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On the Ether/ESF, Energized Space Fabric,

as conservable substance endowed of a conservable but degradable character called spin, occupying the Euclidean space.

The Ether/ESF in presence of physical mass containing gravitational m-e (capable to absorb it) is subjected to a basic unstoppable transformation-degradation causing a field of depression and flow in the surrounding Euclidean space.

The absorption of the ESF (and transformation-degradation into gravitational m-e M_{RM} going to add to the gravitational mass-energy belonging to a physical mass) is of a nature so absolutely constant that is used as reference to define the continuum time phenomenon inside a system.

Some quanta of mass-energy exist on their own and are subjected to such a slow rate of transformations that we can consider them practically undisturbed, therefore existing almost outside the time, nevertheless if we subject them to incidents consisting of sudden transformation-degradation we could say that these transformations-degradations last a quantum of time.

We define, then, the time phenomenon through a continuous self priming transformation-degradation, of Universal character, inside a physical mass constituting the system observed, that transformation-degradation can be slowed down through increase in the same physical mass of the content of mass-energy M_{ESCE} existing in the particular status that we call inertial which is always associated with presence of velocity and therefore corresponds to an equivalent value of energy called “kinetic”.

Note: we would be able to measure the absolute value of velocity and the correspondent value of kinetic energy belonging to a system if it was possible to determine it from an immobile point of view, but in lack of that datum, whilst

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we are inside a system in local absolute status of quiet, we can measure the velocity of an external system from a point of view of relative immobility.

The consequence is that the value of velocity measured between the two systems in movement is relative and its true value and the corresponding difference of kinetic energy cannot be verified since is a difference between local absolutes and the absolute values of velocity of the two system (the ones which would give the true values) are unknown.

We face the fact that presence of inertial mass inside a physical mass constitutes it into a system, capturing the ESF and dragging it in the direction of the velocity, and the fact that the system has velocity v, means that the amount of inertial mass in its possession is dragged at v speed by interaction with the surrounding field of ESF.

Nevertheless an observer inside a system near to the conditions of absolute quiet, who perceives to be in quiet inside his own system containing other systems in movement, also should perceive that inside the systems observed there is a retardation of all physical phenomena, including the physical phenomenon on which is based the measurement of time at the dial of his clock that is local and monitors his local time.

Note: from a system to another is impossible to compare readings at the local clocks in conditions of simultaneity, but an experiment could prove the phenomenon of retardation in the case the observer resides in a system in near quiet made up of a physical M_{LGM} (Earth) since if we synchronize two identical clocks and send one of the two in orbit we will have that the time inside it will retard, due to possession of inertial mass corresponding to the orbital velocity, and will advance due to a phenomenon of gravitational nature producing a geometric precession in the orbit and a time advance inside the mass in orbit, if then we manage to return that said clock through loss of the inertial m-e and compare the reading on it with the reading of the identical clock (on Earth) the clock returned from the orbit will have to produce a measure of time in advance, since the time advance due to precession is usually 2π times the retardation due to inertial mass in the system.

A peculiar observation puts us in conditions to notice that the Observer inside a mass in near circular orbit is in conditions permitting the determination of what we call “Newton’s absolute time within a system“ since time in that case is measured in reference to the constant orbital velocity v_0, from a geometric/temporal point of view and at the same time is associated to the gravitation of the central M_{LGM} (the sun in our case but in the case we consider the Earth and send a twin clock in orbit around it we still are capable to measure Newton’s time since rotation of Earth is a constant phenomenon).

In the case that Newton’s time is measured between successive collimation it results associated to the transformation-degradation of m-e corresponding to presence of Static Force over the physical mass in orbit and therefore to the invariable value of absorption of ESF by the M_{LGM} , happening in a universal scale.

We have that at distance $r > R$, from the center of the M_{LGM}, the flow of m-e ESF which defines the Static Force in orbit is:

$$\frac{a(r)}{c^2}=\frac{v(r)_0^2}{r\,c^2}=\frac{1}{r}\frac{kM_{LGM}}{4\pi r\,c^2}=\frac{kM_{LGM}}{4\pi r^2 c^2}\quad \frac{Ton}{m^2 sec}$$

The transformation-degradation generated by the gravitational flow of ESF over the mass in orbit is internal to the atoms and affects their neutron m-e transforming it in opposite presences of m-e (the separation is producing proton and electron m-e), a phenomenon that is extremely reduced and has no bearing with the production of inertial m-e, the way we conceive it and leaves invariable the value of the physical mass in orbit (be it a planet or a satellite natural or artificial)

Note : this last character is permitting us to determine the time phenomenon as a local absolute of the system having the M_{LGM} in the center (in our case the solar system) through a geometric-temporal determination (the distance v_0 run over the unit of time by the mass in orbit at distance r).

In the physic relation above, appear the values of $k = 4\pi G$, r (orbital radius), c^2 and the value M_{LGM} (the very large fraction of physical mass constituting the whole system and containing gravitational m-e which acts gravitationally from the center), the transformation-degradation internal to the atoms of the physical mass in orbit, due to the Static Force and to other secondary effects, can be overlooked.

The said relation is then defining Newton's time through the constant value of absorption of ESF synchronized to another constant phenomenon of transformation-degradation measured at the dial of a clock.

