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Essential considerations regarding the contribution of Mathematical Sciences to the description of the physical phenomena.

Differentiation and integration are operations of calculus which contain the concept of inversion making possible to extend it to various functions, and this is an extension of the mathematical concept of operation and its inverse (ex: opposing the sets of positive numbers to the set of negatives, opposing subtraction to the addition, division to multiplication and opposing to functions such as the logarithms and the trigonometric functions their inverse or opposite function).

In physics, this concept of inversion is present but, since we deal with operations regarding the natural world, and we are facing phenomena consisting of transformations which are absolutely associated to degradation, when a physical phenomenon is described through a mathematical/geometrical synthesis (that usually can be restricted to an expression of calculus) there is a physical non-return condition.

I mean that in gravitational conditions, we can describe the fall of an object, through purely mathematical tools but the movement of fall hides a transformation which cannot be reverted, a fact forcing us to establish that the tool which we use is a mathematical one but the phenomenon described belongs to physics (happens under the physical restriction that a gravitational phenomenon considering transformation is not returning the mass-energy transformed to its previous status).

This consideration pervades my theory of the Universal Dynamics.

When describing the gravitational phenomena, to which a physical mass can be subjected, we use two equal mathematical functions, the first at the beginning of the gravitational open cycle of transformation describing the phenomena involving absorption and transformation into neutronic mass inside the physical mass, of the pristine substance (the Ether/ESF) and causing the emergence of the gravitational field of depression of the ESF around the gravitational mass and the second at the end of the open cycle of transformation, when the physical mass subjected to internal gravitational transformation, expels the Heat accumulated which is absorbed by the ESF as dissipation.

These two equal functions are in analogical relation since the phenomena which they describe can be considered a physical inversion (the first representing absorption of the ESF by the physical mass and the other representing dissipation or absorption of Heat released inside the mass, through action of the gravity, by the ESF).

It is of note that, whereas in mathematics, the action of the intellect is pure and dissociated from the concept of transience and degradation, when measurements related to the physical field are associated to mathematics as a matter of necessity, the additional conditions are that physical substance (subject of our description through mathematical tools) is indestructible but subjected to a cycle of transformation-degradation.

The assumption that the Ether/ESF is absorbed from the portion of the gravitational mass (the neutrons), and transformed into more neutronic mass, cannot be verified directly, since the coefficient of absorption:

$$k = 4 \pi G$$

(where G is Newton's universal constant)

gives an excessively small value of transformation of ESF in neutronic mass per unit of time and the objects observed are always in a condition in which results almost impossible to obtain a reliable measurement.

For example, our sun absorbs about 18,634 Ton/sec (Ton of ESF in mass-energy equivalent) which is a value requiring measurement of a variation of the neutronic mass of the sun of the order of $\sim 1 \text{ e } -24 \text{ sec}^{-1}$.

If now we assume that the same gravity which causes the above value of absorption, causes us to calculate theoretically the dissipation of $6.52 \text{ e } 6 \text{ Ton/sec}$ in mass equivalent, and that such a value is closely verified through measurement, we can use this result to conclude that the hypotheses are exact, and the absorption of the ESF by the physical mass of the sun is a true phenomenon and takes place, and the value calculated for the absorption is indirectly verified through the measurement of the dissipation alone.

I managed to justify and describe through mathematic functions, the concatenated physical passages or transformations-degradations taking place inside an object of large physical mass, which are tied up to the internal work of its own gravity, and reached the conclusions that the final transformation-degradation inside the said object, consists of internal production of Heat that comes out of it as dissipation.

