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On the Ether/ESF, as conservable substance, Energized Space Fabric, subjected to physical transformations-degradations permitting the definition of the time phenomenon.

We can define the time phenomenon through the gravitational absorption, representing a continuous self priming transformation-degradation, of Universal character, (Newton's ULG where  $k$  the constant of absorption is  $k=4\pi G$ ) and represents the basic transformation inside a mass constituting the system observed.

The gravitational absorption can be slowed down in the same mass in which the phenomenon occurs, if there is an increase of the content of mass in the particular status that we call inertial which is always associated with presence of velocity as an absolute value in respect to the immobility of the Ether, (though is impossible to determine exactly the absolute value of that velocity we still manage to obtain the absolute value of the constant  $c$  in the universe, since  $ct=\text{const}$  and the time phenomenon inside a system is invariable ).

We face the fact that presence of inertial mass inside the physical mass constituting a system, is the result of a transformation-degradation from gravitational mass into inertial mass caused by the presence of the field of depression of the ESF and resulting into development of movement in the mass affected.

Presence of inertial mass determines, in the mass, a retardation of all physical phenomena, including the physical phenomenon on which is based the clock that monitors the time, and increase of inertial mass in the said mass determines further retardation of physical phenomena in a scale related to the said increase.

In these conditions an Observer internal to a system (containing inertial mass and subject to internal active increase of it), being himself subject to physical phenomena at the same rate of all the others developing around him, perceives the time as an invariable phenomenon and measurements of physical constants result absolutes.

This is a peculiar observation that puts the Observer inside a mass in near circular orbit in conditions to determine what we call "Newton's absolute time within a system" since time in that case is measured, from the geometric point of view, in reference to the orbital velocity  $v_0$  and at the same time the orbital movement at  $v_0$  velocity, is justified in reference to Newton's ULG as a pure transformation-degradation of mass gravitational-inertial  $M_{RM}$  belonging to the physical mass  $M_{HM}$  happening inside a gravitational depression field

produced by a  $M_{LGM}$  , whose end product is not inertial mass and therefore happens without development of acceleration of velocity, which then remains constant, and is justified by the formula :

$$1) \quad v(r)_0^2 = \frac{kM_{LGM}}{4\pi r}$$

that for  $k/4\pi = G$  coincides with the formula developed by Newton.

Note: the above formula only gives a constant physical value bound to gravity and is not the one justifying the transformation-degradation produced by gravity.

The 1) is dependent from a physical value  $M_{LGM} = M_0 = M_{RM} + \Delta M_{ESCM}$  of mass gravitational-inertial taking part to the absorption of ESF and representing in conditions of quiet, the neutronic mass  $M_{RM}$  and the glue holding together the neutrons as mass  $\Delta M_{ESCM}$  ( being both gravitational and inertial and is a value deprived of pure inertial mass-energy therefore related to a system in absolute quiet).

Since the formula is related to a mass  $M_{LGM}$  in virtual quiet the value  $M_0$  can be enriched of the extra value of mass only inertial that is physically present inside it and retards the physical phenomena of temporal nature affecting it ( including the constant k of absorption).

This extra value of mass (unknown to us) permits us to say that any gravitational system is in a virtual condition of quiet since we do not know the absolute condition.

We then have that for the gravitational system with a  $M_{LGM}$  in the center our velocity  $v_0$  defines an absolute value of orbital velocity in respect or "relative" to the center of the system considered in a status of virtual immobility.

This is justified by the fact that although we know that the system is moving, we do not know for sure at what speed is moving and for our calculations inside the system we assume that all the masses belonging to that system move at the same speed and their orbital movements are related to a mass  $M_{LGM}$  in virtual quiet (containing an unknown amount of inertial mass common to the whole system, whose presence affects the gravitation and the time phenomenon).

Note : we have access through measurement to values inside the system of the important physical constants, like the constant of absorption k , the speed of the light , the wavelength of emissions coming out of atomic substance etc.. that, due to the invariable "absolute" character of the time measure permit the internal observer to make "absolute" measurements.

Note : that the ether drag had very small or no physical effect at velocities far higher than the orbital velocity of the Earth resulted evident when we made the discovery that the solar system is part of an architecture of the universe in which the basic velocities are a lot higher, the supposed drag should by now have been detected through measurements of perturbations affecting the orbital trajectories.

The only suggestion I can make is that the ESF between the masses in orbit exists in conditions in which the surrounding gravitational depression propagates at very high speed its effects in space adapting itself to a condition of virtual quiet inside a system.

With the above formula 1), the running of an orbit at  $v_0$  velocity permits us to define through a geometric value of the orbit run, (related to the physical process used by the clock) the absolute-relative unit of time of the whole system, which can be assumed equal in all the planets of a system in orbits nearly circular run at non relativistic speeds (which is a pure absolute since measures the time and all the physical phenomena associated to time in conditions of invariability and is possible to compare with the relative physical phenomena in another system where we say that the time is also an absolute but is relative to the one of the observer).