Successive collimations with a far object, at the beginning and at the end of an orbital period are measured at a device(a clock) splitting the orbital period in seconds of time and by consequence we get the following expression for the orbital velocity:

$$1)\quad v(r)_0=\sqrt{\frac{kM_{LGM}}{4\pi r}}\quad m/sec$$

The above formula gives the running of an orbit of average radius r at constant velocity of v_0 m/sec, and once defined the second as manifestation of gravitational transformation, as an absolute unit of time relative to the system having the M_{LGM} in the center, it can be used for all the planets of a system whilst they run orbits nearly circular.

This has the consequence that inside a system the local Observer residing in a generic mass in near circular orbit respect to the central large one can refer its time phenomenon to the one of the entire system as if he were in the center of it, though in respect of the central physical mass of the M_{LGM} he is subjected to a retard of physical transformations-degradations related to the fact that the physical mass of the satellite in which he resides is in orbit (possesses inertial mass-energy which retards the time phenomenon) and is

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Note: I introduce here a very important consideration in regard of the transformations-degradations to which the mass in orbit can be subjected.

One transformation-degradation, as said can be overlooked since depends from the Static Force in orbit which produces neutron transformations splitting the neutrons into electrons and protons and is indeed very small, the other is the transformation-degradation (causing unbundling from M_{RM} to M_{ESCM} both of gravitational nature and therefore not affecting the balance of gravitational m-e inside the physical mass in orbit), whose external effect is the precession, here, in due course, I will return to this topic to justify how the precession of a planet can be observed in full from another planet in which the local observer measures the local absolute time (Newton's time) of the system as presented here.

The conclusion associated to the possibility to have local absolute measurement of time for a whole system, through the Static Force in orbit does not excludes that inside the objects in orbit at different v_0 the time phenomenon can be tied up (by an observer measuring Newton time) to the inertial mass possessed by the individual planet and to the temporal advance due to precession.

We then have a paradoxical situation in which we as observers measure Newton's time for the whole system but that value inside our place (Earth in our case) and inside all the planets of the system, is retarded by presence of orbital movement, since the inertial mass content due to presence of orbital velocity could not be considered in Newton's formula and that is not all since the time phenomenon is also advanced by precession.

The use of Newton's formula excludes in our system both secondary phenomena (the relativistic time retardation and the spatial and time advances of gravitational origin, due to precession) enabling us to measure, from our point of view their effects on other planets or satellites in near circular orbit.

See Note in Ruggeri4 page 3

Inside the system in orbit, the effect caused by movement to which corresponds a value of kinetic energy equivalent to an amount of inertial m-e is all the time a retardation in respect of the time measure based on Newton, since the observer measuring Newton's time is always making a measurement based on the condition of virtual quiet of the central M_{LGM}.

At this point, if we, inside the system in orbit manage to observe two successive collimations with another system in orbit, like us, around the central M_{LGM} since our observations take place in conditions respecting Newton's ULG, we will find ourselves in a unexpected situation permitting us to observe (as if we were in the center of the system M_{LGM}) the geometric side of the precession along the orbit, of the other system mentioned.

Instead of successive collimations between us the system in orbit and the sun as calculated with Newton's law we will observe the precession of the system from the expected position.

Precession in this case is an effect geometric, nevertheless there is a temporal effect consisting of time advance, associated to the gravitational phenomenon causing internal unbundling of the neutron mass whilst in orbit,

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and this, as said, though is not possible to observe can be deducted, since we are measuring Newton's time, and though we are also subjected to precession we are observing the phenomenon from a virtual point of view, which produces an effect putting us in conditions of observation as if we were in the center of the system and not in orbit and rendering us virtually immune from precession.

Precession is observed as a geometric advance of the system in its orbit, and at this point we only mention that from our point of view which when we return again in conditions of collimation is virtually one of quiet inside the system, we observe that the other system aligns itself beforehand in respect to us, and when our system reaches collimation (and we measure Newton's time) the system has advanced geometrically (geometric precession), whereas the internal clock measuring Newton time now measures a time advance (temporal precession) and due to presence of inertial m-e equivalent to the kinetic energy due to its orbital velocity v_0 measures a time retardation.

The basics of the GPS

We now consider the case in which we move in space inside an artificial satellite (spaceship) placed in a near circular orbit around Earth.

Acceleration that places the satellite in orbit changes the internal make-up of the physical mass, introducing two effects, a) transformation of a portion of the m-e introduced in the mass of the satellite M as ΔM_{ESCE} (inertial) into a gravitational mass increase:

$$\frac{\Delta M_{ESCE}}{2} \Rightarrow \Delta M_{ESCM} = M \frac{a(r)\Delta r}{c^2}$$

and b) absorption of the energy balance supplied by the boosters as mass-energy in an inertial status, equivalent to the Total Force ($F_T = Mv_0^2$) that maintains the mass in orbit:

$$\frac{\Delta M_{ESCE}}{2} = M \frac{v_0^2}{c^2}$$

We can overlook the increase of gravitational m-e ΔM_{ESCM} but we cannot overlook the fact that the satellite in orbit now represents a different system inside which the amount of m-e inertial affects the measurements of the time phenomenon as it was when the rocket, containing the clock measuring the Newton time, left off from our point of observation.

Loss of inertial mass-energy through dissipation, in the phase of reenter, brings the satellite back on Earth surface and in conditions of simultaneity with us (as the observers), whereas in accord with the theory presented here movement of descent, which is in favor of gravity, causes internal

phenomenon, how we must interpret the universal absolute speed of light, the introduction to GPS, general considerations explaining different interrelations between systems, more on relativity phenomena transformation of m-e in the status of ΔM_{RM} into ΔM_{ESCE}, which if we want the landing of the satellite in a status of quiet, also needs to be dissipated.

