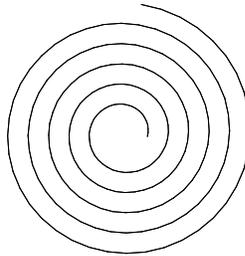Antonio Ruggeri Dr. Ing.
Roma University (Italy)
modexp@iafrica.com

EX SPIRA AQUA MUNDA

In memory of my son Giovanni

8 December 2014

In view of the Law of equivalence, the Force in Newton [N] is to be replaced by Force in Joule [J]

Obsolescence of the Force in [N] and substitution of it with Force in Joule [J] , in view of the Law of equivalence and in view of acceptance of presence in space of the Ether/ESF as substance in a status equivalent to mass of density $\rho=1$ [Ton/m^3].

My criticism is about the fact that in the period (more than a century) since the Law equivalence was enunciated, the most humble, but significant, features to be investigated, were overlooked.
I refer, at first, to the way in which the observations of the natural phenomena were carried on, starting from Kepler and Newton.
From Newton on since the Force was a concept derived by him as result of geometric observations tied up to the time measurement of the revolution of the

bodies concerned, there was no way and no reason to question the explanation of its physical nature given by Newton.

Search Google under:

Things took a turn more than a century ago when the formula of equivalence mass-Energy was divulged by Einstein and we Engineers in the field of Theoretical Mechanics (mainly due to the stubborn presumption of the establishment that there was nothing to add in that field) haven't been able to benefit of such advance.

The attitude was (and still is) that what Newton said in regard to the Force was an untouchable Dogma.

As matter of fact, presently, the Force as conceptual entity in the system S.I. carries his name.

This situation now is bound to change since I found the way to modify the old Theoretical Mechanics introducing in their formulas of empirical nature, regarding the gravitational phenomena, the concepts assumed in the UDS (Universal Dynamic Science) which are containing the new advance (i.e. the formula of equivalence of mass-Energy by Einstein).

To do so it was necessary to establish, (through considerations of cause-effect) that inside a mass M of gravitational characters, subjected to the gravitational field of a larger mass M_{LGM}, the emergency of movement was due to internal transformation-degradation in M of a small amount dm(t) (gravitational since belonging to M) into an equal amount dm(t) of inertial mass.

This inertial dm(t), belonging to M, having the capacity to be absorbed by the Ether/ESF as substance equivalent in expansion along the direction of depression and flow of the gravitational field (caused by the mass M_{LGM} in the Ether/ESF) would generate movement of M producing a consequent gradual expansion in time of the volume V(t) occupied by M along a time interval $\Delta t=t-0$.

The movement taking place in time can be described as presence of an elastic process of expansion (opposed second after second by the presence of Ether/ESF itself) in which thanks to the gravitational depression in the Ether/ESF a transformation-degradation due to ablation of the mass M of a dm(t) is on-going, and increasing in time, due to the fact that the said dm(t) is expanding into substance absorbed in that status from inside M by the Ether/ESF.

Since the said transformation-degradation is followed by expansion of presence of the volume V of M, (represented by V(t)) in the space occupied by the Ether/ESF, along the time interval during which we observe the phenomenon, there is no way in which we can use the Newton as Force but we have to consider that Force in all its manifestations (Static or Starter, Dominant-Dynamic or Power over the unit of time and Total Force or kinetic Energy over the time interval Δt) is to be referred in units of Energy (the Joule, since that is the status in which is absorbed by the Ether/ESF) whereas in place of the distance, which in our present way of understanding multiplied by the Newton ($[N*m] \equiv [J]$ since $F*\Delta L \equiv [N*m]$) we have to substitute the expression:

$$E(t) = F_{Tot} = F_{Stat} \frac{V(t)}{V_{(t=0)}} \quad [J]$$

Whereas the ratio:

$$\frac{V(t)}{V_{(t=0)}} \quad [-]$$

Replaces as a pure number the quantity currently interpreted as distance, measured along the time t , since physically we had a transformation-degradation of a dm(t) into its equivalent in Joule subjecting the mass M to occupy a volume V(t) after a time t has elapsed .

