending on the angle between the direction of the displacement with the direction of the ray of light.

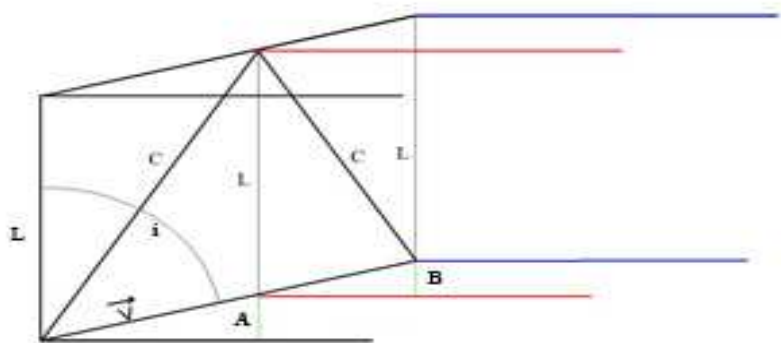
We consider the direction of the ray of light fixed and vary the direction of displacement.

### The new proposal

**Referential V**



**Referential O**



To the observer who is in referential V (left).

The time of go and return is given by:

$$t_V = \frac{2L}{c}$$

$$C = \frac{2L}{t_V}$$

$$2L = C t_V$$

For the referential  $\underline{V}$ , with time  $t_V$  Einstein considered the speed of light in our referential  $C_V$  takes the value C.

$$C_V = C$$

If we look to the curvature of the time, to the referential moving Einstein uses  $\mathbf{L}$ .

**- L is the length not curved.**

That is the analysis of referential in motion  $\underline{V}$  Einstein used the length not curved.

To the observer who is in referential  $\underline{O}$  (right).

The time of go and return is given by:

$$t_{o1} = \frac{L + V \cos(i) t_{o1}}{\sqrt{C^2 - V^2 (\sin(i))^2}}$$

$$t_{o1} = \frac{L}{\sqrt{C^2 - V^2 (\sin(i))^2} - V \cos(i)}$$

$$t_{o2} = \frac{L - V \cos(i) t_{o2}}{\sqrt{C^2 - V^2 (\sin(i))^2}}$$

$$t_{o2} = \frac{L}{\sqrt{C^2 - V^2 (\sin(i))^2} + V \cos(i)}$$

$$t_{o1} + t_{o2} = t_o = \frac{2L \sqrt{C^2 - V^2 (\sin(i))^2}}{C^2 - V^2 (\sin(i))^2 - V^2 (\cos(i))^2}$$

$$t_o = \frac{2L \sqrt{C^2 - V^2 (\sin(i))^2}}{C^2 - V^2 ((\sin(i))^2 + (\cos(i))^2)}$$

$$t_o = \frac{2L \sqrt{C^2 - V^2 (\sin(i))^2}}{C^2 - V^2}$$

$$t_o = \frac{2L \sqrt{C^2 - V^2 (\sin(i))^2}}{C^2 - V^2}$$

Here  $\mathbf{L}$  is not curved.

**Equating the lengths:**

$$\frac{t_V}{t_o} = \frac{C^2 - V^2}{\sqrt{C^2 - V^2 (\sin(i))^2}}$$

For this expression there are a multitude of solutions to the curvature of the time.

The choice of Einstein now seems random, as for the curvature of the time chose  $\mathbf{i}=\frac{\pi}{2}$  and the space  $\mathbf{i}=\mathbf{0}$ .

**If  $\mathbf{i}=\mathbf{0}$ :**

$$\frac{t_V}{t_o} = \frac{C^2 - V^2}{C^2}$$

**If  $\mathbf{i}=\frac{\pi}{2}$ :**

$$\frac{t_V}{t_o} = \sqrt{\frac{C^2 - V^2}{C^2}}$$

This value is only possible with the space not curved.

In the interval between  $\mathbf{0}$  and  $\frac{\pi}{2}$  would have a very solutions.

But so it is not.

**The time of a referential can only depend on the speed of displacement of the observer referential and not the direction of displacement.**

Cannot be, the emission of a ray of light, in any direction, in motion referential, the cause of change in their own, time curved.

If the time of the referential, does not depend on the direction of its displacement, then the factor Sin (i) has to be eliminated in the expression.

For any angle (i):

$$t_o = \frac{2 L \sqrt{C^2 - V^2}}{C^2 - V^2}$$

$$t_o = \frac{2 L}{\sqrt{C^2 - V^2}}$$

$$\frac{2 L}{t_o} = C_o$$

$$C_o = \sqrt{C^2 - V^2}$$

This is the speed of light measured by an observer at  $\underline{O}$ , with velocity V in the time  $t_o$  at a referential  $\underline{O}$ ,

$C_o$ .

Solving now the expression and substituting 2L.

$$\frac{t_V}{t_o} = \frac{C^2 - V^2}{C \sqrt{C^2 - V^2}}$$

$$\frac{t_V}{t_o} = \sqrt{\frac{C^2 - V^2}{C^2}}$$

**The time curve, with the premise that L not curve.**

The time is independent of the direction of displacement of the referential.

The time in referential only depends on the value of the speed of displacement of the referential.

Given the uncertainty we feel in the options of Einstein, the curvature of the time deducted or was a coincidence or a result of a priori knowledge of that.

The independence of the referential time relative to the direction of the light ray makes it clear that the space does not curve.

Now, we know the value of the curvature of the time, whatever the direction of movement.

**Speeds:**

In the moving reference we have:

$$L_V = t_V C_V$$

In the frame at rest we have:

$$L_o = t_o C_o$$

In equating the lengths:

$$t_V C_V = t_o C_o \quad 1)$$

From the curvature of the time:

$$t_V C = t_o \sqrt{C^2 - V^2} \quad 2)$$

Dividing 1) by 2):

$$\frac{C_V}{C} = \frac{C_o}{\sqrt{C^2 - V^2}}$$

$$C_V = \frac{C_o}{\sqrt{1 - \frac{V^2}{C^2}}}$$

We can only find the value we found for the curvature of the time, if the space does not curve.