We now can sum up and say that only half of the acquisition of inertial m-e by the satellite, is responsible for the presence of kinetic energy in orbit, whilst the other half is transformed into m-e M_{ESCM} during the ascent against gravity and when the return phase is completed the orbital (inertial) m-e is dissipated as M_{Heat} whilst the M_{ESCE} generated by internal transformation of M_{RM} during the return phase must also be dissipated (so the satellite can land safely).

Since the satellite during placement in orbit was subjected to acquisition of m-e ΔM_{ESCM} and since an equal amount of ΔM_{RM} was lost in dissipation during landing the returned physical mass has definitely changed status of existence.

Nevertheless, since an amount of substance, m-e ΔM_{ESCM} , has replaced the substance, m-e ΔM_{RM} lost in dissipation, and since they are equal quantities and the m-e ΔM_{ESCM} has retained gravitational characters (the capacity to absorb ESF), we have that a clock contained in the satellite which when in orbit was subjected to retardation due to presence of inertial mass and to advance due to precession, on return to Earth (when returns to measure the time at the same rate it has before take off), shows this combined effect of retardation and advance, on its dial when the measurement is compared with the one on an identical clock which never left Earth.

Note: though the internal physical composition of the clock, on return has changed, it still retains the gravitational characters that had before take off and we can suggest that the clock, on return though showing an overall time advance, returns to measure Newton's time of the system M_{LGM} as it was when it took of to go into orbit around the Earth (it only needs to be reset).

Considerations regarding the time phenomena

The Ether/ESF in itself is a conservable substance whose value, when subjected to transformation-degradation, can be traced through simple mathematical models of reference, (formulae), and, if no transformation-degradation occurs and nothing perturbs its existence we cannot say that it is subject to the time phenomenon, resulting to be in a timeless condition of absolute quiet and permanence.

Nevertheless, as soon it is subject to absorption by the gravitational component of a physical mass is transformed inside it into neutron gravitational mass-energy M_{RM}.

The Ether/ESF surrounding the physical mass whose gravitational component is absorbing it, starts to behave in the peculiar way of a fluidic substance (it becomes subjected to a depression and a flow of the same numerical values) and flows moving towards the said physical mass whose gravitational component is absorbing it .

The fact that it does flows, in itself is a phenomenon that requires the definition of time, and therefore it cannot be denied that in this condition it results subjected to the time phenomenon and directly to a phenomenon of transformation-degradation into gravitational mass, happening inside the

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physical mass which is the one containing the gravitational m-e and generating, through absorption, depression and flow in the ESF.

The above mentioned phenomenon applies to the basic substance filling the Euclidean space (the ESF) in the pristine undisturbed status of m-e non gravitational and not inertial whose Spin, after transformation-degradation acts inwardly causing an extremely high adhesion of the basic particles and coagulation of them into neutron mass M_{RM}.

When the m-e endowed of Spin is released and comes out free, as m-e M_{Heat} , from the surfaces of the atoms of the physical mass it cannot freely release its spin which now is outwardly directed, but builds up inside the physical mass, density and compression, that we express as temperature, the spin it possesses finds natural outlet towards the region of lesser resistance which is limited by the external surface of the physical mass (supposed to be a sphere of radius R) and when M_{Heat} reaches that surface, there is interaction with the ESF subjecting the m-e M_{Heat} to depression c and to an equal value c of velocity (both as measured by the local observer) so that the m-e M_{Heat} is flowing out in dissipation as fluidic substance, this time absorbed by the Ether/ESF.

The related formulations must take into account the physical conditions and respect conservation, and since there is a constant transformation-degradation, the flow of substance M_{Heat} that moves away from a mass near spherical in size of radius $r > R$ is constant in value.

We have, by necessity, that the substance in dissipation, like in the case of the mass in orbit at constant speed, is subjected to the time phenomenon and additionally, to continuous reduction of density whilst dissipates away from the physical mass, in all radial directions.

More time phenomena…

The m-e which in a status "M_{Heat}", inside the physical mass occupies under compression the interstices between the external surfaces of the atoms, when is coming out of the said physical mass expands losing density and is absorbed by the surrounding ESF at the maximum speed possible whilst carrying with it also in expanded fashion which we describe through the wave phenomenon, the memory of the internal vibrations to which was subjected by the gravitational unstoppable phenomena of temporal nature which in first instance generated them.

Dissipation is a phenomenon in which m-e is having characters of continuity and rides the ESF losing continuously density.

In observing the existence of clusters "discrete particles" made by the basic unfathomable SP, we are faced by objects which are to be defined "physical masses" since they are made up by more than one component m-e and no matter how much we increase inside them the percentage of inertial mass these discrete particles maintain the character of physical mass, (we use for these "discrete particles" the alternative name of "quanta of physical mass").

The movement of these cluster-particles is ruled by directional absorption by the ESF, of the inertial m-e, of which they are endowed, but the complex physical mechanism ruling the interaction of these "physical masses" with the ESF, poses a limit to the velocity that can be developed by the said

phenomenon, how we must interpret the universal absolute speed of light, the introduction to GPS, general considerations explaining different interrelations between systems, more on relativity phenomena interaction, beyond that limit, if higher velocities are requested a dynamic equilibrium respecting the law of increase of the inertial mass inside them with the increase of the velocity, has to take place.