Note: in the above equation the Force for t=0 coincides with the static Force but is to be noted that is still a Force in units of Energy [J] , whereas for t=Δt (from t=0 to t) the same expression gives the Total Force or kinetic Energy belonging to M at the time t along the freefall of M inside the gravitational field of the M_{LGM}.

This new approach requires, by necessity, the acceptance of presence of substance of specific characters (the Ether/ESF, to be defined as substance equivalent to mass of density ρ=1 [Ton/m^3]) subject to absorption by the gravitational mass M_{LGM} and defining with the effects of this absorption the gravitational field in it, which is cause of Potential and Factual transformation of a dm(t) belonging to the mass M immersed in it into substance in expansion, which in turn being absorbed, by the Ether/ESF, along the direction of depression and flow of the gravitational field gives us an answer to what really is the Energy belonging to a mass.

$$1) \qquad dm(t)c^2 = E(t) = F_{Tot}$$

In conclusion, in the universal reality, the Ether/ESF is the absolute presence generating the mass M_{LGM} (and increasing it since absorbed from the mass, any mass including the M_{LGM} , in a status equivalent to mass and simultaneously transformed into gravitational mass inside it) and responsible for the intermediate transformation-degradation of mass in substance equivalent in expansion in a mass immersed in the gravitational field of the said M_{LGM} , which in turn simultaneously absorbed by the Ether/ESF, generates what is perceived as Energy E(t)=F_{Tot} belonging to M, see the 1) above, being the E(t), substance equivalent to the dm(t) belonging to M.

Ultimately, when the transformation-degradation of gravitational mass inside the gravitational field is internal to the M_{LGM}, being movement in space impeded, the substance released through internal elastic process in time is coming out of the atoms of the M_{LGM} as Heat but in a free status of existence under compression (since the release takes place inside the M_{LGM} and said Heat is continuously migrating at the surface of the M_{LGM} where is absorbed (by the Ether/ESF), inside the space, in which it is always present, as dissipation.

This new approach is justifying Newton's 3rd Law applied to the Force in Joule (any Force, Static, Dominant-Dynamic Force or Power and Total Force or kinetic Energy, so far that over a mass subjected to any of them is present a Force in opposition supplied by presence of the Ether/ESF itself in the case of freefall or supplied in the

elastic phenomenon in which movement of M is impeded by the contact surface Force against the rigid surface below M.

So far the existing formulations, of empirical nature, are still valid and their application, made whilst taking into account this new approach, is bound to bring a new understanding to the mechanics of movement, what is important and must be pointed out is the fact that this new understanding will permit a terrific advance since a Force in units of Energy generated by absorption of an internal transformation-degradation in M of a dm(t) of gravitational mass into substance in expansion, inside M, changes the way in which the equations of equilibrium are presented, especially due to the fact that elasticity phenomena taken into account when inside an elastic mass impeded to move are related to a contraction in Space and when taken into account in a mass in movement inside the Ether/ESF are related to an expansion in time.

I only point out that elasticity phenomena cannot be treated satisfactorily without the acceptance of the internal transformation-degradation inside the gravitational field of Ether/ESF of mass moving in it, and subjected to ablation of a dm(t) belonging to it, into substance equivalent in expansion subjected to absorption by the Ether/ESF in the direction of the gravitational depression and flow.

Internal transformation-degradation due to ablation of a dm(t) is regulated by opposition of the Ether/ESF (according to Newton's 3rd Law) consisting of a Total Force $F_{Tot}=1/2\ Mv(t)^2$ in opposition to the transformation $dm(t)c^2$ whereas If the movement is cause of internal compression in a mass M impeded to move by contact with a rigid surface we still have internal transformation-degradation due to specific ablation ε over the unit of volume containing the mass at density ρ opposed by the interstitial mass in M.