The time is independent of the direction of displacement of the referential.

The only time depends solely on the value of the forward speed of the referential of the observer.

Only the curvature of time and no curvature of space its able to respond to the principles of relativity.

Now we know the value of the curvature of the time, whatever the direction of movement.

This shows the curvature of time depending on the non curvature of space, which forces the curvature of speeds.

We can conclude that the speed of light, is relativistic, is not constant in all referential.

The value of the speed curve, in inverse proportion, to the time curved of the referential.

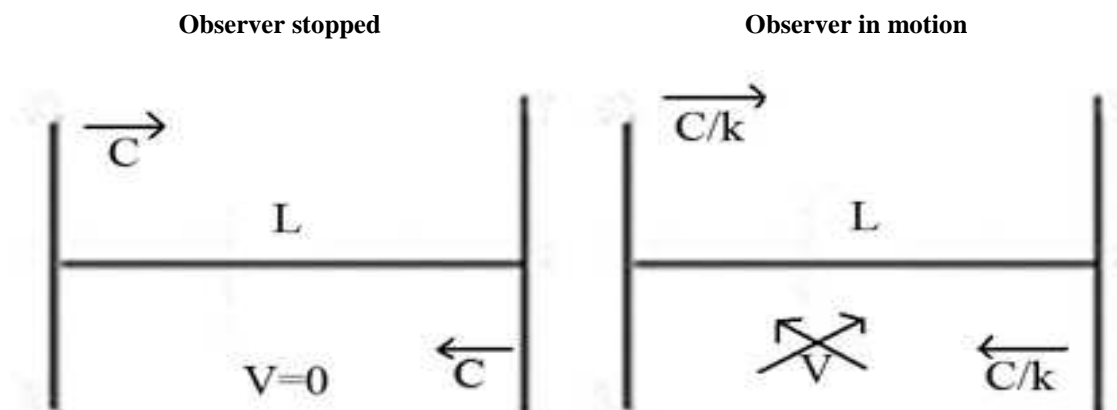
It follows that the space is constant, not curve.

Note: In experiments on the speed of light in time, what changed was the direction of the ray of light and not the referential. The only possible conclusion is that the speed of light did not change with the change in the direction on propagation. Not understand how they drew the conclusion that the speed of light was the same in all referential. No change of the referential, not out of the Earth.

**Consider a ray of light emitted at one end of ruler over this and that is reflected at the other end to its point of origin.**

K - Is the coefficient of curvature of the time:

$$C_V = \frac{c}{K}$$



**Ruler stopped**

To observer stopped.

$$t_o = \frac{2L}{c}$$

To one observer in motion at speed V:

The direction of V is random.

$$t_v = \frac{2L}{\frac{c}{K}}$$

$$t_v = \frac{2LK}{c}$$

$$t_v = t_o K$$

$$K = \frac{t_v}{t_o}$$

$$\frac{c}{K} = \frac{c}{\frac{t_v}{t_o}}$$

$$C_v = \frac{c}{K} = \frac{C t_o}{t_v}$$

$$C_v t_v = C_o t_o$$

$$L_v = L_o$$

## Ruler in motion

If we consider the ruler moving at the speed  $V_1$  in the direction of the displacement along the ruler, we get precisely the same conclusion.

To observer stopped.

$$t_o = \frac{2 LC}{C^2 - V_1^2}$$

$$2 L = \frac{C^2 - V_1^2}{C} t_o$$

To one observer in motion at speed V

The direction of V is random.

$$t_v = \frac{2 LC_v}{C_v^2 - V_1^2}$$

$$t_v = \frac{2 L \frac{C}{K}}{\frac{C^2 - V_1^2}{K^2}}$$

$$t_v = \frac{\frac{C^2 - V_1^2}{C} t_o CK}{C^2 - V_1^2}$$

$$t_v = t_o K$$

$$t_v = t_o \sqrt{1 - \frac{V^2}{C^2}}$$

The curvature of time is unique to the observer and is independent of the speed of the ruler and only depends on the speed of displacement of the observer.

If the observer moves at the same speed and direction of the ruler, the curvature of the time, due to the speed of the observer, and is independent of the speed of the ruler.

The method proposed by Einstein was not the best.

If the space does not curve so we have a serious problem with the 2nd postulate of Einstein.

The 2nd postulate is wrong.

So we have a problem with the constancy of the speed of light at all referential.

We have to admit, a different speed of light to the referential motion,  $C_V$  concerning the speed of light to the referential  $C_o$  at rest.

Later we will confirm the value of the curvature of time based on the universal gravitational potential.

### **Let us analyze the reality.**

We now know that space does not curve and as such we have:

#### **Time**

$$\frac{t_v}{t_o} = \sqrt{\frac{C^2 - V^2}{C^2}}$$

#### **Space**

$$L_o = t_o C_o$$

$$L_v = t_v C_v$$

$$L_v = t_o \sqrt{1 - \frac{V^2}{C^2}} \frac{C_o}{\sqrt{1 - \frac{V^2}{C^2}}}$$

$$L_v = L_o$$

#### **Speeds**

$$t_v C_v = t_o C_o$$

$$C_v = C_o \frac{t_o}{t_v}$$

$$C_v = \frac{C_o}{\sqrt{1 - \frac{v^2}{C^2}}}$$

All speeds will come curved in referential motion.

$$V_V = \frac{V_o}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Regardless of the referential, we will always:

$$\frac{V_o^2}{c_o^2} = \frac{V_V^2}{c_V^2}$$

## **The universe we live is the universal gravitational field.**

Relativity has to be a field theory.