I must also point out that inside a system the local Observer though moving at constant orbital velocity is in a condition in which the transformation-degradation afflicting the mass does not produce variation of inertial mass content, (the time phenomenon of the observer can be tied up to the constant of absorption in the transformation-degradation expressed by the Static formula of Newton, and time remains a constant absolute whilst the system does not face internal disturbances caused by variations of contents of inertial mass.

This constant local absolute of the time phenomenon, all over the system having a mass  $M_{LGM}$  in the center permits to an observer in the system to observe the relativistic phenomenon which is the Precession, in full, (and when in particular conditions of collimation, the universal Law of Precession can be applied and tested, we realize that measurements made by the observer coincide with the formulations obtained using this theory.

Note : the Precession is a phenomenon concerning two masses in nearly circular orbits, and is ruled by the geometric effect of advancement of the mass observed, between two time intervals (measured with the absolute Newton time in the system of the observer) in which collimation was expected and by the temporal advancement of the time phenomenon inside the mass observed also respect to the Newtonian time of the observer.

Precession is caused by difference of effects on the two abovementioned masses, due to transformations-degradations of gravitational nature happening in relativistic conditions and can be observed and measured in full by an observer measuring the Newtonian time phenomenon (absolute time) whilst in orbital movement.

To the precessional phenomenon must be added the relativistic time retardation inside a mass observed, respect to the observer that in measuring Newton's time though moves in orbit is in absolute conditions equivalent to quiet.

The Ether/ESF in itself is a conservable substance whose value, when subjected to transformation-degradation in presence of gravitational mass, can be traced through simple mathematical models of reference (formulae considering internal transformations-degradations).

Ether/ESF in presence of physical mass is subjected to a continuous unstoppable phenomenon of transformation-degradation (absorption), dependent from the internal gravitational components of the physical mass,

causing the emergence of the time phenomenon and the gravitational field of depression and flow of the Ether/ESF.

Effects on the physical mass of this depression and flow produce reactions that are associated to necessary transformations-degradations whose effects are also measured through the time phenomenon and its dependence from presence of movements.

These transformations-degradations (associated to development of movements at physical levels) are involving the modification of effect of the Spin characters acting over a fraction of substance  $\Delta M$  at internal atomic and subatomic levels, which by necessity require the concept of transience that can be represented by time  $\Delta M/\Delta t$ .

The internal transformation-degradation of the Spin of a  $\Delta M/\Delta t$ , since the Spin affects the whole mass, produces interaction of the Spin belonging to a mass with substance surrounding it which in many cases can cause macroscopic observable phenomena of movement, or presence of phenomena that can be associated to movement.

Nevertheless, if no physical mass is around no transformation-degradation occurs and no depression and flow perturbs the substance ESF, consequently, we cannot say that the substance ESF, by itself, is subject to the time phenomenon.

When the objects subjected to investigation are the bits of substance (present in infinite numbers as clusters of basic modular particles in different states of existence and called quanta) considered in quantum mechanics, that through transformation-degradation are coming out of a mass, moving at very high speeds close to  $c$  the picture changes dramatically, since these clusters can be represented as presence of gravitational mass containing disproportionately high amounts of inertial mass, in them the temporal processes are extremely retarded but still present.

This status of affairs changes when the substance moves as pure dissipation at  $c$  speed.

We now have that pure dissipation represents the absolute limit case of interaction of mass in a status not gravitational neither inertial with the Ether/ESF as substance.

The consequence associated to this statement is that the Ether/ESF is substance which can exist in a timeless status of imperturbability, and in that condition must also be in absolute quiet, but can exist after having undergone transformations-degradations and after having released in full its Spin character, as substance moving in the ESF in the limit conditions in which the time phenomenon has reached the limit retardation  $t=0$ .

We now have to conclude that substance in the status of limit retardation becomes timeless again since results immune to the time phenomenon.

The character that we assign to substance in its various states of existence starting from Ether/ESF, are deducted by observation of the physical natural phenomena leading us to assume that the particles of ESF are loosely connected like a fabric, hard and impervious at times and almost nonexistent in other occasions, that these particles are in the status of heat compressed inside the atomic mass but do not belong to it, that heat and ESF can be trapped inside an atomic mass and follow the mass in rotation around its

axis, that ESF in depression and flowing, outside the physical mass  $M_{HM}$  interacts with the Spin of the mass  $M_{HM}$  and the Spin of the heat is coming out of the mass in the particular status of depression and flow, called dissipation etc..