Note: whilst in the Ether/ESF the elastic constant of expansion is $a=dv/dt$ in time, in the elastic mass the correspondent elastic constant of compression is $\varepsilon/1$ over the unit of volume in the direction of the gravitational depression and flow along which the Ether/ESF absorbs the Static Force.

Note: more pertinent explanations in future paper/s.

The nature of the Ether/ESF as perceived in the UDS

The Ether/ESF is the primary source of substance which after undergoing physical transformations-degradations, tied up to each other through a relation of cause and effect, is present in the Universe in various states of existence (constituting the Universal reality of the things).

The Ether/ESF in its primary status, is occupying the Euclidean space in a status equivalent to mass having density $\rho=1$ [Ton/m^3] corresponding to an equivalent amount in units of Energy $E_{ESF} = c^2$ [kJ/m^3] (in absolute if we assume that the system is immobile and, alternatively, in regard of an Observer inside its own system in accordance with the relativity theory), nevertheless this is not all there is to say since if the analogy with the mass is correct its makeup has to be considered to consist of interstitial mass (since the Ether/ESF is in a status comparable to mass of density $\rho=1$[Ton/m^3]) between indefinable particles (IP) of mass (which we are not capable to observe, having a supposed density:

$$\rho_{IP} = c^2 \left[\frac{Ton}{m^3} \right]$$

(a neutron like dust) which given the minuscule size can move unimpeded through the Euclidean space with the exception that at ordinary velocities v<<c the indefinable particles are stopped from entering the atomic entities by a barrier constituted by the surface of the atomic entities made up of the same neutron-like substance constituting the Ether/ESF .

Note: this doesn't stop the said indefinable particles from entering the atomic nuclei of the masses absorbed in a continuous constant and permanent basis as neutronic components.

Note: the above note concerns a description, through the gravitational Law, of the gravitational phenomenon of absorption of the Ether/ESF by the masses present in the Universe transforming/degrading it into ordinary mass at a rate fixed on time.

The volume occupied by these particles, in the Euclidean Space, (V_{ES})

$$V_{IP} = \frac{V_{ES}}{c^2} \ m^3$$

It will correspond to an equivalent mass of density ρ_{ESF} = 1 [Ton/m^3] when distributed inside the unit of volume of the Euclidean Space. This means presence in the Euclidean space of highly dense undefined particles surrounded by a nearly vacuum environment in which the interstitial volume between the indefinable particles IP is containing substance at density $\rho \sim 0$.

These IP (Indefinable Particles) stopped from penetrating the surface of the atomic entities by their atomic surface made of the same substance and interspersed in a nearly vacuum environment occupied by interstitial substance (mass) of density $\rho \sim 0$ [Ton/m^3] and of nature similar to the said particles, since Nature is characterized by "horror vacui".

Substance present in the Euclidean Space as Ether/ESF with these characters can no doubt take a place in the phenomena observed, and up to now not explained, such as the gravitational one established by the capacity of the masses present in the universal reality to absorb the Ether/ESF as substance in a status equivalent to mass and consisting of developments of a field of depression and flow of the Ether/ESF in it (the gravitational field) in the mentioned status (as mass equivalent at density ρ=1[Ton/m^3] as mentioned above) .

Since a mass M immersed in the gravitational field of a Large Gravitational Mass (M_{LGM}) is reacting through internal transformation-degradation (Potential or Factual) releasing a part, dm (Potential) in the static case or dm(t) in case of movement, inside it as substance equivalent in expansion, the phenomenon caused by the simultaneous capacity of absorption by the Ether/ESF of this substance equivalent determines the emergency inside M of what we perceive as Directional Energy belonging to a mass M (Static and Dynamic Forces) or the establishment inside a mass M_{LGM} of a self supporting phenomenon, generated by its own gravity, of elastic origin, releasing internally to it (in time) a part dm/sec of it transformed into equivalent substance in expansion simultaneously absorbed as Energy in the Status of Heat by the Ether/ESF whilst inside the said M_{LGM} and becoming dissipation once

flowing out of the M_{LGM} etc...