We will deduct the following articles relativity from the perspective of relativistic energy and quantum energy, subject to the universal gravitational field and deduce the general relativity from a field theory.

The deduction of relativity as a field theory seems of utmost importance, because the current method this view is implied but not clearly.

## **New principles of the theory of relativity**

**1st Postulate it the same.**

**Space does not curve, time curve.**

The second postulate will have to be re-written:

**2nd Postulate: The speed of light in a vacuum, in the current curved time of our referential is 300.000 Km/s. The curse of light in a vacuum is constant in relation to the equivalent and simultaneous curved times of any referential.**

Or:

**Light runs the same course in the equivalent and simultaneous curved times of all the referential.**

**In our referential, the current speed of light is 300.000 Km/s.**

## **Conclusions**

### **Space and time**

The space run by light in the equivalent curved times of all referential will be the same.

The speed of light itself, "absolute", invariant in the universe, in each referential will have a different unit reading because with the curvature of time, when we divided the quantity run by the unit of time, we will have different quantifications.

$$\frac{L}{t_v} \neq \frac{L}{t_o}$$

$$C_v \neq C_o$$

The space-time curvature, entity which has accompanied us for so long, will have to be abandoned because only time curve.

Now galaxies that move at a greater velocity are further from the centre of the Big-Bang, in any referential.

One day we will be able to travel close to the speed of light and go on a long trip. If we followed the previous theory, we would practically stay at home.

**The revolution is felt at a level of astrophysics.**

After all we have is the local relativity, the local equivalent of general relativity, responding to local issues, because in our place with  $V = 0$ , the space in Einstein's theory does not curve and therefore the theory responds to local needs.

Einstein's relativity does not respond correctly when we left for the universe.

As we shall see in later articles opens up a window for reconciliation of all physical and much more information.

## II

# Restricted relativity inferred from concepts, the mass-energy equivalence in theory of relativity, energy - frequency in quantum mechanics and its genesis in the universal gravitation.

## The notion of what is the time.

### Introduction

Einstein introduced the concept that any mass has an associated energy and vice versa. This relationship is expressed by the formula of equivalence:

$$E = m C^2$$

Any energy is associated with its intrinsic frequency, and this energy, according to quantum mechanics, should be proportional to the frequency and is related in the form:

$\nu$  - Intrinsic frequency of energy

$$E = h \nu$$

T - period of the electromagnetic wave (time):

$$\nu = \frac{1}{T} \text{ - inverse of the period.}$$

The period in a referential has to be necessarily proportional to the time of referential.

$$T = \gamma t$$

$$\nu = \frac{1}{\gamma t}$$

$$E = \frac{h}{\gamma t}$$

$$E t = \frac{h}{\gamma}$$

h and y are constant.

$$\frac{h}{y} = k$$

$$E t = k$$

If this relationship is a constant in a referential, should be so in all referential.

$\_O$  - On the referential  $\underline{O}$ . At rest.

$\_V$  - On the referential  $\underline{V}$ , moving with speed  $\underline{V}$ .

$$E_v t_v = K$$

$$E_o t_o = K$$

$$E_v t_v = E_o t_o$$

Is the principal in accordance with reality? Is this speculation valid?

## Relativistic mechanics

The relativistic mechanics can be developed from the previous term.

### Energy

$$E_v t_v = E_o t_o$$

$$E_v = E_o \frac{t_o}{t_v}$$

$$\frac{t_o}{t_v} = \frac{E_v}{E_o}$$

$$\frac{t_o}{t_v} = \frac{h\nu_v}{h\nu_o}$$

$$\frac{t_o}{t_v} = \frac{\sqrt{v}}{\sqrt{o}}$$

$$\frac{t_v}{t_o} = \frac{\sqrt{o}}{\sqrt{v}}$$

**Now I really know why time curved.**

When we change the energy of matter, kinetic energy, changes its energy and thus changes its frequency.

The increased power is a reduction of the time.

An increase in energy corresponds to a reduction in time. Time is a property of matter. We have concept of time because we are matter.

Therefore we consider:

$$E_o = m_o C_o^2$$

$$E_v = m_v C_v^2$$

$$m_v C_v^2 t_v = m_o C_o^2 t_o$$

### Quantity of movement

Through the 1st Postulate of Einstein, with which I completely agree, the quantity of movement must be constant in all the referential.

$$m_v \cdot C_v = m_o C_o$$

$$m_v = m_o \frac{C_o}{C_v}$$

Replacing in the expression of the proportion of energy - frequency:

$$(m_v C_v) C_v t_v = (m_o C_o) C_o t_o$$

$$(m_o C_o) C_v t_v = (m_o C_o) C_o t_o$$

$$C_v t_v = C_o t_o$$

We make two conclusions:

1st - Velocity curves solely because time curves which leads to a different nature for the light.

$$C_v = C_o \frac{t_o}{t_v}$$

It is evidence C curve, also V curve, because we are talking about speeds.

$$V_v = V_o \frac{t_o}{t_v}$$

It would be like having an "absolute" velocity of the constant light which is read with a different value at each referential due to the curved time of the referential itself.

"Absolute", only in the inverse concept of "relative".

Light runs the same course in the equivalent curved times of all the referential, not in the unit of time, but the light run course in the curved times equivalent to all the referential, is constant.

### Mass

$$m_v C_v^2 t_v = m_o C_o^2 t_o$$

$$m_v = \frac{m_o C_o^2 t_o}{C_v^2 t_v}$$

$$m_v = \frac{m_o C_o^2 t_o}{\left(C_o \frac{t_o}{t_v}\right)^2 t_v}$$

$$m_v = \frac{m_o t_v}{t_o}$$

In this new concept of mass, whenever V inclines to C, then the mass inclines to 0, mass inclines to transform itself into energy, because as we have seen, when V inclines to C, energy inclines to infinity.