This effect is obtained inside the accelerators of particles, which to obtain a speed exponentially closer to the speed of light have to supply exponentially higher amounts of inertial m-e, here we mention only cursorily that the fabric character of the ESF is the physical presence opposing these particles increasingly bloated through insertion of inertial mass-energy, and impeding them to reach the speed of light.

Note: this topic will have to be dealt separately.

A question now arises: “how the time phenomenon affects both the m-e in the unique status called dissipation and these clusters-particles composed by m-e in more than one status”?

The answer is complicated by the question regarding the status in which substance does exists, since for example, if we say that: constant m-e in a inertial status absorbed by the ESF causes the system to which it belongs to move at constant velocity, we can also say that if we consider that the m-e inertial exists as a field of m-e surrounding the physical mass constituting a system and capturing ESF in relation to its presence and dragging it, we can conclude that an internal observer, which cannot look outside the system, has no perception of movement and we say that in base of presence of this field of inertial m-e capturing the ESF and dragging it all the way the internal observer is measuring physical phenomena around him obtaining in these virtual conditions universal values which he is entitled to consider absolute but in reality are local absolutes, we can further say that the internal observer is making a measure of time based on Newton’s formula that he believes absolute, when also that measure is only a local absolute measure.

We, in the place of the local observer, measure the time phenomenon of the solar system (the period of our orbit) from Earth, since our point of observation is not at the center of the solar system we cannot avoid becoming aware of orbital movement.

Nevertheless we relate to the Newton’s time of the Solar system intended as a whole physical inertial entity and our point of view is centered to its center around which all the physical masses captured by gravity make reference, then is under these conditions, that when we extend the limits of observation we are permitted to look outside our solar system as if it was concentrated in one point.

Nevertheless although inside the systems there is a relativistic phenomenon (the precession), afflicting the physical masses in orbit and geometric-temporal of relativistic nature, since we measure the Newton’s time of the whole system at the end of our orbital movement we have no notion of it and the only thing we can do is to calculate the relativistic time delay caused by orbital velocity inside our system (of little or no use to us since our clock is synchronized to the Newton’s time) and the possible geometric-temporal effects of precession also relativistic .

The conditions just mentioned, in which in our system in orbit we measure the Newton’s time, are ideal if we want to calculate the relativistic time delay

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in regard of observations exchanged with a system also in orbit but external to ours, since in it the time is measured with the same criteria used in our system (i.e. time measurements can be based on Newton's time in each planet in orbit).

Under these conditions with a clock synchronized to Newton's time in our system, when we observe the geometric precession (at a second successive collimation) we must be aware that although we cannot read the time measurement on its dials, if we could, the local clock which measures Newton's time to the local observer would show a temporal advance due to precession and a temporal retardation due to presence of inertial mass, in respect of our clock.

Note: on the readings between two successive collimations as presented above is based the GPS as I will mention later in this paper.

From Large to Small

If a cluster (a particle) of physical mass, whatever the different states of existence of the m-e constituent it, is constantly moving at high speed therefore constituting a system surrounded by a field made up of inertial m-e entrapping the ESF and possibly by a field of m-e corresponding to electric charge, hits another cluster of physical mass, also entrapping the ESF and surrounded by its own field of inertial mass and its own electric field, the impact at high speed will subject both systems, to transformations-degradations lasting a small time interval and breaking them into a myriad of similar systems together with an associated amount of dissipation.

These systems (including the amounts of dissipation as discrete amounts of mass-energy called photons) will be represented by mixes of m-e in various states of existence, also subjected to further transformations-degradations whose presence in time can vary in dependence of their natural "built in", stability of existence.

This means that physical masses up to the size of atomic elements residing isolated in the ESF, when subjected to acceleration and therefore bloated with inertial m-e, can acquire instability of existence, and can undergo sudden transformation-degradation in which the time phenomenon is amounting to a quantum of time.

We can say that in case of breakage of a physical mass and sudden division and passage of status of its components, the time phenomenon for each component becomes "quantized" since each of them can be subjected to a different transformation-degradation happening during a related small amount of time of different duration.

The velocity c of light as unsurpassable limit for the physical mass and for the substance in dissipation

The consequences associated to the above physical results, are that the Ether/ESF is substance giving body to the Euclidean space, that if exists in a timeless status of imperturbability, it must also exist in conditions of absolute quiet, (a status that for us is difficult to envisage), nevertheless we can

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conclude that when disturbed by presence of physical mass, it does exists loosely connected like a fabric made up of unfathomable particles “SP” made of m-e, hard and impervious at times and appearing almost nonexistent in other occasions, just to name two of its many characters.

These particles are absorbed by the gravitational neutronic component M_0 of the physical mass becoming part of the neutrons M_{RM}, releasing inwardly a character called “Spin” which they possessed potentially when in the status of ESF but now is being put into evidence by the transformation.

Moreover inside a system, basic particles SP of substance existing as m-e “M_{Heat}“, endowed of Spin outwardly directed, represent the final stage of a particular path in the open cycle of transformation-degradation of the ESF inside the central mass of the system (and generally inside large gravitational physical masses), they come out of the surface of physical masses of the system as dissipation, absorbed by the ESF and moving away at the maximum possible speed c as measured by an observer inside the said system (measuring the speed c in respect to the immobility of the ESF entrained by that particular system).