  These phenomena will be better described in upcoming papers but it is also necessary to mention that substance dm (in a status inertial present inside the atomic nuclei in which has the capacity to glue together the protons and the neutrons can be expelled from them through ad hoc processes forcing the atoms to release it (atomic reactions) etc..
   Note: substance expelled by a mass (large and small) through internal transformation-degradation, or through friction with other masses etc. momentarily is present inside it as Heat and through reduction of internal compression, provided at any time by presence of Ether/ESF outside the atoms of the mass (any mass present in the Universe) absorbing it away from the mass, once reaches the surface of the said physical mass is dissipated away from it as pure Energy in the Ether/ESF.

  The gravitational absorption of Ether/ESF by a mass M_{LGM} causing presence of a field of depression and flow (surrounding it) is the source in a mass M immersed in it of the gravitational phenomena generating Forces (Static/Starter and Dynamic/Dominant, Total Force or kinetic energy etc…) as phenomena associated to release "through ablation" (during movement) of substance equivalent in expansion along the gravitational depression and flow of the Ether/ESF from a mass M (residing inside the said field, as described), which absorbed by the Ether/ESF is generating the said Forces.
  Unimpeded movement of a mass in the Euclidean Space for v<<c , given the extreme rarefaction of the Ether/ESF since is due to absorption by the Ether/ESF of substance contained in the mass M, is unstoppable and can be considered to take place in frictionless conditions.

   It results impossible to prove the existence of the Ether/ESF by direct physical observation of it but we can deduct without doubts its presence in base of its physical effects on the mass.
  The conclusion is that we are facing an open cycle of transformation-degradation, evolving in time, starting with the absorption of the Ether/ESF as gravitational mass by a gravitational mass M_{LGM} which in turn (if it is Large enough) is internally subjected to transformation-degradation ejecting substance in the status of Heat which being in a status of compression flows towards the surface of the mass M_{LGM} where it through absorption by the Ether/ESF is dissipated inside it (as discussed).
  The Ether/ESF is having the characters of a mass of density $\rho=1$ [Ton/m^3] but in actual fact consisting of an extremely rarefied cloud of substance in the status of

neutron mass (at density $\rho_{IP}=c^2$ occupying a volume $V_{IP}/V_{ES}=1/c^2$ inside the unit of volume [1m^3] of Euclidean Space) whilst the said indefinable particles (IP) are surrounded by interstitial mass extremely rarefied of density $\rho\sim0$.
   Note: Heat is an intermediate status of the inertial mass dm non gravitational under compression between the atoms of the mass into which it resides but free to be absorbed by the Ether/ESF, whilst flowing to the surface of the said M_{LGM} where it results absorbed as dissipation.
 Note: the concept of absorption by the Ether/ESF of substance equivalent in expansion referred as Energy which can belong to a mass or as Energy in a free status compressed between the atoms of a mass, (immersed in the Ether/ESF) doesn't require a notion of loss (friction) therefore absorption by the Ether/ESF , of

substance expanded if not impeded by a physical obstacle, can go on forever as a movement of a mass in the Ether/ESF or as flow of substance in a fixed direction or as a flow of substance across a spherical surface.