### Going back to quantity of movement

$$m_v \cdot C_v = \frac{m_o t_v}{t_o} C_o \frac{t_o}{t_v}$$

$$m_v \cdot C_v = m_o C_o$$

Now the quantity of movement is equal to all the referential.

### Time

Locally the speed of light, C is the maximum speed in any direction of space.

This speed is the maximum allowed by the universal gravitational field on site.

We are therefore in the presence of a escape potential maximum.

If the light is subject to the gravitational potential of this trail, then any mass is, too.

Locally because C is the maximum velocity possible, then we will have a potential of escape:

$$U_o = C^2$$

$M_u$  - Universal mass radiation which is radiated to the location. (Taking into account the Doppler effect.)

$R_u$  - The average emission radius of mass radiation.

$\frac{M_u}{R_u} = P_{Pu0}$  - Pure potential of universal mass at the location.

$$C^2 = 2 G_o \frac{M_u}{R_u}$$

$$C^2 = 2 G_o P_{PuO}$$

### Same location with different velocities

When a particle, at the same location, moves at a velocity of  $\underline{V}$ , has a potential  $V^2$ , thereby we have a potential of escape given by:

$G_v$  – Universal "constant" gravitational observed in referential  $\underline{V}$  from  $\underline{O}$ .

$$U_v = C^2 - V^2$$

$$C^2 - V^2 = 2 G_v P_{PuO}$$

$P_{Pu}$  is constant for the same location in question, we will have the following, dividing one by the other:

$$\frac{U_o}{U_v} = \frac{2G_o P_{PuO}}{2G_v P_{PuO}} = \frac{C^2}{C^2 - V^2}$$

$$\frac{G_o}{G_v} = \frac{C^2}{C^2 - V^2}$$

$$\frac{G_o}{G_v} = \frac{1}{1 - \frac{V^2}{C^2}}$$

$$G_v = G_o \frac{C^2 - V^2}{C^2}$$

The universal gravitational "constant" varies with the speed of the referential. There is constant and as such, from now on we came to call, variable universal gravity.

Now we know the manner in which the gravitational variable of a referential location relates with the gravitational variable of a motion referential at same location.

The value of the gravitational referential in the same place, but with different velocities, is directly proportional to the value of their escape potential.

From the escape potential,  $P_{PuO}$  in referential  $\underline{V}$  assessed in our referential is  $C_o^2$  as our reference in the speed of light remains C, the escape potential measured in our reference remains  $C_o^2$ .

$$U_o = 2 G_v P_{PuO}$$

$$G_v = \frac{U_o}{2 P_{PuO}}$$

$$G_o \frac{c^2 - v^2}{c^2} = \frac{U_o}{2 P_{Puvvo}}$$

$$P_{Puvvo} = \frac{U_o C_o^2}{2G_o (C_o^2 - V_o^2)}$$

This is de value of  $P_{Puvvo}$  assessed in our referential:

Equivalent value  $U_v$  in our referential:

$$U_v = 2 G_o P_{Puvvo}$$

$$U_v = 2 G_o \frac{U_o C_o^2}{2G_o (C_o^2 - V_o^2)}$$

$$U_v = \frac{U_o C_o^2}{C_o^2 - V_o^2}$$

$$C_v = C_o \sqrt{\frac{C_o^2}{C_o^2 - V_o^2}}$$

### Given by relativity of speeds:

If the speeds curve, so the space can't curve.

$$L_v = L_o$$

$$L_v = C_v t_v$$

$$L_o = C_o t_o$$

$$C_v t_v = C_o t_o \quad 1)$$

$$C_v = C_o \sqrt{\frac{C_o^2}{C_o^2 - V_o^2}}$$

$$C_v \sqrt{C_o^2 - V_o^2} = C_o \sqrt{C_o^2} \quad 2)$$

Dividing 1) by 2):

$$\frac{t_v}{\sqrt{C_o^2 - V_o^2}} = \frac{t_o}{\sqrt{C_o^2}}$$

$$\frac{t_v}{t_o} = \sqrt{\frac{C_o^2 - V_o^2}{C_o^2}}$$

$$\frac{t_v}{t_o} = \sqrt{1 - \frac{V_o^2}{C_o^2}}$$

The value found is equal to the value found by Einstein. The value now found was obtained by the universal gravitational potential, which goes to show that relativity is really a field theory.

This method is more satisfactory because the method of Einstein is not taken into account the factor field and is considered the curvature of space which doesn't happen.

### Quantity of movement

The momentum must be constant in all referential.

$$m_v C_v = m_o C_o$$

$$m_v = m_o \sqrt{1 - \frac{V_o^2}{C_o^2}}$$

$$P_{Puv} = P_{Puo} \sqrt{1 - \frac{V_o^2}{C_o^2}}$$

### Local, universal gravitational variable

$$U_v = 2 G_v P_{Puv}$$

$$U_o \left(\frac{t_o}{t_v}\right)^2 = 2 G_v P_{Puo} \frac{t_v}{t_o}$$

$$G_v = G_o \left(\frac{t_o}{t_v}\right)^3$$

Now we can quantify the relativity.

#### Energy

$$E_v = E_o \frac{t_o}{t_v}$$

$$E_v = \frac{E_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

What is, according to Einstein's relativity.

### Mass

$$m_v = m_o \frac{C_o}{C_v}$$

$$m_v = m_o \sqrt{1 - \frac{V_o^2}{C_o^2}}$$

In this new concept of mass, whenever V inclines to C, then the mass inclines to 0, or inclines to transform itself into energy, because as we have seen, when V inclines to C, energy inclines to infinity.