Moreover a particle (a quantum of light) of substance (or m-e endowed of Spin) in dissipation, that possibly represents the final stage of a particular path in the cycle of transformation-degradation of the ESF inside a particular mass and comes out of it as a cluster of particles absorbed by the ESF moving at the maximum possible speed  $c$  in respect to the immobility of the ESF, is also not subjected to the time phenomenon until its existence as a quantum of m-e endowed of Spin is not perturbed-degraded by sudden impact and consequent changes to a lower status of existence.

We have to confirm that during transformation-degradation related to time we have conservation of substance, therefore comes out the conclusion that, once established that there is no transformation-degradation, due to conservation, the object under examination must be timeless, but whenever the time phenomenon is part of the observation, we must reconcile the conservation principle through the establishment of the new identity of the substance transformed 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.

In trying to represent the universal reality in real time, we are back to the platonic model of the nature of things, the only difference is that the model is not any more the atom but has been moved inside the atomic mass and instead of the timeless indestructibility of the atoms we now consider the timeless indestructibility of the Ether/ESF.

Ether/ESF exists as substance within a reality of transformation-degradation through absorption as gravitational mass at inner atomic levels of the physical mass and transformations-degradations affecting the Spin at subatomic levels in general (and by necessity is a substance that must be made of indefinable particles endowed of a Spin character that helps to justify movement and variation of movement in particular cases in which transformation-degradation takes place).

The Spin permits the return of substance to a timeless status of existence as quanta of mass not inertial nor gravitational, absorbed in the ESF after they come out of the physical mass in clusters and dissipate at the limit speed allowed in the system under observation.

These quanta can move in space for an indeterminate period of time without being subjected to transformation-degradation and by all means they results outside the time phenomenon, unless, when occasionally subjected to transformation-degradation they reenter the physical reality of the time phenomenon during a very limited time interval ( a phenomenon that can be defined as quantization of the time  $d\lambda/\lambda=dt/t$  ).

At first we had the substance (ESF) possessing Spin in a potential status of existence, which in absence of mass in the surroundings, was supposed to be in a timeless status and now that the dissipation corresponds to a status of

complete relaxation of the Spin and no other transformation-degradation occurs we can again describe the phenomenon timeless.

It can be said then, that the ESF existing in the Euclidean space in conditions of absolute quiet, in a status of existence, outside the time phenomenon, goes again out of the time phenomenon when in conditions of absolute maximum speed there is an end to the cycle of transformations-degradations, and the Spin originally possessed by the ESF as potential of transformation, after complete transformation-degradation, has been conserved but completely redirected to produce maximum absolute movement.

Nevertheless, this condition of existence as a cluster of particles at the end of the cycle of transformation-degradation can be subjected to disturbance during which conservation of substance and characters must be recognized and described and during which the time phenomenon appears again as occasional jolts caused by further capacity to degrade that the cluster possesses.

The advancement now (in respect to the classic Platonic model, still humbly considering the aphorism of Democritus that “in nature we have a continuous transformations in which nothing gets created and nothing destroyed”) consists on the definition of the time phenomenon in a context of transformations-degradations affecting the substance ( Ether/ESF ) in presence of states of degradations of it that we call “gravitational”.

The main responsible for the time phenomenon is the physical (atomic) mass  $M_{HM}$  or rather the part of it  $M_0 = M_{RM} + M_{ESCM}$  called gravitational-inertial, the mass  $M_{ESCE}$  or inertial mass is also a necessary component of the mass  $M_{HM}$  and reduces and dilutes the time phenomenon when its presence is observed from outside the  $M_{HM}$ .

Gravity then is the physical phenomenon at the base of the continuous chain of transformations-degradations all behaving in a similar way and from which we can choose opportunistically the most adapt to determine the measure of time (that consequently is defined as a degradation sequence affecting the whole physical mass and describing how the other concurrent transformations-degradations affecting the mass, develop).

We relate that measure of time to physical phenomena happening in the physical mass and we have an absolute invariable description of time and to the development of physical phenomena happening in other masses so that from an initial point of view or of observation we are enabled to describe from the point of view of the system to which we belong, the universal reality around.

### What is relativity in brief.

The base of a standard time measurement of reference to which we have access is as already established the Newtonian time based on the Static Force, a measure of transformation-degradation described by the ULG of Newton and particularly to the constant  $k$  of absorption.

The basic gravitational phenomenon, affecting all objects of a system having a Large Gravitational Mass at the centre, is describing an absolute-relative

time phenomenon for all of them if the system is observed from an external observer.

Time, relates to the consciousness of an Observer in an invariable fashion (the Observer in itself can also represent a special kind of clock since his natural presence is ruled by the same physical phenomena affecting the mass around him) nevertheless we find necessary to relate the time phenomenon in the system to a very precise clock (as in our case we relate a clock mechanism to the orbit run by the mass which is a phenomenon tied up by necessity to the Static Force in orbit).