 Absorption, by the atomic matter, of the indefinable particles (IP) of which the Ether/ESF is mainly made, is followed by the transformation-degradation of them into the neutron mass at the center of the atomic entities, therefore through a "gravitational" Law of absorption valid at Universal level the Ether/ESF is going to enrich the neutron mass of the atoms.
  The Ether/ESF can then be envisaged as a large amount of mass equivalent residing in the Space (and entirely occupying it as a neutronic cloud filled with extremely rarefied interstitial mass wich in all respects satisfies our perception of vacuum.
  Though the Ether/ESF is constituted of particles existing at the highest possible status of density these particles are physically eluding our observation but nevertheless are endowing the space occupied by them of physical characters to which follows presence of physical phenomena.
  If we express the presence in space of the Ether/ESF in terms of equivalence, for the unit of volume according to Boyle's Law will be:

$$p \cdot v = c^2 \cdot 1 \left[\frac{kJ}{m^3} \right]$$

 This in terms of mass equivalent, inside the unit of volume, becomes:

$$\frac{p \cdot v}{c^2} = 1 \left[\frac{Ton}{m^3} \right]$$

  In reality (in respect to Boyle's Law) we have in the space extremely dense particles of mass within an environment practically empty which as it is results empty to our observation, but since the average density of that substance as mass is:

$$\rho = 1 \frac{Ton}{m^3}$$

it will behave as if there was in space a mass at that density, with the added notion that the equivalent value of Energy (when transformation-degradation of that substance contained in the unit of volume of 1 m^3 as a neutronic cloud is complete is:

$$E_{ESF} = c^2 \left[\frac{kJ}{m^3} \right]$$

  A Large Gravitational Mass M_{LGM} is by definition a Large mass made almost entirely of mass capable to absorb (gravitational), in a continuous fashion in time, the all pervading Ether/ESF, whose density is supposed to be equivalent to $\rho=1$ [Ton/m^3] and transforming it into gravitational mass going to increase the neutron/proton mass present inside the atomic entities, in it the amount ΔM_{ESF} in units of mass absorbed

in the unit of time by the mass M_{LGM} is :

$$A) \qquad \Delta M_{ESF} = \frac{K \cdot M_{LGM}}{c^2} \left[\frac{Ton}{sec} \right]$$

Whereas:

$$K = 4\pi G \quad \left[\frac{kJ}{Ton \cdot sec} \right]$$

is the constant of absorption of substance in units of Energy in the unit of time by the unit of gravitational mass in the M_{LGM}, (obtained using the historic Newton's Universal gravitational constant G=6.673 e-8).

For the Sun the amount ΔM_{ESF} of mass absorbed each second from the surrounding Ether/ESF and transformed-degraded into gravitational mass is:

$$\Delta M_{ESF} = \frac{4\pi \cdot (6.673e-8) \cdot 2e27}{(3e8)^2} = 18,634.5 \left[\frac{Ton}{sec} \right]$$

The above amount ΔM_{ESF} describes absorption of substance per unit of time, in a status equivalent to mass, means flow of substance absorbed as neutron mass inside the mass M_{LGM} (expressed above in units of ordinary gravitational mass in Ton) and as consequence of the fact that the Ether/ESF occupying the Euclidean Space present in a status in which must be respected conservation, the constant absorption in time, above mentioned, is cause of presence of continuous depression of the Ether/ESF as substance a condition which is enabling its passage in a continuous base and in absence of friction since the flow takes place through absorption by the gravitational mass M_{LGM} of the substance, of which the Ether/ESF is made, and transformation-degradation, inside, it into mass in neutronic status accumulating inside the nuclei of the atoms of the M_{LGM}.

● FLOW - We have that the value of the substance in (A) in a status equivalent to mass is continuously flowing over concentric spherical surfaces of radius $\infty > r > R_{LGM}$ to join the mass M_{LGM} (at the surface in R_{LGM}) and as such flowing (absorbed) over its spherical surface, the value of the flow over the unit of surface at the sphere of radius r is:

$$B) \qquad \frac{k M_{LGM}}{4\pi r^2 c^2} \left[\frac{Ton}{m^2 sec} \right]$$

The value in (A) is related to an amount of substance in a status equivalent to mass which, as said above, has to be extracted from a reservoir of universal infinite

dimensions containing, to the full, substance (the Ether/ESF) of density $\rho=1$ [Ton/m^3] all present all over the Euclidean space.