### Speeds

$$C_v = C_o \frac{t_o}{t_v}$$

$$C_v = \frac{C_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

$$V_v = V_o \frac{t_o}{t_v}$$

$$V_v = \frac{V_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

### Quantity of movement

$$m_v \cdot C_v = m_o \sqrt{1 - \frac{V_o^2}{C_o^2}} \frac{C_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

$$m_v C_v = m_o C_o$$

Now the quantity of movement is equal to all the referential. Now we check the 1st postulate of relativity.

### The theory of Einstein, from the new principles

He impose the constant speed of light,  $C_o$ :

$$E_o t_o = E_v t_v$$

### Energy

$$E_v = \frac{E_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

### Mass

$$m_v C_v^2 t_v = m_o C_o^2 t_o$$

$$m_v C_o^2 t_o \sqrt{1 - \frac{V_o^2}{C_o^2}} = m_o C_o^2 t_o$$

$$m_v = \frac{m_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

As we can see in Einstein's relativity, a curious phenomenon occurs, if V inclines to C,  $m_v$  inclines to infinity. Increasing velocity, increasing energy, but only at the cost of the increase of mass. At the speed of light, mass will never incline to transform itself into energy

### Quantity of movement

$$m_v \cdot C_o = m_o C_o$$

$$\frac{m_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}} = m_o - \text{an impossibility}$$

This impossibility was only resolved beginning with the specific case  $V=0$ , or in other words, without leaving our referential.

The quantity of movement is not maintained. Are the laws of physics not the same in all referential?

### Considerations

If, in addition to what has been said before pertaining to Einstein's relativity in relation to the inappropriate notion of mass and the impossibility of the quantity of movement always being constant in all referential, not guaranteeing that the laws of physics are valid in all referential, we see that:

All relativistic mechanics are obtained from the proportionality between energy and frequency of matter, regardless of the referential.

Time is an intrinsic property of matter, its energy level.

**We have no doubt in adopting the non-curvature principle of space.**

In the near future, the measuring of the speed of light, done on another referential, or even in another future time will prove my decision.

If space does not curve, then when Einstein considered the value of the velocities constant, in any referential, he did not move away from the referential itself. No other referential was considered to be valid for another referential, velocity had to vary.

He created his relativity for his own referential;  $V_o = V_v$ .

Einstein's relativity is the local equivalent to Universal relativity.

Because Einstein's theory is the local equivalent of universal relativity, it is undoubtedly a great advance for science.

**The local mass which results from the cancelling of a mass with velocity V.**

$m_l$  – Local mass.

$$m_l C_o^2 = m_v C_v^2$$

$$m_l = m_v \frac{C_v^2}{C_o^2}$$

$$m_l = m_o \sqrt{1 - \frac{V_o^2}{C_o^2}} \frac{C_o^2}{C_o^2 (1 - \frac{V_o^2}{C_o^2})}$$

$$m_l = \frac{m_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

When we cancel the velocity of the particle with velocity V, its kinetic energy is transformed into local mass.

The total energy is preserved.

Einstein's theory of relativity reached this mass value. It did not obtain the mass at the referential V but instead, the final mass of the particle, when captured by our referential  $V=0$ .

He did not get the mass in motion referential, but the mass calculated in our referential given the constancy of energy.

## The new kinetic

### Uniform movement

**Time:**

$$t_o$$

$$t_v = t_o \sqrt{1 - \frac{V_o^2}{C_o^2}}$$

**Velocity:**

$$V_o$$

$$V_v = \frac{V_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}}$$

**Space:**

$$L_o = V_o t_o$$

$$L_v = V_v t_v = \frac{V_o}{\sqrt{1 - \frac{V_o^2}{C_o^2}}} t_o \sqrt{1 - \frac{V_o^2}{C_o^2}} = V_o t_o$$

### Varied uniform movement (accelerated)

**Velocity:**

$$V_o = a_o t_o$$

$$a_o = \frac{V_o}{t_o}$$

$$V_v = a_v t_v$$

$$a_v = \frac{V_v}{t_v} = \frac{\frac{V_0}{\sqrt{1 - \frac{V_0^2}{C_0^2}}}}{t_0 \sqrt{1 - \frac{V_0^2}{C_0^2}}} = \frac{V_0}{t_0 \left(1 - \frac{V_0^2}{C_0^2}\right)}$$

$$a_v = \frac{a_0}{\left(1 - \frac{V_0^2}{C_0^2}\right)}$$

$$V_v = \frac{a_0}{\left(1 - \frac{V_0^2}{C_0^2}\right)} t_0 \sqrt{1 - \frac{V_0^2}{C_0^2}}$$

$$V_v = \frac{a_0}{\sqrt{1 - \frac{V_0^2}{C_0^2}}} t_0$$

$$V_v = \frac{V_0}{\sqrt{1 - \frac{V_0^2}{C_0^2}}}$$

**Space:**

$$L_0 = V_0 t_0 + \frac{1}{2} a_0 t_0^2$$

$$L_v = V_v t_v + \frac{1}{2} a_v t_v^2$$

$$L_v = \frac{V_0}{\sqrt{1 - \frac{V_0^2}{C_0^2}}} t_0 \sqrt{1 - \frac{V_0^2}{C_0^2}} + \frac{1}{2} \frac{a_0}{\left(1 - \frac{V_0^2}{C_0^2}\right)} t_0^2 \left(1 - \frac{V_0^2}{C_0^2}\right)$$

$$L_v = V_0 t_0 + \frac{1}{2} a_0 t_0^2$$

$$L_v = L_0$$

As the electrical charges and mass, are energy, then all measurements are similar.