The velocity c of the light coming out of a source, made of a chosen atomic element, in quiet respect to an observer located inside a system in movement is a local absolute and reads:

$$c = \lambda\mu$$

And this is also the absolute universal value for the same element when measured in the same conditions by an internal observer inside a hypothetical system in absolute quiet.

Nevertheless, when an observer inside his system in movement is related to another observer situated inside another system also assumed to be in movement, the condition is named relativistic and the value of dissipation which the internal observer perceive at c speed for the other observer will happen at:

$$c'(v_R) = \lambda'\mu'_R$$

Note: the condition to which we refer here has no possibility to be verified through physical readings since there is no possibility to make readings in conditions of simultaneity and calculations are presented here only in the case we can assume that the observer in one of the two systems is in conditions of absolute quiet.

In the other hand, we can assume that an observer inside a system in absolute quiet is surrounded by completely separated systems in movement inside which dissipation is at:

$$c'(v_L) = \sqrt{c^2 - v_L^2} < c$$

Note: I use the subscript “ $_L$ “ for the absolute velocity v to underline that is associated to the Lorentz’s graphics as presented here and refers to a condition of absolute movements towards or away from the observer, only along the radial line.

Putting aside the physical observation that c is a constant local absolute value in the system of the observer, whatever the condition of movement of the system in absolute, we have to conclude that in the universe the speed of light emitted inside a system in inertial movement is constant but has c' value in respect to an observer present inside a system of reference in absolute condition of quiet and when dissipates outside the system observed, reaching the observer in quiet has a velocity $c - |v_L|$ whereas $|v_L|$ can be directed towards the observer or away from him ($\pm v_L$).

A would be observer in absolute conditions of quiet is unable to do observation but can calculate the physical discrepancy of internal dissipation at c' between its system and the system in movement observed by him.

Now when the light dissipates outside a system in inertial movement it results subjected to the physical conditions prevailing in the system which was encompassing it, since the medium ESF is entrained and moves with the system to which it belongs, but once the light comes out of a system and moves inside another, it moves at different speed.

The conclusion I reached is that the speed of light coming out of a system where the observer is in virtual quiet changes in dependence of the physical conditions of the medium in which it travels.

We then have that if the observation is made from a system in absolute quiet, due to presence of inertial mass in the system observed, the speed of light (in reference to the absolute c experienced by an observer inside the said system) is c' (calculable but not observable) but then when the light comes out of the system in which is c' its speed becomes $c-|v_L|$ (with $|v_L|$ the absolute value of velocity) since the system of the observer is supposed to be in absolute quiet.

Now this means that the light reaching the system in quiet is physically burdened by a field of inertial m-e corresponding to the fact that came out of a system in movement at absolute velocity $|v_L|$ and this is reflected by its velocity $c-|v_L|$ as measured by the observer in the system in absolute quiet.

Note: for this phenomenon is given explanation through the Doppler Effect only for the light reaching an observer inside a system in absolute quiet.

Based on the fact that the systems in movement not only entrap the ESF but are surrounded by fields of inertial mass-energy when the flow of m-e in dissipation comes out of one of them, and enters the ESF in quiet it travels inside it at $c-|v_L|$ since mass-energy in dissipation is retarded in its movement by the presence of a field of inertial mass which could not shake off, the dissipation, then, travels at $c-|v_L|$ all the distance whilst there is no gravitational interaction between the two systems (the one from which originates the dissipation and the other in which the observer resides).

Note: the $|v_L|$ absolute means that we are describing the cases in which the system observed can move towards the observer or away from him, but then the Doppler Effect qualifies through λ' , λ'' and μ_D and μ_D'' if the dissipation comes from an object moving towards the observer or away from the observer as shown below.

When the system in dissipation moves at v_L towards the observer in quiet, transmission happens at:

$$\lambda' \frac{n}{t} = \lambda' \mu_D = c - \left|\vec{v}_L\right| \text{ and for } c - \left|\vec{v}_L\right| \to 0 \text{ we have that for}$$

$|v_L| \to c$ the frequency remains the same all over the range of velocities

$$0 < \left|v_L\right| < c$$

$$\mu_D = \text{const} \quad \text{whereas } \lambda' \text{ is variable and the absolute}$$

speed of the light coming from an object in movement is:

$$\lambda' \mu_D + \left|\vec{v}_L\right| = c$$

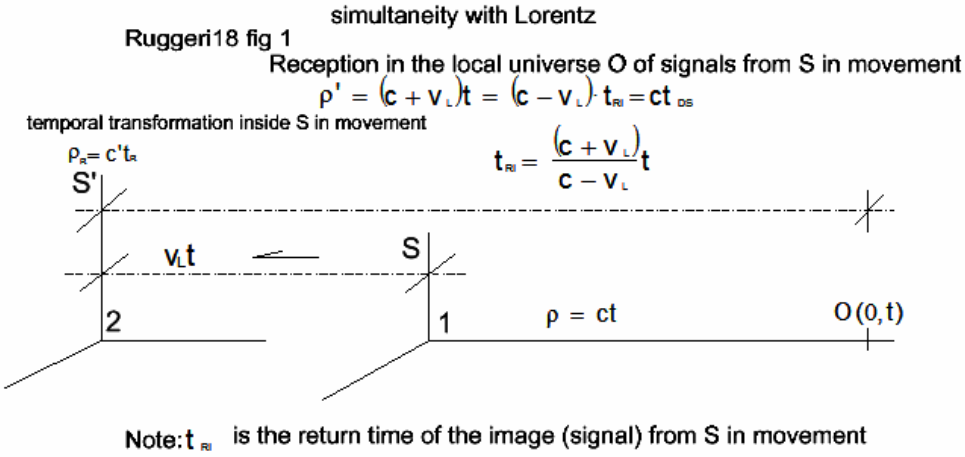
for $\left|\vec{v}_L\right| = 0$ the observer in the system now reads:

$$\lambda' = \lambda \qquad \text{and} \qquad \lambda \mu_D = c$$

But for $\left|\vec{v}_L\right| \to c \qquad \mu_D = \text{const} \qquad \text{and} \qquad \lambda' \mu_D \to 0$

Note: both the above relations are giving a maximum speed c and therefore are physically acceptable.