Constant flow in these conditions, in <u>respect of conservation</u>, is by necessity tied up to depression on the said substance in the point of absorption and therefore the depression of such substance at the surface of the mass M_{LGM} has to be the sum of all the depressions from the said surface to infinity.
At the same time since we are in presence of absorption of Ether/ESF, substance which can be represented in status equivalent to presence of mass, of density $\rho=1$ Ton/m^3 see the (A) above), and since the absorption of the Ether/ESF as substance in a status equivalent to mass over the unit of spherical surface of radius $r \geq R_{LGM}$ is of <u>constant nature</u>, (taking place over spheres of variable radius r), it can be represented by a value of constant flow depending from the radius r per unit of time over the unit of spherical surface (at $\infty > r \geq R_{LGM}$) see the (B) above.
Note: to have constant flow of absorption over the surface of concentric spheres is necessary to have a flow, per unit of spherical surface, (as in B) inversely dependent from the surface of the sphere of radius r.

●DEPRESSION - Absorption by the central mass M_{LGM} of substance residing in the Euclidean Space (as above described) is the cause of constant flow of Ether/ESF (its description must respect the condition of continuity of flow of Ether/ESF in a context of conservation see A above) whereas depression is to be interpreted as sum of all the effects of absorption at r along the radial line for $\infty > r \geq R_{LGM}$ see the (B) above:

Note: the description of the effects due to absorption of substance Ether/ESF (in its condition, which can be considered similar to mass equivalent) inside the mass M_{LGM} was treated (although not in a completely satisfactory manner see:
Ruggeri Research Papers Astrophysics/Downloads/2278
I intend to review the subject in future

Being the:

$$\left(\frac{dp(r)}{dr}\right)\left[\frac{Ton}{m^3 m}\right]$$

In conditions of absorption constant in time the value of depression over the unit of volume (containing 1m^3 of a <u>substance</u> having the density of mass $\rho=1$ along the unit of length of radial distance $r \geq R_{LGM}$), is also invariable (for r = const, integrating the dp(r)/dr from the point of observation at $\infty > r \geq R_{LGM}$:

$$p(r)_{ESF} = C_{onst} - \int_r^\infty \frac{dp(r)}{dr}dr = p_0 - \int_r^\infty \frac{kM_{LGM}}{4\pi r^2 c^2}dr = p_0 - \frac{kM_{LGM}}{4\pi r\ c^2} =$$

For $p_0 = 1$ all over the Ether/ESF

$$= p_0 - \Delta p(r)_r^\infty = 1 - \frac{v(r)_0^2}{c^2} \left[\frac{\text{Ton}}{\text{m}^3} \right]$$

(where $v(r)_0$ coincides with the value of the orbital velocity at distance r from the center of the mass M_{LGM}) .

A mass M is moving at v=const velocity in the Ether/ESF in pristine conditions (undisturbed status away from other masses), in it, presence of substance equivalent expanded since in a status of inertial mass (only) is absorbed by the Ether/ESF in the direction of v, consequently, M which occupies physically a volume V as gravitational mass of density ρ, at any time must be considered expanded in space of a distance v m/sec , therefore in its movement it occupies a volume V'=Vv every second of time) whilst subjected all the time to specific depression v:

$$dmc^2 = (\rho \cdot dV \cdot c) \cdot c = (\rho Vv) \cdot v = M \cdot v^2$$

It is the inertia of the gravitational mass M=ρV which reduces (brakes) the velocity of absorption by the Ether/ESF to v which for the inertial (non gravitational) dm=ρdv would have been c.

Nevertheless the Ether/ESF develops (inside the Euclidean Space into which it is present, in respect to Newton's 3rd Law) a total Force ($-F_{Tot} = -Mv^2$) against M in movement at velocity v inside it.