This realization brings us to the conclusion that in another system having another  $M_{LGM}$  in the center and in which we do not have the possibility to determine the amount of inertial mass belonging to it an internal observer measuring the time through the local absolute, also perceives it invariable, though inside his system the time phenomenon runs in a concurrent, identical manner but not simultaneous with ours.

An Observer in one system if he could observe the time phenomenon in another would perceive the physical phenomena in it to run in a different time scale and this defines what we call relativistic time, but a distinction must be made, since the two systems that we are busy to relate not only are in a relativistic time relation, but they are endowed of different amounts of inertial mass and consequently have relative movements.

The possibility to observe permits us the exchange of data from a system to another and the elaboration of these data together with the interpretation of astronomic measurements of geometric nature permits us to develop formulations through which we can determine the relative position in the Euclidean space of the object observed, in conditions of simultaneity, or real time description.

Note : we refer now to the Lorentz's mathematical-geometrical transformations of distances that to be properly interpreted must take into account the fact that the observer in his system measures the absolute universal time, and other absolutes such as the speed of light  $c$  and the relative speed of the systems obtained through measure of the frequency of emission of the atomic matter in the context of the Doppler effect and the evaluation of dissipation coming out of the system observed that also depends from relative velocity

With Lorentz we use the physical measure of an information related to a, far in the past, phenomenon of dissipation, to determine through a transformation of geometric mathematic nature the position of the object observed in conditions of simultaneity.

The same observations and measurements of data permitting us ( through formulation) to determine with Lorentz transformations the simultaneous position of the object observed also permit us to determine ( through a different formulation) the relativistic time effect in it and consequently from the physical information coming to us from a far past phenomenon of dissipation in space we are enabled to describe in real time (simultaneity), through Lorentz, the position of the object observed in space, and through the relativistic formula, the time delay inside the system observed.

The solution considering the relativistic time and the Lorentz's time become extremely complex if the more general case in which the two objects share gravitational effects in presence of a central  $M_{LGM}$  , is considered, since in that case as already mentioned geometric Precession and precessional time, both also phenomena of relativistic nature but based on a different type of transformation-degradation are present.

We on Earth as Observers are facing the Lorentz's case coupled with the relativistic time effects, when observing distant celestial objects, whereas inside the solar system when another object in orbit is observed we manage in the particular conditions requiring return in alignment to observe the geometric effect of the Precession in the case of Mercury.

Lately with the introduction of the GPS system all the described phenomena have been verified, since the synchronization of the clocks necessary for measurements of distances had to take into account the precessional time advance, the relativistic time delay and correct the piling up of errors due to geometric Precession (whereas the Lorentz's time effect in this case could be overlooked)

We observe the Precession of Mercury in absolute-relative conditions and we can determine the relativistic time difference inside it, but as far as I know, this is not of practical value to us.

What is instead of practical value is the transposition of the phenomenon in the general (but particular) conditions mentioned, to an artificial cyclical situation of vertical alignments (over the Earth rotation, 24 hrs) between the observer, the satellite, and a far enough object (that can be considered immobile).

The observer on Earth is measuring the absolute Newton's time in base of the velocity of rotation of Earth around its axis and at the end of the period sees the satellite in geometric Precession and can describe the temporal Precession and temporal retardation, of a clock in the satellite originally synchronized with an identical one before take off (set in conditions of simultaneity before take off and subjected to relativistic phenomena once in orbit).

Reducing the temporal scale offset caused by the temporal precession and increasing the temporal scale offset caused by the relativistic phenomenon of retardation ( since as said in conditions of alignment Lorentz's time can be assumed equal to the absolute time ), we can synchronize the clock on Earth and the one in the satellite in such a way that at the end of the 24 hrs when a collimation is expected, the signal sent by the satellite clock is perceived by the synchronized clock in our system with an absolute retard .

This retard  $\Delta t$  can give us an absolute measure of distance  $\Delta r$  if multiplied by the speed of light  $c$  ( since in our system which in this case is considering the Earth to be the  $M_{LGM}$  , the speed of light is also an absolute measurement and can be measured in the laboratoty) .

Note : further considerations to follow when the phenomenon is explained in detail.

Definitely, the Universe is infinitely complex.

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Acronyms :

ULG	Universal Law of Gravitation
ESF	Energized Space Fabric
ESCM	Energized Space with Mass Characters
RM	Real Mass or Neutronic Mass
$M_0$	sum of mass RM and ESCM (both gravitational and inertial )
LGM	Large Gravitational Mass or $M_{LGM}$
ESCE	Energized Space with Characters of Energy or Kinetic Energy as inertial mass in kJ equivalent to $\Delta_{ESCE} = ESCE/c^2$ [Ton ]
$M_{HM}$	Sum of $M_0 + \Delta_{ESCE}$ or Heavy Mass (also called physical mass)