**Units relativists. In the same place, with different speeds.**

	Referencial <u>0</u>	Referencial <u>V</u>
Energy of mass	$E_0$	$E_v = E_0 \frac{t_0}{t_v}$
Mass	$m_0$	$m_v = m_0 \frac{t_v}{t_0}$
Speed	$V_0$	$V_v = V_0 \frac{t_0}{t_v}$
Acceleration	$a_0$	$a_v = a_0 \left(\frac{t_0}{t_v}\right)^2$
Length	$L_0$	$L_v = L_0$
Quantity of movement	$P_0$	$P_v = P_0$
Variable gravitational	$G_0$	$G_v = G_0 \left(\frac{t_0}{t_v}\right)^3$
Force	$F_0$	$F_v = F_0 \frac{t_0}{t_v}$
Frequency	$\sqrt{0}$	$\sqrt{v} = \sqrt{0} \frac{t_0}{t_v}$
Wavelength	$\lambda_0$	$\lambda_v = \lambda_0$
Energy of electric loads	$E_{e0}$	$E_{ev} = E_{e0} \frac{t_0}{t_v}$
Electric loads	$q_0$	$q_v = q_0 \frac{t_v}{t_0}$
Permeability	$U_0$	$U_v = U_0 \frac{t_0}{t_v}$
Electromagnetic field	$B_0$	$B_v = B_0 \frac{t_0}{t_v}$

### III

## General relativity inferred from the Universal gravitational potential.

### Introduction

To better understand the development of the exhibition that follows, it is important to have a clear concept of gravitational potential and gravitational field.

### Velocities, the pure potential of universal mass and the universal gravitational variable

As seen in the previous chapter II:

$$U_o = C^2$$

$$C^2 = 2 G_o P_{PuO}$$

At the same location with different velocities

$$U_v = C^2 - V^2$$

$$C^2 - V^2 = 2 G_v P_{Pu}$$

If we see that  $P_{Pu}$  is constant for the same location in question, we will have the following, dividing one by the other:

$$\frac{G_o}{G_v} = \frac{1}{1 - \frac{V^2}{C^2}}$$

At different locations with referential at relative rest

Considering the locations "o" and "d", we will have:

$P_{PuO}$  - Pure potential of universal mass at the location o.

$P_{Pud}$  - Pure potential of universal mass at the location d, measured from the referential o.

$$C^2 = 2 G_o P_{PuO}$$

$$C^2 = 2 G_d P_{Pud}$$

Dividing one by the other:

$$1 = \frac{G_o}{G_d} \frac{P_{Pu_o}}{P_{Pd}}$$

$$\frac{G_o}{G_d} = \frac{P_{Pd}}{P_{Pu_o}}$$

Now we know the manner in which the gravitational variable of a referential location relates with the gravitational variable of a referential at another location, with one referential at rest in relation to the other.

The value of variable gravitational on all referential in different places at rest is inversely proportional to the pure potential of universal mass in location.

In a universe in expansion, with the largest removal of celestial bodies, the pure potential of universal mass in location will decrease, because  $R_u$  will increase. As we have seen the gravitational variable is inversely proportional to the pure potential of universal mass, as this will increase locally. We will explore this topic. Now we are dealing with the relativity.

### Referential at different locations with velocity V of one in relation to the other

In relation to velocity V

$$\frac{G_o}{G_v} = \frac{C^2}{C^2 - V^2}$$

In relation to the pure potential of universal mass

$$\frac{G_o}{G_d} = \frac{P_{Pd}}{P_{Pu_o}}$$

Joined

$$\frac{G_{oo}}{G_{vd}} = \frac{P_{Pd}}{P_{Pu_o}} \frac{C^2}{C^2 - V^2}$$

### Time

As seen in previous chapters:

$$t_v = t_o \sqrt{1 - \frac{V^2}{C^2}}$$

The value of the time curved obtained by Einstein.

## The space not curve and speeds curves

Although we have already concluded its non-curvature of space in previous chapters, we will study the phenomenon by another process.

Now we transform the value of a referential to another referential in the search for the relationship between them.

The transformation from V to O

As seen in previous chapters:

$$P_{Puv} = \frac{c^2}{c^2 - v^2} P_{PuO}$$

$$U_v = 2 G_o P_{Puv}$$

$$U_v = 2 G_o P_{PuO} \frac{c^2}{c^2 - v^2}$$

$$U_v = U_o \frac{c^2}{c^2 - v^2}$$

$$V_v^2 = V_o^2 \frac{1}{1 - \frac{v^2}{c^2}}$$

$$V_v = \frac{V_o}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Transformation from O to V

The potential for escape in V are  $(C^2 - V^2)$ .

$P_{Puv}$  - The pure potential of universal mass found in the referential in motion O to the referential V.

Considering the pure potential universal in O,  $P_{PuO}$  assessed in motion referential:

$$C^2 = 2 G_o P_{Puv}$$

$$G_o = \frac{C^2}{2 P_{Puv}}$$

Value  $G_o$  based on the speed of light  $C^2 - V^2$  in motion referential:

$$G_o = \frac{C^2 - V^2}{2 P_{PuO}}$$

$$\frac{C^2}{2 P_{Puv}} = \frac{C^2 - V^2}{2 P_{PuO}}$$

$$P_{P_{uo}} = \frac{c^2 - v^2}{c^2} P_{P_{uv}}$$

Equivalent value  $U_o$  in motion referential:

$$U_o = 2 G_v P_{P_{uo}}$$

$$U_o = 2 G_v \frac{c^2 - v^2}{c^2} P_{P_{uv}}$$

$$U_o = U_v \frac{c^2 - v^2}{c^2}$$

$$V_o^2 = V_v^2 \left(1 - \frac{v^2}{c^2}\right)$$

$$V_v = \frac{V_o}{\sqrt{1 - \frac{v^2}{c^2}}}$$

We get the same equation.