The formulation reflecting the absorption and the one reflecting the dissipation are the same but in the first case the coefficient of absorption k is reflecting the constant of Newton whereas in the second case k_{el} (the electromagnetic constant) is represented by the following formulation:

$$k_{el} = \frac{1}{2} a(R) \frac{v(R)_0^2}{c^2}$$

The above k_{el} is strictly derived from the physical characters of the mass under observation but is also strictly dependent from the gravitational value k , as can be verified, since if M_{LGM} is the mass of the sun:

$$a(R) = k \frac{M_{LGM}}{4\pi R^2}$$

and

$$v(R)_0^2 = k \frac{M_{LGM}}{4\pi R}$$

We then have that, at the surface of the sun, in mass equivalent, the absorption of ESF by the mass M_{LGM} of the sun inside which is transformed into neutronic mass, is expressed in the following terms:

$$\Delta M_{ESF} \Rightarrow \Delta M_{NEUTRONIC} = k \frac{M_{LGM}}{c^2} \cong 18,634 \frac{\text{Ton}}{\text{sec}}$$

and also at the sun surface, the dissipation of Heat produced inside the M_{LGM} which now is absorbed by the ESF is also expressed in the following terms as mass equivalent:

$$\Delta M_{HEAT} = k_{el} \frac{M_{LGM}}{c^2} \cong 6.52e6 \frac{\text{Ton}}{\text{sec}}$$

I reserve to demonstrate, on future papers, that the value of k_{el} as presented here is correct, together with various other demonstrations and conclusions which here can be considered unnecessary.

(search on GOOGLE under [ruggeri8](#) or open the site www.wbabin.net and search [ruggeri8](#), where the analogies between absorption and dissipation ruled by gravity are presented).

In the other hand, what affirmed above (i.e. that a mathematical function of the same type is ruling the beginning and the end of the gravitational phenomena surrounding a physical gravitational mass), takes shape and we can say that inversion of functions in Mathematics, when we come to the physics of the gravitation is not an option (such for example the hypothesis that the physical phenomena associated to gravity can be described through reversion of the mathematical description).

I must add that in the particular branch of physics regarding gravitational phenomena, we are observing an analogy constituted by two different physical phenomena in opposition represented by the same mathematical function which represents an analogy.

We can explain this saying that absorption of substance by a physical mass as interaction between ESF and physical mass is directly proportional to the coefficient of absorption k and the opposed physical function (or phenomenon) called dissipation, is interaction between physical mass and ESF also ruled by the coefficient of absorption

k_{el} of the Heat released from the mass and absorbed by the ESF, in a context of consecutive transformations-degradations.

Whereas the basic phenomenon of absorption based on the universal constant $G = k/4\pi$ in itself defines the time.

What about the pendulum and the borehole?

We can say that, up to now the classic mechanics have described the movement with mathematical functions of time,(space, velocity, acceleration) and have described the movement against gravity with mathematical inversions without taking into account that due to the fact that we have transformation-degradation in both cases (when the movement happens in favor of gravity and when, consecutively, it happens against gravity) physical inversion of transformation is an impossible feature.

Since physical transformations are irreversible, the kinetic mass-energy developed along the first phase (in favor of gravity) is not retransformed into neutronic mass but is transformed into another form of gravitational-inertial mass, the one constituting the glue keeping together the neutrons inside the atomic nuclei (the gravitational mass which in my theory has been called M_{ESCM} and is a mass-energy physically close to the neutronic mass representing presence of it but in a degraded status, see fig. 2 below).

Here again we must observe that Mathematical functions of calculus are of help but we are made aware that behind the inversion of mathematic function, which is purporting to explain the physical phenomenon as an inversion of physical characters returning the mass to the original status, is hidden an irreversible transformation of physical mass character which is explained through the necessity that physical gravitational transformations of substance are from a status of existence to another subjected to degradation and cannot be reversed.

Note: the borehole is an intuitive exercise devised to improve the understanding of the concepts presented here and consists of an ideal well going through the center of the gravitational mass all the length of its diameter inside which to use the language of classic physics the “potential energy of a falling object is transformed into kinetic energy” and the transformation reaches a maximum value in the center returning to have potential energy when the object has run the whole diameter.