Note: the above phenomenon is valid (mutatis mutandis) also when the system in dissipation moves away from the observer, in that case we have (see the Lorentz's diagram below in which the v_L moves away from the observer in O):



We then have that $\lambda"n = \left(c + \left|\overleftarrow{v_L}\right|\right)t = \left(c - \left|\overleftarrow{v_L}\right|\right)t_{RI}$ are relations which get applied when the system in dissipation is moving away from the observer and in the first term since the frequency $n/t = \mu_D$ is a constant of dissipation for a given atomic element, is the wavelength which varies in function of the velocity whereas in the second the dissipation whose speed is reduced to $c-|v_L|$ is subjected to temporal retardation in the reading of μ_D inside the system and again to an added temporal retardation when comes out of the system and moves towards the observer, by necessity the frequency which inside the system in movement is μ_D for the observer in O is reduced to $\mu"_D$ whilst the wavelength increases $\lambda" \rightarrow 2\lambda$:

$$\frac{\lambda"n}{t_{RI}} = \frac{\lambda"n}{t}\frac{t}{t_{RI}} = \lambda"\mu"_D = \lambda"\,\mu\,\Phi^2 = c - \left|\overleftarrow{v_L}\right|$$

The presence of Φ^2 the square of the value defined SUMMA RELATIO in Ruggeri7 confirms that when a system is moving away from the observer in quiet we are facing a phenomenon of relativistic temporal character where the dissipation reaching the observer in quiet is conditioned by presence of ESF entrained in the system observed and by the capacity that the ESF has

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to absorb dissipation from a system in movement at $\left|\overleftarrow{v_L}\right|$ away from the observer.

Since for $c-\left|\overleftarrow{v_L}\right|\to c$ we have that:

For $\left|\overleftarrow{v_L}\right|\to 0$ will be $\lambda''\to\lambda$ and $t_{RI}\to t$

$$\lambda''\frac{n}{t_{RI}}\to\lambda\frac{n}{t}=\lambda\mu=c$$

But in the same diagram, if $\left|\overleftarrow{v_L}\right|\to c$ for the movement away from O at $\left|\overleftarrow{v_L}\right|$ speed is: $\lambda''n=\left(c+\left|\overleftarrow{v_L}\right|\right)t$

a condition which gives a limit value of $\lambda''=2\lambda$ for the interaction of the ESF with the system in movement and :

1) $$Lim_{|\overleftarrow{v_L}|\to c}(\lambda''n)=Lim_{|\overleftarrow{v_L}|\to c}\left(c+\left|\overleftarrow{v_L}\right|\right)t=2ct=2\lambda\mu t=2\lambda n$$

Giving a limit $\lambda''=2\lambda$ that if applied for the dissipation:

$\left|\overleftarrow{v_L}\right|\to c$ and $t_{RI}\to\infty$ can be read:

2) $$Lim_{\left|\overleftarrow{v_L}\right|\to c}\left(\lambda''\frac{n}{t_{RI}}\right)=(\lambda''\to 2\lambda)(\mu''_D\to 0)=2\lambda\cdot 0=0$$

Also in this case, in which the velocity of the system is directed away from the observer, the 1) respects the basic condition that c , is maximum allowable value of velocity away from O and the 2) says that no dissipation comes out of the system when movement approaches that limit velocity:

$$\lambda''\mu''_D+\left|\overleftarrow{v_L}\right|=0+c$$

Note: the above explanations satisfy almost completely the questions regarding the wavelengths and frequencies of signals dissipated from a system in movement and reaching another in quiet, nevertheless the answers to many questions are left behind

Note: In this treatment I only considered the case in which the observer is present inside a system in absolute quiet and receives signals from other

phenomenon, how we must interpret the universal absolute speed of light, the introduction to GPS, general considerations explaining different interrelations between systems, more on relativity phenomena systems in absolute movement respect to him (which scarcely satisfies the physical position occupied by us on Earth).

The measure of c is a local absolute as it is the measure of time and the SP in dissipation result subjected to transformation-degradation consisting of reduction of their density of presence inside the Euclidean volume occupied and on contact with another system in movement; they are absorbed by the local ESF (entrapped in it).

Eventually when the dissipation hits the surface of a gravitational mass belonging to a gravitational system, these SP as m-e endowed of spin are absorbed by the physical mass and through what is called “the photoelectric effect” manage to cause in it phenomena of electric nature which can store quanta of m-e absorbed through formation of energy levels between atoms corresponding to what we perceive as chemical bonds.

Mass-energy in this status can be accumulated and is ready to be harvested in various manners but the phenomena of electric nature can be used directly to produce work through the use of intermediate devices.