The lengths will be covered:

In the referential  $\underline{V}$ :

$$L_v = V_v t_v$$

$$L_v = \frac{V_o}{\sqrt{1 - \frac{v^2}{c^2}}} t_o \sqrt{1 - \frac{v^2}{c^2}}$$

$$L_v = V_o t_o$$

In the referential  $\underline{O}$ :

$$L_o = V_o t_o$$

Then:

$$L_v = L_o$$

The curvature of time is consistent with that proposed by Einstein, which I agree. But the space does not curve.

The results are equal to in Chapter I and II.

## Time and the universal gravitational variable

In addition to this solution, considering the result obtained before, for the relativity between the gravitational variable, we will have:

Relatively to velocities:

$$\frac{G_o}{G_v} = \frac{C^2}{C^2 - V^2}$$

$$\frac{t_v^2}{t_o^2} = \frac{C^2 - V^2}{C^2}$$

$$\frac{t_o^2}{t_v^2} = \frac{G_o}{G_v}$$

$$\frac{t_o}{t_v} = \sqrt{\frac{G_o}{G_v}}$$

$$\frac{t_o}{t_v} = \frac{1}{\sqrt{1 - \frac{V^2}{C^2}}} = \sqrt{\frac{G_o}{G_v}}$$

Relatively to the pure potential of universal mass at the location:

$$\frac{G_o}{G_d} = \frac{P_{Pud}}{P_{PuO}}$$

$$\frac{t_o^2}{t_d^2} = \frac{G_o}{G_d}$$

$$\frac{t_o^2}{t_d^2} = \frac{G_o}{G_d} = \frac{P_{Pud}}{P_{PuO}}$$

$$\frac{t_o}{t_d} = \sqrt{\frac{G_o}{G_d}} = \sqrt{\frac{P_{Pud}}{P_{PuO}}}$$

**If we consider two referential at different locations and one of them moves at the velocity V relative to the other.**

$t_{oO}$  - Time in referential to velocity O location referential o.

$t_{vd}$  . Time in referential to velocity V location referential d.

$$\frac{t_{oO}}{t_{vd}} = \frac{t_o}{t_v} \frac{t_o}{t_d}$$

$$\frac{t_{oO}}{t_{vd}} = \sqrt{\frac{G_o}{G_v}} \sqrt{\frac{G_o}{G_d}}$$

$$\frac{t_{oO}}{t_{vd}} = \sqrt{\frac{C^2}{C^2 - V^2}} \sqrt{\frac{P_{Pud}}{P_{PuO}}}$$

$$\frac{t_{oO}}{t_{vd}} = \sqrt{\frac{C^2}{C^2 - V^2} \frac{P_{Pud}}{P_{PuO}}}$$

$$\frac{t_{vd}}{t_{oo}} = \sqrt{\frac{P_{Pu0} C^2 - V^2}{P_{Pud} C^2}}$$

**Now we have something completely new and more global.**

**We now know how time relates with the gravitational variable.**

I am convinced that this will be one of the most important conclusions to be retained for the future.

## General relativistic mechanics

Relativistic mechanics can be developed from the expression of the conservation of the relationship between energy and frequency of the matter.

### Energy

$$E_v t_v = E_o t_o$$

$$E_v = E_o \sqrt{\frac{C^2 P_{Pud}}{C^2 - V_d^2 P_{Pu0}}}$$

Therefore we consider:

$$E_o = m_o C_o^2$$

$$E_v = m_v C_v^2$$

$$m_v C_v^2 t_v = m_o C_o^2 t_o$$

### Quantity of movement

$$m_v \cdot C_v = m_o C_o$$

Substituting in the expression of the conservation of energy:

$$(m_v C_v) C_v t_v = (m_o C_o) C_o t_o$$

$$(m_o C_o) C_v t_v = (m_o C_o) C_o t_o$$

$$C_v t_v = C_o t_o$$

We make two conclusions:

1st - Velocity curves solely because time curves which leads to a different nature for the light.

$$C_v = C_o \frac{t_o}{t_v}$$

$$C_v = C_o \sqrt{\frac{C^2 \frac{P_{Pud}}{P_{Pu0}}}{C^2 - V_d^2}}$$

It is evidence C curve, also V curve, because we are talking about speeds.

$$V_v = V_o \frac{t_o}{t_v}$$

$$V_v = V_o \sqrt{\frac{C^2 \frac{P_{Pud}}{P_{Pu0}}}{C^2 - V_d^2}}$$

2<sup>a</sup>- Space does not curve.

$$C_v t_v = L_v$$

$$L_v = C_o \sqrt{\frac{C^2 \frac{P_{Pud}}{P_{Pu0}}}{C^2 - V_d^2}} t_o \sqrt{\frac{P_{Pu0}}{P_{Pud}} \frac{C^2 - V_d^2}{C^2}}$$

$$C_o t_o = L_v$$

$$C_o t_o = L_o$$

$$L_v = L_o$$

**Mass**

$$m_v C_v^2 t_v = m_o C_o^2 t_o$$

$$m_v = \frac{m_o C_o^2 t_o}{C_v^2 t_v}$$

$$m_v = \frac{m_o C_o^2 t_o}{\left(C_o \frac{t_o}{t_v}\right)^2 t_v}$$

$$m_v = \frac{m_o t_v}{t_o}$$

$$m_v = m_o \sqrt{\frac{P_{Pu0}}{P_{Pud}} \frac{C^2 - V_d^2}{C^2}}$$

**Going back to quantity of movement:**

$$m_v \cdot C_v = m_o \sqrt{\frac{P_{Pu0}}{P_{Pud}} \frac{C^2 - V_d^2}{C^2}} C_o \sqrt{\frac{C^2 \frac{P_{Pud}}{P_{Pu0}}}{C^2 - V_d^2}}$$

$$m_v \cdot C_v = m_o C_o$$

**Units relativists. In different locations (o, d), with different speeds (0, V).**

$P_{Pud}$  – Universal pure potential (Mu/Ru)