The $p(r)_{ESF}$ above is, then, the specific (over the unit of volume in m^3) total value of compression in the gravitational field of the Ether/ESF as substance equivalent to mass of density ρ=1 [Ton/m^3] taking into account the depression generated in it by the mass M_{LGM} for ∞>r ≥ R_{LGM} expressed as depression of substance from a status comparable to 1m^3 of mass equivalent of density   ρ=1 [Ton/m^3]

Note: The expressions of <u>flow</u> ∞>r ≥ R_{LGM} of Ether/ESF in a status equivalent to mass of density ρ=1[Ton/m^3] across the unit of spherical area at distance r from the center of the M_{LGM} and of <u>depression</u> in the Ether/ESF, also at r over the unit of volume along the unit of radial length are the same but we must be aware of their different physical meanings (flow of substance, the Ether/ESF, in the unit of time, towards the M_{LGM} which absorbs it in [Ton/(m^2sec)], is equal in value to the depression [Ton/(m^3m)] per unit of radial distance induced in the Ether/ESF under original compression p_0=1 by absorption of it from the central mass at the radius ∞>r ≥ R_{LGM}.

● STATIC FORCE:
 Depression induces in M, impeded to move, whilst immersed inside the gravitational field of depression and flow of the Ether/ESF generated by a mass M_{LGM} a <u>Potential</u> of transformation-degradation of <u>mass</u>, into substance equivalent which tends to expand, but cannot, since the mass is impeded to move, and simultaneously is absorbed by the Ether/ESF in the same direction of the gravitational depression and flow of it), generating this way in M (impeded to move) a Static Force F_S .

In a mass M of density ρ the value of depression originated by the field of depression

of the Ether/ESF [expressed in Ton/(m³m)] is given by the following Potential of transformation-degradation, developed by absorption by the Ether/ESF over M and resulting in presence of a Force without subsequent development of transformation-degradation due to movement (ablation) along the gravitational field of depression and flow, (except if there is an intermediate elastic phenomenon introduced by the elasticity of the mass M):

$$F_{Stat} = Ma(r) = M\frac{dp(r)}{dr}c^2 = M\frac{kM_{LGM}}{4\pi r^2}\ [kJ\,]$$

Substance equivalent, being absorbed in that condition (absence of movement) by the Ether/ESF, satisfies the intuitive concept that the mass M is subjected to a Static Force.
Being the mass M impeded to move such absorption in it by the Ether/ESF is only Potential duly generating the static Force F_{Stat}.

Note: the gravitational component of the mass here above is assumed to be the whole mass M_{LGM} and is also assumed that the system is in an absolute status of pure immobility (I overlook for the moment the relativistic case in which the system as a whole being endowed of inertial mass dm is endowed of movement).

Resuming: the Ether/ESF as substance in a status equivalent to mass is generating the gravitational field of depression and flow in the surrounding Ether/ESF, when absorbed by a gravitational mass M_{LGM} inside which is transformed-degraded into gravitational mass, but the Ether/ESF is also endowed of the capacity to absorb from inside the mass which inside the gravitational field is subjected to transformation-degradation (Potential or Factual) the product of internal transformation-degradation of mass into substance equivalent in expansion.
Such absorption is resulting in our perception that the mass containing that product is endowed of Energy (Potential or Factual) which is in a status satisfying the definition of Force as well (as above…)
Since $G=k/4\pi$ substitution in the above expression of F_{Stat} gives us the well known Newton's formula (valid for a mass in orbit around the M_{LGM}) or for a mass resting over a rigid surface belonging to the M_{LGM} :

$$F_{Stat} = M\overrightarrow{a(r)} = G\frac{\overrightarrow{M \cdot M_{LGM}}}{r^2} = k\frac{\overrightarrow{M \cdot M_{LGM}}}{4\pi\ r^2}\ [kJ\,]$$

It is in kJ that we express the Static Force or Potential transformation of mass into substance equivalent in M immersed in the gravitational field of depression and flow of the Ether/ESF.

Ruggeri 57 ©   December 8, 2014