I reaffirm here that during transformation-degradation, which by necessity are related to time, we have conservation of substance, and degradation of the conservable spin character, therefore comes out the conclusion permitting us to say that, in a particular condition of physical presence of an object observed, if there is an extremely limited transformation-degradation, due to conservation, the object under examination must be almost timeless, but whenever the transformation-degradation has relevant physical characters, the time phenomenon is part of the observation, and we must reconcile the conservation principle through the establishment of the new identity of the substance transformed by degradation and how its indestructible nature as substance endowed of indestructible characters has changed physical behavior through change of interaction of its characters with the other substance/s immediately surrounding it, and although being conserved as substance we have to accept that it cannot return to the previous status of existence having undergone degradation of the spin character.

General considerations

We are back to the platonic model of the nature of things, the only difference is that the model is not any more an universe containing indestructible atoms but an universe which must contain indestructible substance made up of indefinable particles SP extremely smaller than atoms and physical masses made up of that indestructible substance in different states of transformation-degradation and instead of considering the timeless indestructibility of the atoms we now consider the timeless indestructibility of the Ether/ESF as substance made up of SP within a reality of transformation-degradation of it into m-e of different types at inner atomic levels and in general in the Euclidean space which it occupies, (which can be reduced to equivalent values of energy and measured as capacity to induce movement of physical masses in various manners).

These transformations of the ESF are associated to degradations of the spin character of the SP whose nature is conservable but degradable, and

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happen whilst substance tends to reach a status of existence, involving a final transformation-degradation consisting of reduction of presence in the space occupied by the ESF, of the m-e M_{Heat} (reduction of density) whilst it continuously dissipates in the ESF, at the end of the open cycle of transformation-degradation of the ESF from which the m-e M_{Heat} originated.

The ESF along these changes is referred as mass-energy of various types and inside the physical mass at first acquires gravitational characters and successively loses them in favor of presence of movement, until, once exhausted the transformations-degradations internal to the physical mass, comes out of it as dissipation, whereas also dissipation must be subjected to scrutiny since when it comes out of a mass in quiet (relative or absolute) measures a velocity c in respect of an observer inside the same system whereas a physical mass in relative movement respect to an observer inside a system in absolute quiet shows an absolute limit c for the velocity of dissipation, made up of a composite formula that takes into account the velocity $|v_L|$ of the system in movement (as shown above in fig 1 and in the calculations presented).

This happens through passage of substance (the Ether/ESF), existing in the Euclidean space in conditions of absolute quiet, from a status of existence, outside the time phenomenon, to another in conditions of absolute maximum speed and tendency to move away forever from the source whilst continuously subjected to degradation.

If dissipation hits a physical mass along its path, the physical mass can act as a catalyst of transformation-degradation, having the effect to accumulate inside it, the flow of m-e in dissipation through different modes and expel m-e through further transformations-degradations dissipating it again.

The advancement, now (respect to the classic Platonic model, still humbly considering valid the aphorism of Democritus that “in nature we have continuous transformations in which nothing gets created and nothing is destroyed”) consists on the further condition that the transformations by necessity must be associated to degradations of the dynamic potential that the ESF has to generate movements of the physical masses.

Gravity, as described earlier on, is at the root of the transformations-degradations from which we determine the measure of time in continuous basis and other concurrent transformations-degradations in the gravitational mass evolve in manner conform to the time phenomenon referred to the reality of the gravity in the particular system under observation.

The basic gravitational phenomenon affecting all objects of a system having a Large Gravitational Mass, M_{LGM}, at the centre, relates to the consciousness of an Observer in an invariable fashion.

The Observer itself finds necessary to relate the time phenomenon to a very precise clock which is a device measuring phenomena related to uniform transformations-degradations of a fraction of the gravitational mass of the clock into m-e equivalent to kinetic energy which is causing the movement of its dial in synchrony with the phenomenon observed .

In this way the time phenomenon being invariable can be considered an absolute related to the particular system (is a relative absolute since the

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internal observer has no way to determine how much inertial mass belongs to his system and all the universal phenomena are equally influenced and locally give him absolute universal values of measurement).

This realization brings us to the conclusion that in another system in which neither us nor the internal observer has the possibility to determine the amount of inertial mass belonging to it, the time phenomenon runs in a concurrent, identical but not simultaneous manner though the physical constants related to the system measured by an internal observer are invariable and universal in value.

An Observer in one system, if he could observe the time phenomenon in another system (far enough so that gravitational effects between the two systems are negligible), would perceive the physical phenomena in it to run in a different time scale, more accelerated or more retarded in dependence of the relative amounts of inertial m-e endowed of Spin determining the type of relativistic conditions between the two systems.

He is able to determine the relative velocity of another system (through observation of the phenomena of dissipation) but may not be able to determine which of the two systems is endowed of higher speed .

When it comes to representation of conditions of simultaneity between two systems in movement, (presently) only if one of the two systems is in conditions of absolute quiet or near it we can solve the problem in a satisfactory manner.

The procedure necessary to obtain the representation of simultaneity cannot involve readings of internal clocks, since the observation of a clock existing inside another system must be made in conditions of simultaneity (which physically is impossible since the image of a clock in those conditions travels at a fixed speed $c-|v|<c$ and takes time to reach the observer.

Note: the relative speed of dissipation would be c if both systems were in absolute or in relative status of quiet, a condition which in both cases requires that both belong to the same inertial system.

Lorentz's graphic modified.