	Referential 0,O	Referential d, V
Energy of mass	$E_{oo}$	$E_{dv} = E_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Mass	$m_{oo}$	$m_{dv} = m_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Speed	$V_{oo}$	$V_{dv} = V_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Acceleration	$a_{oo}$	$a_{dv} = a_{oo} \left( \sqrt{\frac{P_{Puo}}{P_{Pud}} \frac{C^2 - V^2}{C^2}} \right)^2$
Length	$L_{oo}$	$L_{dv} = L_{oo} \frac{P_{Pud}}{P_{Puo}}$
Quantity of movement	$P_{oo}$	$P_v = P_o$
Variable gravitational	$G_{oo}$	$G_{dv} = G_{oo} \left( \sqrt{\frac{P_{Puo}}{P_{Pud}} \frac{C^2 - V^2}{C^2}} \right)^3$
Force	$F_{oo}$	$F_{dv} = F_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Frequency	$\sqrt{oo}$	$\sqrt{dv} = \sqrt{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Wavelength	$\lambda_{oo}$	$\lambda_{dv} = \lambda_{oo} \frac{P_{Pud}}{P_{Puo}}$
Energy of electric loads	$E_{eoo}$	$E_{edv} = E_{eoo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Electric loads	$q_{oo}$	$q_{dv} = q_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Permeability	$U_{oo}$	$U_{dv} = U_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$
Electromagnetic field	$B_{oo}$	$B_{dv} = B_{oo} \sqrt{\frac{P_{Pud}}{P_{Puo}} \frac{C^2}{C^2 - V_d^2}}$

**Text experiments, to be carried out**

Experience older, proving this theory, was held in rotational platforms. The value found is only possible of this theory does not require the use of any inertial transformations.

Deny the result found in the rotational platform is denying the principles of relativity.

Another confirmation of this theory, happen to measure the speed of light in different referential.

As we all know today, there are two places to which mankind goes to which have different times to those on Earth. We are of course referring to the space station and to the Moon.

To clarify the above, we give some interim results in the article titled "The curvature of the time under the action of a gravitational field"

Place the surface with rotation Ref: Earth time in Ecuador, h = 0	Advance the clock for a day, for the time on Earth nanoseconds	Speed of light m/s	Differential C local - C Earth m/s	Modification of the length a) Partes	Apparent speed of light. m/s	Differential apparent local C - C Earth m/s
Earth	0	299.792.458,40	0,00	0,00000E+00	299.792.458,40	0,00
Space station h=380 km	-24.921	299.792.458,49	0,09	-7,82827E-11	299.792.458,51	0,11
Satellite h=20.200 km	38.552	299.792.458,27	-0,13	-1,05811E-09	299.792.458,58	0,18
Moon	55.998	299.792.458,21	-0,19	-1,30661E-09	299.792.458,60	0,20
Orbit around the Sun h=2.000.000km	-62.457.851	299.792.675,12	216,72	1,45563E-06	299.792.238,73	-219,67
Mercury	-1.974.364	299.792.465,25	6,85	3,00701E-08	299.792.456,24	-2,16
Venus	-484.230	299.792.460,08	1,68	7,40788E-09	299.792.457,86	-0,54
Mars	487.869	299.792.456,71	-1,69	-7,89836E-09	299.792.459,08	0,68

a) - The diameter of the matter varies with the potential of pure mass universal. Not vary with speed. An instrument that is carried to measure the speed of light will also do so. When considering the size it would have on Earth we get the apparent speed of light.

As we will see in the same article, the speed of light on Earth will also vary throughout time. It currently decrease around -0.00986 m/s by year, (-1 m/s in the next 101 years).

If we repeat the experiment in 1978 by the English group, Woods and Others, which concludes that the speed of light would be  $299.792.458.8 \pm 0.2$  m / s, it appears that the value measured today, 31 years later, varying 0.31 m / s which are already outside the margin of error.

We believe that, given the time elapsed; it should repeat the experiment under the same conditions of 1978.

The experience made in 1987 however, should provide a range of 0.09 m / s, which would still be within the margin of error.

A forthcoming trip to Mars could be given a signal towards the Earth and reflect it back to Mars. The measure of time going back and we find, is less than the value measured from the Earth to Mars and back in 1.132 nanoseconds for a distance of 0.5 AU between planets.

During more detailed analysis made in other articles which give information at the end of the article, other experiments will be proposed.

**Note:**

- Until today, there has been no demonstration of the curvature of space. Any curvature of space is refutable by this new theory.
- The new theory itself answers to all the verifications made until today.

**Information:**

This new theory of relativity is one of a series of new theories listed below.

- A new law of universal gravitation. Gravitation variable.
- A new magnetic permeability of vacuum. Variable magnetic permeability of the vacuum
- Hierarchy of the universal gravitational fields. Creation of a time and mass unit for each field. The independent mechanical of gravitational fields.
- Relation between velocity, the atomic radius and the energy of matter.
- Relation between pure potential of universal mass, the atomic radius and the energy of matter.
- The curving of time on the action of a gravitational field.
- The age of the universe and its radius.
- The new relativistic Doppler effect.
- The apparent acceleration of the expansion of the Universe
- Rotational platforms. Electromagnetic transmission signals.
- The impact on the analysis of the universe which is the result of the new law of universal gravitational and the variable magnetic permeability of the vacuum.

Porto, 6 de October de 2009

José Luís Pereira Rebelo Fernandes

Name: José Luís Pereira Rebelo Fernandes

Portuguese

Birth: Angola- Africa, 1957/01/29

E-mail. [rebelofernandes@sapo.pt](mailto:rebelofernandes@sapo.pt)

Residence: Rua São João de Brito nº 491, 1º Dtº

4100-454 Porto - Portugal