Note: the learned reader will have time to appreciate that though the results of classic mechanics are not really affected when the phenomenon is restricted to simple movements of masses inside the gravitational field (and for the everyday necessities, we can carry on describing approximately acquisition of what has been defined Potential Energy and loss of it through freefall), when movements are of fast periodical nature over long time intervals or affect enormously large masses subjected to their own internal compression generated by gravity, the transformations-degradations above described cannot be overlooked since they are at the base of the precession phenomenon and constitute the phenomena igniting the solar masses (the stars), in which dissipation is in function of their masses.

Below I have added three graphics, intended to facilitate the understanding of the concepts presented.

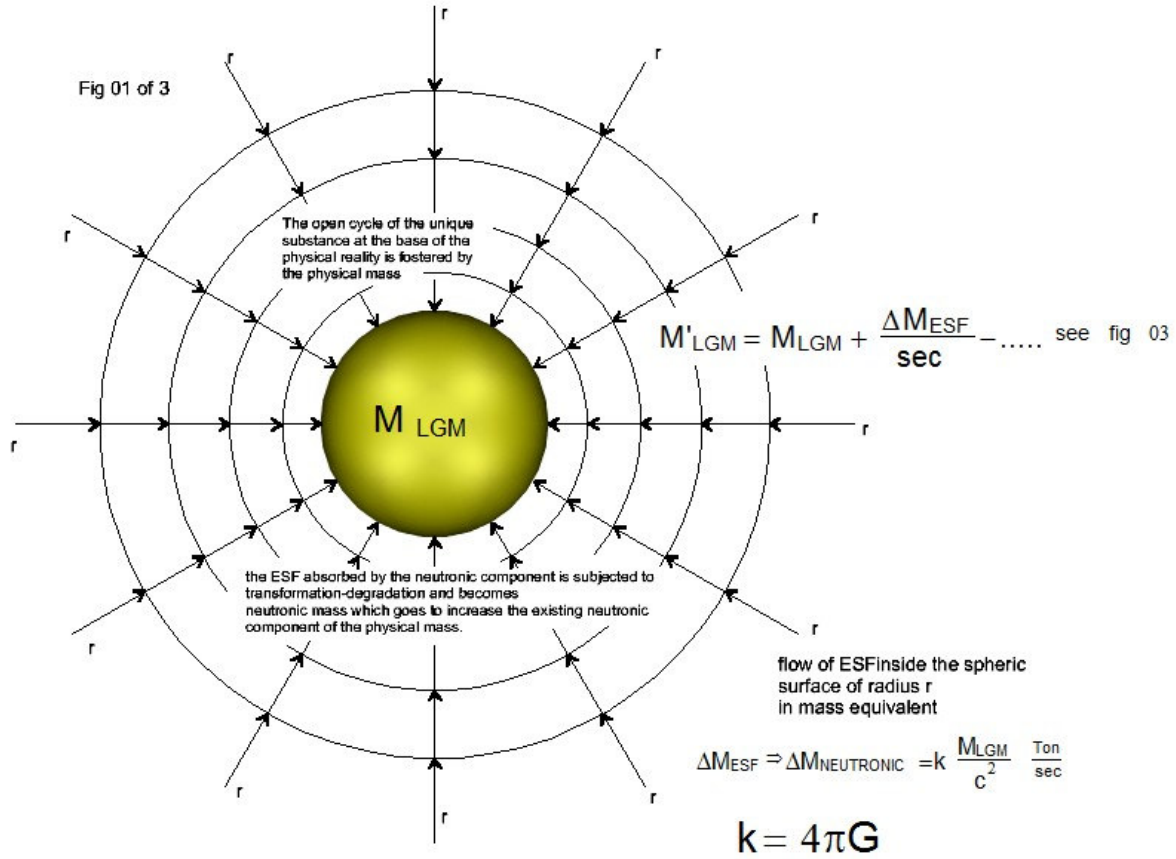


Fig 02 of 3