What happens now is that through basic astronomic determinations of distances and observations of the characters of the dissipation reaching an observer , all related to a system existing outside the physical system of the observer (assuming that the observer is in absolute condition of quiet and there is no gravitational interaction between the systems), he results able to calculate the distance of simultaneity and determine, the position of the system observed at a given time, the speed of the light c' inside it, the relativistic time phenomenon in the object observed and the velocity at which the dissipation coming out of a system in movement reaches the observer .

Though he cannot observe in conditions of simultaneity, and cannot read a clock inside the object observed, he can interpret the data observed through relevant formulation becoming enabled to obtain both, the distance of simultaneity (including the angles of position of the object, when necessary) the velocity of the light c' the relativistic time inside the system and the speed $c-|v_L|$ at which the dissipation reaches him from the system observed.

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Note : as mentioned already, in conditions of absence of gravitational interaction between two systems one of which is in quiet, for an internal observer, the relativistic time between them can be a retardation or an advancement since the observer needs to establish if his system or the one observed is in quiet.

The interpretation of Lorentz's graphics has been improved and modified (through the development considering the Doppler Effect in order to interpret the signals received by an observer in quiet) and a new graphic called DELINEATIO MIRABILIS is available at present for the whole spectrum of the three-dimensional cases (see Ruggeri7).

Relativity in presence of gravitational interactions

Relativistic time measurements when two systems exchange gravitational interactions are here considered in the simple case in which both of them are subjected to the gravitational effect of a central M_{LGM} and both are in a circular orbit and only the special gravitational geometric-relativistic effect related to the phenomenon called Precession, tied up to internal transformation-degradation in presence of gravity of the central physical mass M_{LGM} is observed from one of the physical masses in orbit in the other (whereas we overlook the gravitational effects exchanged by the two systems in orbit).

In general terms, the solutions related to gravitational systems orbiting a central M_{LGM} can become extremely complex but we can through the special case mentioned here verify through direct observation the validity of the theory of the UDS but only for the geometric precession.

We on Earth as Observers are facing the Lorentz's case, as mentioned, when observing distant celestial systems which do not interact gravitationally with the solar system and we concentrate them on a mathematical point as it is the case which was presented under the name of “Restricted Relativity”, whereas when considering the case in presence of the gravity of a central Large Gravitational Mass M_{LGM} (of the sun for us) in which planets in their orbits, return in conditions of alignment we can observe the internal effect that gravity of the M_{LGM} has inside a mass in orbit of reasonably circular shape (since the orbits of the planets, including Mercury which is significantly eccentric, can be reasonably approximated to circular orbits).

We observe the geometric Precession of Mercury in absolute-local time (Newton’s time) of the whole solar system and as mentioned earlier in this paper, we can also determine the relativistic time difference inside Mercury also from the point of view of the solar system, but this is not of practical value to us.

What is instead of practical value is the transposition of the phenomenon to an artificial situation of alignment obtained through the observation of a satellite in near circular orbit made from our point of view on Earth (which in this case represents the central M_{LGM} , over a full rotation of the Earth on its axis), since the said satellite due to the gravity of Earth is subjected to

 On the Ether/ESF , determining the time phenomenon, how we must interpret the universal absolute speed of light, the introduction to GPS, general considerations explaining different interrelations between systems, more on relativity phenomena precession and being an artificial satellite could be endowed before takeoff from Earth of a clock identical to one on Earth, a fact that induces a situation in which when the satellite is in orbit, due to presence of inertial m-e equivalent to the kinetic energy of the satellite the clock is in a retardation that can be calculated in respect to the identical clock on Earth and due to the gravitational phenomenon in orbit, causing precession, the clock is in advance which also can be calculated .

We will see in due course that if we synchronize the clock on the satellite to the clock on Earth, taking into account the offset of geometric nature the temporal advance caused by the Precession and the relativistic phenomenon of retardation at the clock , the time delay of transmission from satellite to Earth when a successive collimation takes place will permit us to determine, with high precision, every 24 hrs, the distance Earth-Satellite in conditions of return in collimation with a far distant object (a star).

Note: on the above phenomenon is based the extant GPS and further considerations will be made when the phenomenon is explained in detail.

" Definitely the Universe is infinitely complex"

Antonio Ruggeri

Acronyms :

m-e ESF **E**nergized **S**pace **F**abric

m-e M_{ESCM} **E**nergized **S**pace with **M**ass **C**haracters

m-e M_{RM} **R**eal **M**ass or Neutron Mass

m-e M_0 sum of M_{RM} and M_{ESCM} (both gravitational, Neutronic, constituents of the nuclei of the atoms)

M_{LGM} physical **L**arge **G**ravitational **M**ass

m-e M_{ESCE} Mass made of **E**nergized **S**pace with **C**haracters of **E**nergy or mass whose equivalent can be expressed as **K**inetic **E**nergy or inertial mass that can be expressed in units of equivalent energy as kJ

M_{HM} Sum of $M_0 + \Delta M_{ESCE}$, **H**eavy **M**ass

Note: in this theory the term "neutron" is used to intend the "particle called neutron" and the status of the m-e as substance M_{RM} , the glue joining together the neutrons is called m-e M_{ESCM} (or M_{ESCM})and the m-e $M_0 = M_{RM} + \Delta M_{ESCM}$ (sum of both types of mass-energy) is called "neutronic mass-energy" whereas substantially M_0 represents the m-e constituting the nuclei of the atoms.